

Republic of the Philippines

Department of Transportation and Communication

Republic of the Philippines

**Detailed Design Study Report
of
New Bohol Airport Construction and
Sustainable Environment Protection
Project**

Final Report

Appendix-2: Design Calculation

(Volume-2/2)

Cooling load, Electrical and Nav aids

September 2013

Japan International Cooperation Agency (JICA)

Japan Airport Consultants, Inc. (JAC)

Nippon Koei Co., Ltd. (NK)

NJS Consultants Co., Ltd. (NJS)

Joint Venture

APPENDIX-2

DESIGN CALCULATION-2

1. Cooling Load Calculation

- 1) Passenger Terminal Building
- 2) Control Tower and Operation & Administration Building

2. Electrical Calculation

- (1) Load Calculation
- (2) Voltage Drop Calculation
- (3) Illumination Calculation

3. NAVAIDS Calculation

- (1) AGL Design Analysis
- (2) ANS Design Analysis

1. COOLING LOAD CALCULATION

- 1) Passenger Terminal Building
- 2) Control Tower and Operation & Administration Building

1) Passanger Terminal Building

Project: New Bohol International Airport and Sustainable Environment Protection (PTB)
 Subject: Cooling Load Calculation
 Date: 09/09/2013

Cooling and Ventilation Load Calculation																			
Item No.	Room	Room Number	Type of AC System	Total Floor Area (sq. m.)	Ceiling Height (m.)	Ceiling Area (sq.m.)	Wall Area(sq.m.)	Occupancy m ² /Person	Person	Lighting (w/sq. m.)	Electric Eq'ment (w/sq.m)	Eq'ment (kw)	Fresh Air Flowrate ASHRAE 62.1 -2007 (lps)		Temperature Setpoint (Celsius)	Calculated Cooling Capacity			
													Sensible Heat (w/person)	Latent Heat (w/person)		Total Coil Load (kw)	Sensible Coil Load (kw)	PAHU Cooling Sensible Load (kw)	
Ground Floor																			
1	Airline Office 1	182	Full	9.02	2.7	9.0	0.0	5	2	25	40		64	67	15	24°+/- 1°	1.2	0.7	0.6
2	Airline Office 2	183	Full	9.02	2.7	9.0	0.0	5	2	25	40		64	67	15	24°+/- 1°	1.2	0.7	0.6
3	Airline Office 3	183-a	Full	9.02	2.7	9.0	0.0	5	2	25	40		64	67	15	24°+/- 1°	1.2	0.7	0.6
4	Airline Office 4	184	Full	9.02	2.7	9.0	0.0	5	2	25	40		64	67	15	24°+/- 1°	1.2	0.7	0.6
5	Airline Office 5	185	Full	9.02	2.7	9.0	0.0	5	2	25	40		64	67	15	24°+/- 1°	1.2	0.7	0.6
6	Airline Office 6	185-a	Full	9.02	2.7	9.0	9.8	5	2	25	40		64	67	15	24°+/- 1°	1.2	0.8	0.6
7	A.O.D.	127	Full	23.63	2.7	23.6	46.8	5	5	25	40		64	67	39	24°+/- 1°	3.4	2.1	1.8
8	Bank	145	Full	19.40	2.7	19.4	40.6	5	4	25	40		64	67	32	24°+/- 1°	4.7	3.7	3.0
9	BHS In-line Screening Spot Cooling	178	Full	10.49	3.0	10.5	0.0		4	25	40		64	67	25	24°+/- 1°	3.9	2.8	1.4
10	BHS In-line Screening X-Ray	178	Full	14.09	3.0	14.1	34.5			25	40	4	64	67	13	24°+/- 1°	7.3	7.3	3.8
11	Bonded Store	141		16.45	2.7	16.5													
12	Car Rental	146	Full	19.82	2.7	19.8	42.4	5	4	25	40		64	67	33	24°+/- 1°	4.7	3.6	3.1
13	CASHIER	120	Full	6.15	3.0	6.2	15.7	5	1	25	40		64	67	10	24°+/- 1°	0.9	0.6	0.5
14	Check In Lobby	172		1108.02	4.6	1,108.0		4	277										
15	Check In Spot Cooling	172	Full	485.10	4.6	485.1	133.9	4	121	25	40	4	64	67	897	24°+/- 1°	118.7	85.3	38.7
16	Command & Control Office	132	Full	113.36	2.7	113.4	137.1	5	23	25	40	9	64	67	188	24°+/- 1°	23.8	17.4	14.7
17	Concession 01 (DUTY FREE)	111	Full	82.42	3.0	82.4	81.1	5	16	30	5		64	67	137	24°+/- 1°	9.5	5.1	4.3
18	Concession 02	103	Full	41.19	4.6	41.2	39.3	5	8	30	5		64	67	68	24°+/- 1°	8.7	6.5	5.6
19	Concession 04 (DUTY FREE)	118	Full	89.17	3.0	69.8	191.6	5	18	30	5		64	67	148	24°+/- 1°	10.4	5.6	4.9
20	Concession 05	159	Full	70.92	4.6	70.9	37.3	5	14	30	5		64	67	118	24°+/- 1°	7.9	4.3	3.6
21	Concession 06	152	Full	97.31	4.6	97.3	51.4	5	19	30	5		64	67	162	24°+/- 1°	10.8	5.6	4.9
22	Concession 07	161	Full	55.61	4.6	55.6	93.8	5	11	30	5		64	67	92	24°+/- 1°	9.2	6.2	5.3
23	Concession 08	163	Full	90.92	4.6	90.9	145.4	5	18	30	5		64	67	151	24°+/- 1°	16.0	11.2	9.7
24	Concession 09	181	Full	84.98	4.6	85.0	44.4	5	17	30	5		64	67	141	24°+/- 1°	9.8	5.3	4.4

Project: New Bohol International Airport and Sustainable Environment Protection (PTB)
 Subject: Cooling Load Calculation
 Date: 09/09/2013

Cooling and Ventilation Load Calculation																			
Item No.	Room	Room Number	Type of AC System	Total Floor Area (sq. m.)	Ceiling Height (m.)	Ceiling Area (sq.m.)	Wall Area(sq.m.)	Occupancy m ² /Person	Person	Lighting (w/sq. m.)	Electric Eq'ment (w/sq.m)	Eq'ment (kw)	Fresh Air Flowrate ASHRAE 62.1 -2007 (lps)		Temperature Setpoint (Celsius)	Calculated Cooling Capacity			
													Sensible Heat (w/person)	Latent Heat (w/person)		Total Coil Load (kw)	Sensible Coil Load (kw)	PAHU Cooling Sensible Load (kw)	
51	Passport Control 1	115	Full	157.09	4.6	157.1	81.2	3	52						24°+/- 1°				
52	Passport Control 2	150	Full	41.81	4.6	41.8	0.0	3	14	20	40		64	67	91	24°+/- 1°	10.8	7.0	3.0
53	QUARANTINE	106	Full	38.13	3.0	38.1	26.2	5	8	25	40		64	67	63	24°+/- 1°	5.4	3.3	2.8
54	Security Check Spot Cooling	158	Full	140.70	3.0	140.7	39.2	4	35	20	10	8	64	67	260	24°+/- 1°	19.8	10.3	12.3
55	Security Office	156	Full	15.98	2.7	16.0	10.1	5	3	25	40		64	67	27	24°+/- 1°	2.3	1.4	1.1
56	Security Office	157	Full	15.98	2.7	16.0	10.1	5	3	25	40		64	67	27	24°+/- 1°	2.3	1.4	1.1
57	Staff and Goods	151	Full	38.70	4.6	38.7	40.9	5	8	25	5	4	64	67	64	24°+/- 1°	7.9	5.7	4.7
58	Ticketing Office	144	Full	19.83	2.7	19.8	41.9	5	4	25	40		64	67	33	24°+/- 1°	4.7	3.6	3.1
59	Toilet 01	110		101.53	2.7	101.5													
60	Toilet 02	128		102.92	2.7	102.9													
61	Toilet 03	117		98.01	2.7	98.0													
62	Toilet 04	160		82.60	2.7	82.6													
63	Toilet 05	162		98.54	2.7	98.5													
64	Toilet 06	180		98.01	2.7	98.0													
65	Toilet 07	138		16.88	2.7	16.9													
66	Toilet 08 / Ramp Accom.	173		39.93	2.7	39.9													
67	Toilet 9	108		3.43	3.0	3.4													
68	Toilet 10M	122		1.86	3.0	1.9													
69	Toilet 10F	122		1.86	3.0	1.9													

Total Calculated Cooling Capacity =																662.1 kw		308.7
TOTAL OVERALL:																970.8 kw		

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

***COOLING LOAD CALCULATION
PASSENGER TERMINAL BUILDING***

PREPARED BY:

VVR ENGINEERING DESIGN SERVICES

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

SPACE INPUT DATA

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

Airline Office 182

1. General Details:

Floor Area **9.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	9.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **9.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

Airline Office 183

1. General Details:

Floor Area **9.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	9.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **9.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

Airline Office 183-a

1. General Details:

Floor Area **9.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	9.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **9.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

Airline Office 184

1. General Details:

Floor Area **9.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	9.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **9.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

Airline Office 185

1. General Details:

Floor Area **9.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	9.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **9.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

Airline Office 185-a

1. General Details:

Floor Area **9.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	9.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **9.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **9.8** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

AOD

1. General Details:

Floor Area **23.6** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	23.6	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **23.6** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **46.8** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

BANK [142]

1. General Details:

Floor Area **19.4** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	20.3	20	0	0

3.1. Construction Types for Exposure E

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	19.4	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **19.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **40.6** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

BHS INLINE SCREEN spot

1. General Details:

Floor Area **10.5** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **4.0** People
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	44.4	0	0	0

3.1. Construction Types for Exposure NE

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	10.5	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **10.5** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

BHS Xray

1. General Details:

Floor Area **14.1** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	14.1	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **14.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **34.5** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **0.0** Person
Activity Level **User defined**
Sensible **0.0** W/person
Latent **0.0** W/person
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **4000** W
Schedule **EQUIPMENT**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CAR RENTAL [143]

1. General Details:

Floor Area **19.8** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	21.0	20	0	0

3.1. Construction Types for Exposure E

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	19.8	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **19.8** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **42.4** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CASHIER

1. General Details:

Floor Area **6.2** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	6.2	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **6.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **15.7** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CHECK-IN spot cool [157]

1. General Details:

Floor Area **485.1** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	40.0	0	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	485.1	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **485.1** m²
Total Floor U-Value **0.568** W/(m²-°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²-°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **146.3** m²
U-Value **0.980** W/(m²-°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

COMMAND&CTRL OFFICE[129]

1. General Details:

Floor Area **113.4** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	113.4	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **113.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **137.1** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **9000** W
Schedule **EQUIPMENT**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 01 [111]

1. General Details:

Floor Area **82.4** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	82.4	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **82.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **81.1** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 02 [105]

1. General Details:

Floor Area **41.2** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	43.7	43	0	0

3.1. Construction Types for Exposure E

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	41.2	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **41.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **39.3** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 04 [125]

1. General Details:

Floor Area **89.2** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	89.2	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **89.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **191.6** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 05 [134]

1. General Details:

Floor Area **70.9** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	70.9	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **70.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **37.3** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 06 [123]

1. General Details:

Floor Area **97.3** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	97.3	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **97.3** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **51.4** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 07 [146]

1. General Details:

Floor Area **55.6** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	29.1	29	0	0

3.1. Construction Types for Exposure E

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	55.6	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **55.6** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **93.8** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 08 [148]

1. General Details:

Floor Area **90.9** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	61.0	60	0	0

3.1. Construction Types for Exposure E

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	90.9	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **90.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **145.4** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 09 [181]

1. General Details:

Floor Area **85.0** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	85.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **85.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **60.7** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 10 [163]

1. General Details:

Floor Area **68.5** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	68.5	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **68.5** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **141.7** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 11 [171]

1. General Details:

Floor Area **163.3** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	82.2	82	0	0
W	44.2	44	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure W

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	163.3	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **163.3** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **42.3** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

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7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CONCESSION 12 [154]

1. General Details:

Floor Area **81.2** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **30.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	44.2	44	0	0
NE	37.7	0	0	0

3.1. Construction Types for Exposure E

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure NE

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	81.2	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **81.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **42.3** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C

Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

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7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

COPY

1. General Details:

Floor Area **16.6** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **3000** W
Schedule **EQUIPMENT**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.6	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **16.6** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **30.9** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

CUSTOM OFFICE [112]

1. General Details:

Floor Area **16.5** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.5	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **16.5** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **76.8** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

DOMESTIC GATE LOUNGE[170]

1. General Details:

Floor Area **956.1** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	246.4	246	0	0

3.1. Construction Types for Exposure W

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	956.1	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **956.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **23.0** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **3.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

ELECTRICAL RM.2 [131]

1. General Details:

Floor Area **16.0** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **10.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **16.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Ceiling Partition**
Area **22.5** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

FOBS

1. General Details:

Floor Area **18.2** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	18.2	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **18.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **38.4** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

HOLD F

1. General Details:

Floor Area **5.2** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	5.2	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **5.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **6.9** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

HOLD M

1. General Details:

Floor Area **5.2** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	5.2	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **5.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **6.9** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

ICTS

1. General Details:

Floor Area **8.0** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	8.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **8.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **25.4** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

IMMIGRATION OFFICE [132]

1. General Details:

Floor Area **16.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **16.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **11.0** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

INT'L GATE LOUNGE [120]

1. General Details:

Floor Area **432.9** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	125.4	125	0	0

3.1. Construction Types for Exposure W

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	432.9	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **432.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **120.0** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **3.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

INTELLIGENCE

1. General Details:

Floor Area **16.1** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.1	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **16.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **48.2** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

LOST & FOUND BAGGAGE 109

1. General Details:

Floor Area **38.8** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	38.8	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **38.8** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **40.0** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

LOST & FOUND BAGGAGE 110

1. General Details:

Floor Area **38.9** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	38.9	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **38.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **40.0** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

MTG.

1. General Details:

Floor Area **16.6** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **2.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **3000** W
Schedule **EQUIPMENT**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.6	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **16.6** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **30.9** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

office [159]

1. General Details:

Floor Area **14.1** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	40.5	0	0	0
W	40.7	0	0	0

3.1. Construction Types for Exposure NE

Wall Type **WALL ASSEMBLY**

3.2. Construction Types for Exposure W

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	14.1	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **14.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **41.8** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C

Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

OFFICE 1

1. General Details:

Floor Area **28.4** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **3000** W
Schedule **EQUIPMENT**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	28.4	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **28.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **13.0** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

OFFICE 2

1. General Details:

Floor Area **28.4** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	28.4	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **28.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **13.0** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

OFFICE 3

1. General Details:

Floor Area **28.4** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	28.4	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **28.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **13.0** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

OFFICE 4

1. General Details:

Floor Area **28.4** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	28.4	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **28.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **13.0** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

PASSPORT CONTROL 1 [119]

1. General Details:

Floor Area **157.1** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	37.7	37	0	0

3.1. Construction Types for Exposure W

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	157.1	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **157.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **81.2** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **3.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

PASSPORT CONTROL 2 [121]

1. General Details:

Floor Area **41.8** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	41.8	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **41.8** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

(No partition data).

2.4. People:

Occupancy **3.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

QUARANTINE

1. General Details:

Floor Area **38.1** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	38.1	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **38.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **26.2** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

SECURITY CHECK partial

1. General Details:

Floor Area **140.7** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **10.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	140.7	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **140.7** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **39.2** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

SECURITY OFFICE [133]

1. General Details:

Floor Area **16.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.0	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **16.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **11.0** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

STAFF&GOODS [122]

1. General Details:

Floor Area **38.7** m²
Avg. Ceiling Height **4.6** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	38.7	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **38.7** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **40.9** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol International Airport (PTB)
VVR Engineering Design Services

09/06/2013
01:02PM

TICKETING OFFICE [141]

1. General Details:

Floor Area **19.8** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62-2001**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **LIGHTING**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **EQUIPMENT**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	21.0	20	0	0

3.1. Construction Types for Exposure E

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	19.8	0	0

4.1. Construction Types for Exposure H

Roof Type **ROOF ASSEMBLY**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **19.8** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **41.9** m²
U-Value **0.980** W/(m²·°K)
Uncondit. Space Max Temp **28.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **28.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

(No partition data).

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

AIR SYSTEM INPUT DATA

CONCESSION 01 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:48PM

1. General Details:

Air System Name **CONCESSION 01**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **124** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 01 [111]	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

CONCESSION 01 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:48PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 799.4 L/s
Ventilation Airflow 115.4 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	719.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 02 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:48PM

1. General Details:

Air System Name **CONCESSION 02**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **124** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 02 [105]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CONCESSION 02 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:48PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 1051.6 L/s
Ventilation Airflow 57.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	946.5	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 04 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:48PM

1. General Details:

Air System Name **CONCESSION 04**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **125** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 04 [125]	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

CONCESSION 04 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:48PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 930.8 L/s
Ventilation Airflow 124.9 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	837.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 05 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:49PM

1. General Details:

Air System Name **CONCESSION 05**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 05 [134]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CONCESSION 05 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:49PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 667.3 L/s
Ventilation Airflow 99.3 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	600.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 06 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:49PM

1. General Details:

Air System Name **CONCESSION 06**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 06 [123]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CONCESSION 06 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:49PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 915.9 L/s
Ventilation Airflow 136.2 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	824.3	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 07 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:49PM

1. General Details:

Air System Name **CONCESSION 07**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 07 [146]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CONCESSION 07 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:49PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 1003.3 L/s
Ventilation Airflow 77.8 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	903.0	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 08 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:49PM

1. General Details:

Air System Name **CONCESSION 08**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **125** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 08 [148]	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

CONCESSION 08 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:49PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 1828.0 L/s
Ventilation Airflow 127.3 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	1645.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 09 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:49PM

1. General Details:

Air System Name **CONCESSION 09**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **125** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 09 [181]	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

CONCESSION 09 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:49PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 822.3 L/s
Ventilation Airflow 119.0 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	740.0	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 10 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:50PM

1. General Details:

Air System Name **CONCESSION 10**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 10 [163]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CONCESSION 10 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:50PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 711.4 L/s
Ventilation Airflow 95.9 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	640.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 11 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:50PM

1. General Details:

Air System Name **CONCESSION 11**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 11 [171]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CONCESSION 11 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:50PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 3827.4 L/s
Ventilation Airflow 228.6 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	3444.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

CONCESSION 12 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:50PM

1. General Details:

Air System Name **CONCESSION 12**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CONCESSION 12 [154]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CONCESSION 12 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:50PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 1515.4 L/s
Ventilation Airflow 113.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	1363.8	-	-	

5. Equipment Data

No Equipment Data required for this system.

Airline Office 1 [182] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:43PM

1. General Details:

Air System Name **Airline Office 1 [182]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airline Office 182	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K

Airline Office 1 [182] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:43PM

Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

5. Equipment Data

No Equipment Data required for this system.

Airline Office 2 [183] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:43PM

1. General Details:

Air System Name **Airline Office 2 [183]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airline Office 183	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **115.6** L/s

Airline Office 2 [183] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:43PM

Ventilation Airflow 12.6 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	104.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Airline Office 3 [183-a] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:43PM

1. General Details:

Air System Name **Airline Office 3 [183-a]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airline Office 183-a	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Airline Office 3 [183-a] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:43PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 115.6 L/s
Ventilation Airflow 12.6 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	104.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Airline Office 4 [184] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:45PM

1. General Details:

Air System Name **Airline Office 4 [184]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airline Office 184	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Airline Office 4 [184] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:45PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 115.6 L/s
Ventilation Airflow 12.6 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	104.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Airline Office 5 [185] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:45PM

1. General Details:

Air System Name **Airline Office 5 [185]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airline Office 185	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Airline Office 5 [185] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:45PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 115.6 L/s
Ventilation Airflow 12.6 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	104.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Airline Office 6 [185-a] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:45PM

1. General Details:

Air System Name Airline Office 6 [185-a]
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Compressor - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 125 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airline Office 185-a	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 23.0 °C
 Cooling T-stat: Unocc. 29.0 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Sample Schedule
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

Airline Office 6 [185-a] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:45PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 123.8 L/s
Ventilation Airflow 12.6 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	111.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

OFFICES 1 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:54PM

1. General Details:

Air System Name **OFFICES 1**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
OFFICE 1	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

OFFICES 1 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:54PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 761.9 L/s
Ventilation Airflow 39.8 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	685.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

OFFICES 2 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:54PM

1. General Details:

Air System Name **OFFICES 2**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
OFFICE 2	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

OFFICES 2 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:54PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 761.9 L/s
Ventilation Airflow 39.8 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	685.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

OFFICES 3 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:54PM

1. General Details:

Air System Name **OFFICES 3**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
OFFICE 3	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

OFFICES 3 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:54PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 761.9 L/s
Ventilation Airflow 39.8 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	685.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

OFFICES 4 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:54PM

1. General Details:

Air System Name **OFFICES 4**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
OFFICE 4	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

OFFICES 4 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:54PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 761.9 L/s
Ventilation Airflow 39.8 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	685.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

OFFICES 02 [159] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:54PM

1. General Details:

Air System Name **OFFICES 02 [159]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
office [159]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

OFFICES 02 [159] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:54PM

Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 408.7 L/s
 Ventilation Airflow 19.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	367.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

LOST & FOUND BAGGAGE (109) Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:53PM

1. General Details:

Air System Name **LOST & FOUND BAGGAGE (109)**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
LOST & FOUND BAGGAGE 109	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

LOST & FOUND BAGGAGE (109) Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:53PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 320.1 L/s
Ventilation Airflow 54.3 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	288.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

BANK (145) Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

1. General Details:

Air System Name **BANK (145)**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **125** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
BANK [142]	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.0** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

BANK (145) Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 578.4 L/s
Ventilation Airflow 27.2 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	520.5	-	-	

5. Equipment Data

No Equipment Data required for this system.

BHS IN-LINE SCREENING [178] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:46PM

1. General Details:

Air System Name **BHS IN-LINE SCREENING [178]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
BHS INLINE SCREEN spot	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **261.4** L/s

BHS IN-LINE SCREENING [178] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

Ventilation Airflow **28.0** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	235.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

CAR RENTAL (146) Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:46PM

1. General Details:

Air System Name **CAR RENTAL (146)**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CAR RENTAL [143]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

CAR RENTAL (146) Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 586.4 L/s
Ventilation Airflow 27.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	527.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

Command and Control Office [129] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:48PM

1. General Details:

Air System Name **Command and Control Office [129]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
COMMAND&CTRL OFFICE[129]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW
 Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Command and Control Office [129] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:48PM

Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 2701.9 L/s
 Ventilation Airflow 158.8 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	2431.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

Custom Office [112] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:51PM

1. General Details:

Air System Name **Custom Office [112]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CUSTOM OFFICE [112]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Custom Office [112] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:51PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 260.4 L/s
Ventilation Airflow 23.1 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	234.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

DOMESTIC GATE LOUNGE [170] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:51PM

1. General Details:

Air System Name **DOMESTIC GATE LOUNGE [170]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
DOMESTIC GATE LOUNGE[170]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

DOMESTIC GATE LOUNGE [170] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:51PM

Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 12724.2 L/s
 Ventilation Airflow 2230.9 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	11451.8	-	-	

5. Equipment Data

No Equipment Data required for this system.

Security Check spot [158] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

1. General Details:

Air System Name **Security Check spot [158]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
SECURITY CHECK partial	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **27.0** °C
 Cooling T-stat: Unocc. **32.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Security Check spot [158] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 1504.3 L/s
 Ventilation Airflow 246.2 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	1353.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

SECURITY [132] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:55PM

1. General Details:

Air System Name SECURITY [132]
Equipment Type Undefined
Air System Type Single Zone CAV
Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
Ventilation Sizing Method Sum of Space OA Airflows
Unocc. Damper Position Closed
Damper Leak Rate 0 %
Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
Coil Bypass Factor 0.100
Cooling Source Any
Schedule JFMAMJJASOND
Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
Coil Bypass Factor 0.100
Cooling Source Any
Schedule JFMAMJJASOND
Capacity Control Cycled or Staged Compressor - Fan On

Supply Fan Data:

Fan Type Forward Curved
Configuration Draw-thru
Fan Performance 125 Pa
Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
IMMIGRATION OFFICE [132]	x1

Thermostats and Zone Data:

Zone All
Cooling T-stat: Occ. 23.0 °C
Cooling T-stat: Unocc. 29.4 °C
Heating T-stat: Occ. 21.1 °C
Heating T-stat: Unocc. 15.6 °C
T-stat Throttling Range 1.67 °K
Diversity Factor 100 %
Direct Exhaust Airflow 0.0 L/s
Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Sample Schedule
Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
Terminal Type Diffuser
Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
Zone Heating Unit Type None

SECURITY [132] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:55PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 212.5 L/s
Ventilation Airflow 22.4 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	191.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

Electrical Room 2 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:51PM

1. General Details:

Air System Name **Electrical Room 2**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
ELECTRICAL RM.2 [131]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Electrical Room 2 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:51PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 494.3 L/s
Ventilation Airflow 0.0 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	444.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

International Gate Lounge [120] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:53PM

1. General Details:

Air System Name **International Gate Lounge [120]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
INT'L GATE LOUNGE [120]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

International Gate Lounge [120] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:53PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 6094.2 L/s
Ventilation Airflow 1010.1 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	5484.8	-	-	

5. Equipment Data

No Equipment Data required for this system.

LOST AND FOUND BAGGAGE [110] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:53PM

1. General Details:

Air System Name **LOST AND FOUND BAGGAGE [110]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
LOST & FOUND BAGGAGE 110	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

LOST AND FOUND BAGGAGE [110] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:53PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 320.9 L/s
Ventilation Airflow 54.5 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	288.8	-	-	

5. Equipment Data

No Equipment Data required for this system.

Passport Control 1 [119] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:55PM

1. General Details:

Air System Name **Passport Control 1 [119]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
PASSPORT CONTROL 1 [119]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **2074.6** L/s

Passport Control 1 [119] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:55PM

Ventilation Airflow **366.6** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	1867.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

PASSPORT CONTROL 2 [121] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:55PM

1. General Details:

Air System Name **PASSPORT CONTROL 2 [121]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
PASSPORT CONTROL 2 [121]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

PASSPORT CONTROL 2 [121] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:55PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 551.9 L/s
Ventilation Airflow 97.5 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	496.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

Security Office 157 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

1. General Details:

Air System Name **Security Office 157**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
SECURITY OFFICE [133]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Security Office 157 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 212.5 L/s
 Ventilation Airflow 22.4 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	191.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

Staff and Goods [122] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

1. General Details:

Air System Name **Staff and Goods [122]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
STAFF&GOODS [122]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Staff and Goods [122] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 863.5 L/s
 Ventilation Airflow 54.2 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	777.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

Ticketing Office [141] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

1. General Details:

Air System Name Ticketing Office [141]
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Compressor - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 125 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
TICKETING OFFICE [141]	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 23.0 °C
 Cooling T-stat: Unocc. 29.4 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Sample Schedule
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

Ticketing Office [141] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:57PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 586.1 L/s
Ventilation Airflow 27.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	527.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

PAHU Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:55PM

1. General Details:

Air System Name **PAHU**
 Equipment Type **Split AHU**
 Air System Type **Tempering Ventilation**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Cooling Coil Data:

Setpoint **16.9** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Air-Cooled DX**
 Schedule **JFMAMJJASOND**

Ventilation Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **250** Pa
 Overall Efficiency **54** %
 Schedule **FAN**
 Average Zone Temperature **23.9** °C

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airline Office 182	x1
Airline Office 183	x1
Airline Office 183-a	x1
Airline Office 184	x1
AOD	x1
BANK [142]	x1
BHS INLINE SCREEN spot	x1
BHS Xray	x1
CAR RENTAL [143]	x1
CASHIER	x1
CHECK-IN spot cool [157]	x1
COMMAND&CTRL OFFICE[129]	x1
CONCESSION 01 [111]	x1
CONCESSION 02 [105]	x1
CONCESSION 04 [125]	x1
CONCESSION 05 [134]	x1
CONCESSION 06 [123]	x1
CONCESSION 07 [146]	x1
CONCESSION 08 [148]	x1
CONCESSION 09 [181]	x1
CONCESSION 10 [163]	x1
CONCESSION 11 [171]	x1
CONCESSION 12 [154]	x1
CUSTOM OFFICE [112]	x1
DOMESTIC GATE LOUNGE[170]	x1
ELECTRICAL RM.2 [131]	x1
FOBS	x1
ICTS	x1
IMMIGRATION OFFICE [132]	x1
INT'L GATE LOUNGE [120]	x1
INTELLIGENCE	x1
LOST & FOUND BAGGAGE 109	x1
LOST & FOUND BAGGAGE 110	x1

PAHU Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:55PM

office [159]	x1
OFFICES [128]	x1
PASSPORT CONTROL 2 [121]	x1
QUARANTINE	x1
SECURITY CHECK partial	x1
SECURITY OFFICE [133]	x1
STAFF&GOODS [122]	x1
TICKETING OFFICE [141]	x1

4. Sizing Data (Computer-Generated):

System Sizing Data:

Ventilation Fan Airflow **6695.2** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Data is not available.

5. Equipment Data

Vent. Cooling Unit - Air-Cooled DX

Estimated Maximum Load **316.1** kW
Design OAT **35.0** °C
Gross Cooling Capacity **0.3** kW
Compressor & OD Fan Power **1.00** kW
Conventional Cutoff OAT **12.8** °C
Low Temperature Operation **Not used**

FOBS Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:52PM

1. General Details:

Air System Name **FOBS**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
FOBS	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

FOBS Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:52PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 244.5 L/s
Ventilation Airflow 25.5 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	220.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Check in spot cooling Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:48PM

1. General Details:

Air System Name **Check in spot cooling**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CHECK-IN spot cool [157]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **7103.7** L/s

Check in spot cooling Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:48PM

Ventilation Airflow **848.9** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	6393.3	-	-	

5. Equipment Data

No Equipment Data required for this system.

AOD [127] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:46PM

1. General Details:

Air System Name AOD [127]
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Compressor - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 124 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AOD	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 23.0 °C
 Cooling T-stat: Unocc. 29.4 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Sample Schedule
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

AOD [127] Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 332.7 L/s
Ventilation Airflow 33.0 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	299.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

CASHIER Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

1. General Details:

Air System Name CASHIER
Equipment Type Undefined
Air System Type Single Zone CAV
Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
Ventilation Sizing Method Sum of Space OA Airflows
Unocc. Damper Position Closed
Damper Leak Rate 0 %
Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
Coil Bypass Factor 0.100
Cooling Source Any
Schedule JFMAMJJASOND
Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
Coil Bypass Factor 0.100
Cooling Source Any
Schedule JFMAMJJASOND
Capacity Control Cycled or Staged Compressor - Fan On

Supply Fan Data:

Fan Type Forward Curved
Configuration Draw-thru
Fan Performance 124 Pa
Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CASHIER	x1

Thermostats and Zone Data:

Zone All
Cooling T-stat: Occ. 23.0 °C
Cooling T-stat: Unocc. 29.4 °C
Heating T-stat: Occ. 21.1 °C
Heating T-stat: Unocc. 15.6 °C
T-stat Throttling Range 1.67 °K
Diversity Factor 100 %
Direct Exhaust Airflow 0.0 L/s
Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Sample Schedule
Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
Terminal Type Diffuser
Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
Zone Heating Unit Type None

CASHIER Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 89.5 L/s
Ventilation Airflow 8.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	80.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

HOLD F Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:52PM

1. General Details:

Air System Name **HOLD F**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **124** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
HOLD F	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

HOLD F Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:52PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 47.7 L/s
Ventilation Airflow 7.3 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	42.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

HOLD M Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:52PM

1. General Details:

Air System Name **HOLD M**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **124** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
HOLD M	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

HOLD M Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:52PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 47.7 L/s
Ventilation Airflow 7.3 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	42.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

ICTS Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:52PM

1. General Details:

Air System Name ICTS
Equipment Type Undefined
Air System Type Single Zone CAV
Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
Ventilation Sizing Method Sum of Space OA Airflows
Unocc. Damper Position Closed
Damper Leak Rate 0 %
Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
Coil Bypass Factor 0.100
Cooling Source Any
Schedule JFMAMJJASOND
Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
Coil Bypass Factor 0.100
Cooling Source Any
Schedule JFMAMJJASOND
Capacity Control Cycled or Staged Compressor - Fan On

Supply Fan Data:

Fan Type Forward Curved
Configuration Draw-thru
Fan Performance 124 Pa
Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
ICTS	x1

Thermostats and Zone Data:

Zone All
Cooling T-stat: Occ. 23.0 °C
Cooling T-stat: Unocc. 29.4 °C
Heating T-stat: Occ. 21.1 °C
Heating T-stat: Unocc. 15.6 °C
T-stat Throttling Range 1.67 °K
Diversity Factor 100 %
Direct Exhaust Airflow 0.0 L/s
Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Sample Schedule
Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
Terminal Type Diffuser
Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
Zone Heating Unit Type None

ICTS Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:52PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 118.8 L/s
Ventilation Airflow 11.2 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	106.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

INTELLIGENCE Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:53PM

1. General Details:

Air System Name INTELLIGENCE
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Compressor - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 124 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
INTELLIGENCE	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 23.0 °C
 Cooling T-stat: Unocc. 29.4 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Sample Schedule
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

INTELLIGENCE Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:53PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 237.2 L/s
Ventilation Airflow 22.5 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	213.5	-	-	

5. Equipment Data

No Equipment Data required for this system.

QUARANTINE Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:55PM

1. General Details:

Air System Name **QUARANTINE**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **124** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
QUARANTINE	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

QUARANTINE Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:55PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 506.0 L/s
Ventilation Airflow 53.3 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	455.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

BHS IN-LINE SCREENING xray Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:46PM

1. General Details:

Air System Name **BHS IN-LINE SCREENING xray**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
BHS Xray	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **695.8** L/s

BHS IN-LINE SCREENING xray Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:46PM

Ventilation Airflow **0.0** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	626.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

MTG Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:54PM

1. General Details:

Air System Name **MTG**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **125** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
MTG.	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

MTG Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:54PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 666.2 L/s
Ventilation Airflow 58.1 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	599.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

COPY Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:50PM

1. General Details:

Air System Name **COPY**
Equipment Type **Undefined**
Air System Type **Single Zone CAV**
Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
Ventilation Sizing Method **Sum of Space OA Airflows**
Unocc. Damper Position **Closed**
Damper Leak Rate **0** %
Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source **Any**
Schedule **JFMAMJJASOND**
Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
Configuration **Draw-thru**
Fan Performance **125** Pa
Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
COPY	x1

Thermostats and Zone Data:

Zone **All**
Cooling T-stat: Occ. **23.0** °C
Cooling T-stat: Unocc. **29.4** °C
Heating T-stat: Occ. **21.1** °C
Heating T-stat: Unocc. **15.6** °C
T-stat Throttling Range **1.67** °K
Diversity Factor **100** %
Direct Exhaust Airflow **0.0** L/s
Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
Terminal Type **Diffuser**
Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
Zone Heating Unit Type **None**

COPY Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:50PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 625.2 L/s
Ventilation Airflow 23.2 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	562.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

Security Office 156 Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:57PM

1. General Details:

Air System Name **Security Office 156**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
SECURITY OFFICE [133]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Security Office 156 Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:57PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 212.5 L/s
Ventilation Airflow 22.4 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	191.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

Command and Control Office [129] Input Data

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:47AM

1. General Details:

Air System Name **Command and Control Office [129]**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
COMMAND&CTRL OFFICE[129]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Command and Control Office [129] Input Data

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Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

5. Equipment Data

No Equipment Data required for this system.

Check in spot cooling Input Data

Project Name: New Bohol International Airport (PTB)
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1. General Details:

Air System Name **Check in spot cooling**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Compressor - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
CHECK-IN spot cool [157]	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Sample Schedule**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K

Check in spot cooling Input Data

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

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Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

5. Equipment Data

No Equipment Data required for this system.

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

AIR SIZING SUMMARY DATA

Air System Sizing Summary for CONCESSION 01

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name CONCESSION 01	Number of zones 1
Equipment Class UNDEF	Floor Area 82.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 9.5 kW	Load occurs at Jun 1300
Sensible coil load 5.1 kW	OA DB / WB 33.5 / 27.0 °C
Coil L/s at Jun 1300 799 L/s	Entering DB / WB 20.0 / 18.0 °C
Max block L/s 799 L/s	Leaving DB / WB 14.7 / 14.6 °C
Sum of peak zone L/s 799 L/s	Coil ADP 14.1 °C
Sensible heat ratio 0.535	Bypass Factor 0.100
m ² /kW 8.7	Resulting RH 58 %
W/m ² 115.1	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.41 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 4.9 kW	Load occurs at Aug 1400
Sensible coil load 4.9 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1400 799 L/s	Entering DB / WB 25.1 / 19.9 °C
Max coil L/s 799 L/s	Leaving DB / WB 20.0 / 18.3 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.21 L/s	

Supply Fan Sizing Data

Actual max L/s 799 L/s	Fan motor BHP 0.25 BHP
Standard L/s 797 L/s	Fan motor kW 0.18 kW
Actual max L/(s-m ²) 9.70 L/(s-m ²)	Fan static 124 Pa

Outdoor Ventilation Air Data

Design airflow L/s 115 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 01

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name CONCESSION 01	Number of zones 1
Equipment Class UNDEF	Floor Area 82.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.5	719	719	Aug 1300	0.0	82.4	8.73

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 01 [111]	1	7.5	Aug 1300	719	0.0	82.4	8.73

Air System Sizing Summary for CONCESSION 02

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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 11:50AM

Air System Information

Air System Name CONCESSION 02	Number of zones 1
Equipment Class UNDEF	Floor Area 41.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 8.7 kW	Load occurs at Aug 1400
Sensible coil load 6.5 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1400 1052 L/s	Entering DB / WB 20.0 / 17.1 °C
Max block L/s 1052 L/s	Leaving DB / WB 14.9 / 14.6 °C
Sum of peak zone L/s 1052 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.743	Bypass Factor 0.100
m ² /kW 4.7	Resulting RH 56 %
W/m ² 210.8	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.37 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 5.4 kW	Load occurs at Jun 1500
Sensible coil load 5.4 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 1052 L/s	Entering DB / WB 24.2 / 19.0 °C
Max coil L/s 1052 L/s	Leaving DB / WB 20.0 / 17.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.23 L/s	

Supply Fan Sizing Data

Actual max L/s 1052 L/s	Fan motor BHP 0.32 BHP
Standard L/s 1049 L/s	Fan motor kW 0.24 kW
Actual max L/(s-m ²) 25.52 L/(s-m ²)	Fan static 124 Pa

Outdoor Ventilation Air Data

Design airflow L/s 58 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 02

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name CONCESSION 02	Number of zones 1
Equipment Class UNDEF	Floor Area 41.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	9.8	946	946	Aug 1300	0.1	41.2	22.97

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 02 [105]	1	9.8	Aug 1300	946	0.1	41.2	22.97

Air System Sizing Summary for CONCESSION 04

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	CONCESSION 04	Number of zones	1
Equipment Class	UNDEF	Floor Area	89.2 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	10.4 kW	Load occurs at	Jun 1200
Sensible coil load	5.6 kW	OA DB / WB	32.4 / 26.7 °C
Coil L/s at Jun 1200	931 L/s	Entering DB / WB	20.0 / 18.1 °C
Max block L/s	931 L/s	Leaving DB / WB	15.0 / 14.8 °C
Sum of peak zone L/s	931 L/s	Coil ADP	14.4 °C
Sensible heat ratio	0.543	Bypass Factor	0.100
m ² /kW	8.6	Resulting RH	58 %
W/m ²	116.2	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.45 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	5.6 kW	Load occurs at	Jul 1400
Sensible coil load	5.6 kW	OA DB / WB	34.7 / 27.2 °C
Coil L/s at Jul 1400	931 L/s	Entering DB / WB	25.0 / 19.8 °C
Max coil L/s	931 L/s	Leaving DB / WB	20.0 / 18.2 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.24 L/s		

Supply Fan Sizing Data

Actual max L/s	931 L/s	Fan motor BHP	0.29 BHP
Standard L/s	929 L/s	Fan motor kW	0.22 kW
Actual max L/(s-m ²)	10.44 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	125 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for CONCESSION 04

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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 11:50AM

Air System Information

Air System Name CONCESSION 04	Number of zones 1
Equipment Class UNDEF	Floor Area 89.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	8.7	838	838	Aug 1300	0.0	89.2	9.39

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 04 [125]	1	8.7	Aug 1300	838	0.0	89.2	9.39

Air System Sizing Summary for CONCESSION 05

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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 11:50AM

Air System Information

Air System Name CONCESSION 05	Number of zones 1
Equipment Class UNDEF	Floor Area 70.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 7.9 kW	Load occurs at May 1300
Sensible coil load 4.3 kW	OA DB / WB 32.4 / 26.4 °C
Coil L/s at May 1300 667 L/s	Entering DB / WB 20.0 / 18.0 °C
Max block L/s 667 L/s	Leaving DB / WB 14.7 / 14.5 °C
Sum of peak zone L/s 667 L/s	Coil ADP 14.1 °C
Sensible heat ratio 0.541	Bypass Factor 0.100
m ² /kW 8.9	Resulting RH 58 %
W/m ² 111.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.34 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 4.2 kW	Load occurs at Aug 1500
Sensible coil load 4.2 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 667 L/s	Entering DB / WB 25.2 / 20.1 °C
Max coil L/s 667 L/s	Leaving DB / WB 20.0 / 18.4 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.18 L/s	

Supply Fan Sizing Data

Actual max L/s 667 L/s	Fan motor BHP 0.21 BHP
Standard L/s 666 L/s	Fan motor kW 0.15 kW
Actual max L/(s-m ²) 9.41 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 99 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 05

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name CONCESSION 05	Number of zones 1
Equipment Class UNDEF	Floor Area 70.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	6.2	601	601	Aug 1300	0.0	70.9	8.47

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 05 [134]	1	6.2	Aug 1300	601	0.0	70.9	8.47

Air System Sizing Summary for CONCESSION 06

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	CONCESSION 06	Number of zones	1
Equipment Class	UNDEF	Floor Area	97.3 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	10.8 kW	Load occurs at	Jun 1200
Sensible coil load	5.6 kW	OA DB / WB	32.4 / 26.7 °C
Coil L/s at Jun 1200	916 L/s	Entering DB / WB	20.0 / 18.2 °C
Max block L/s	916 L/s	Leaving DB / WB	14.9 / 14.7 °C
Sum of peak zone L/s	916 L/s	Coil ADP	14.3 °C
Sensible heat ratio	0.523	Bypass Factor	0.100
m ² /kW	9.0	Resulting RH	58 %
W/m ²	111.1	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.47 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	5.8 kW	Load occurs at	Jul 1500
Sensible coil load	5.8 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Jul 1500	916 L/s	Entering DB / WB	25.3 / 20.2 °C
Max coil L/s	916 L/s	Leaving DB / WB	20.0 / 18.5 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.25 L/s		

Supply Fan Sizing Data

Actual max L/s	916 L/s	Fan motor BHP	0.28 BHP
Standard L/s	914 L/s	Fan motor kW	0.21 kW
Actual max L/(s-m ²)	9.41 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	136 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for CONCESSION 06

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name CONCESSION 06	Number of zones 1
Equipment Class UNDEF	Floor Area 97.3 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	8.5	824	824	Aug 1300	0.0	97.3	8.47

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 06 [123]	1	8.5	Aug 1300	824	0.0	97.3	8.47

Air System Sizing Summary for CONCESSION 07

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:52AM

Air System Information

Air System Name CONCESSION 07	Number of zones 1
Equipment Class UNDEF	Floor Area 55.6 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 9.2 kW	Load occurs at Jul 1300
Sensible coil load 6.2 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Jul 1300 1003 L/s	Entering DB / WB 20.0 / 17.3 °C
Max block L/s 1003 L/s	Leaving DB / WB 14.8 / 14.6 °C
Sum of peak zone L/s 1003 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.676	Bypass Factor 0.100
m ² /kW 6.0	Resulting RH 56 %
W/m ² 165.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.40 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 5.3 kW	Load occurs at Aug 1300
Sensible coil load 5.3 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Aug 1300 1003 L/s	Entering DB / WB 24.4 / 19.1 °C
Max coil L/s 1003 L/s	Leaving DB / WB 20.0 / 17.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.23 L/s	

Supply Fan Sizing Data

Actual max L/s 1003 L/s	Fan motor BHP 0.31 BHP
Standard L/s 1001 L/s	Fan motor kW 0.23 kW
Actual max L/(s-m ²) 18.05 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 78 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 07

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:52AM

Air System Information

Air System Name **CONCESSION 07**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **55.6** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	9.4	903	903	Aug 1300	0.1	55.6	16.24

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 07 [146]	1	9.4	Aug 1300	903	0.1	55.6	16.24

Air System Sizing Summary for CONCESSION 08

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:52AM

Air System Information

Air System Name CONCESSION 08	Number of zones 1
Equipment Class UNDEF	Floor Area 90.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 16.0 kW	Load occurs at Jul 1300
Sensible coil load 11.2 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Jul 1300 1828 L/s	Entering DB / WB 20.0 / 17.3 °C
Max block L/s 1828 L/s	Leaving DB / WB 14.9 / 14.7 °C
Sum of peak zone L/s 1828 L/s	Coil ADP 14.4 °C
Sensible heat ratio 0.696	Bypass Factor 0.100
m ² /kW 5.7	Resulting RH 56 %
W/m ² 176.3	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.69 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 9.7 kW	Load occurs at Aug 1500
Sensible coil load 9.7 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 1828 L/s	Entering DB / WB 24.4 / 19.1 °C
Max coil L/s 1828 L/s	Leaving DB / WB 20.0 / 17.7 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.42 L/s	

Supply Fan Sizing Data

Actual max L/s 1828 L/s	Fan motor BHP 0.57 BHP
Standard L/s 1823 L/s	Fan motor kW 0.42 kW
Actual max L/(s-m ²) 20.11 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 127 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 08

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:52AM

Air System Information

Air System Name CONCESSION 08	Number of zones 1
Equipment Class UNDEF	Floor Area 90.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	17.0	1645	1645	Aug 1300	0.2	90.9	18.10

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 08 [148]	1	17.0	Aug 1300	1645	0.2	90.9	18.10

Air System Sizing Summary for CONCESSION 09

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:00PM

Air System Information

Air System Name CONCESSION 09	Number of zones 1
Equipment Class UNDEF	Floor Area 85.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 9.8 kW	Load occurs at Jul 1300
Sensible coil load 5.3 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Jul 1300 822 L/s	Entering DB / WB 20.0 / 18.0 °C
Max block L/s 822 L/s	Leaving DB / WB 14.6 / 14.5 °C
Sum of peak zone L/s 822 L/s	Coil ADP 14.0 °C
Sensible heat ratio 0.542	Bypass Factor 0.100
m ² /kW 8.7	Resulting RH 58 %
W/m ² 115.4	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.42 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 5.1 kW	Load occurs at Aug 1600
Sensible coil load 5.1 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 822 L/s	Entering DB / WB 25.2 / 20.2 °C
Max coil L/s 822 L/s	Leaving DB / WB 20.0 / 18.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.22 L/s	

Supply Fan Sizing Data

Actual max L/s 822 L/s	Fan motor BHP 0.26 BHP
Standard L/s 820 L/s	Fan motor kW 0.19 kW
Actual max L/(s-m ²) 9.67 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 119 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 09

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:00PM

Air System Information

Air System Name **CONCESSION 09**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **85.0** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.7	740	740	Aug 1300	0.0	85.0	8.71

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 09 [181]	1	7.7	Aug 1300	740	0.0	85.0	8.71

Air System Sizing Summary for CONCESSION 10

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:00PM

Air System Information

Air System Name CONCESSION 10	Number of zones 1
Equipment Class UNDEF	Floor Area 68.5 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 8.0 kW	Load occurs at Jun 1400
Sensible coil load 4.3 kW	OA DB / WB 34.2 / 27.2 °C
Coil L/s at Jun 1400 711 L/s	Entering DB / WB 20.0 / 18.0 °C
Max block L/s 711 L/s	Leaving DB / WB 14.9 / 14.8 °C
Sum of peak zone L/s 711 L/s	Coil ADP 14.4 °C
Sensible heat ratio 0.544	Bypass Factor 0.100
m ² /kW 8.6	Resulting RH 58 %
W/m ² 116.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.34 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 4.4 kW	Load occurs at Jul 1500
Sensible coil load 4.4 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 711 L/s	Entering DB / WB 25.1 / 20.0 °C
Max coil L/s 711 L/s	Leaving DB / WB 20.0 / 18.3 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.19 L/s	

Supply Fan Sizing Data

Actual max L/s 711 L/s	Fan motor BHP 0.22 BHP
Standard L/s 710 L/s	Fan motor kW 0.16 kW
Actual max L/(s-m ²) 10.38 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 96 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 10

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:00PM

Air System Information

Air System Name **CONCESSION 10**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **68.5** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	6.6	640	640	Aug 1300	0.0	68.5	9.35

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 10 [163]	1	6.6	Aug 1300	640	0.0	68.5	9.35

Air System Sizing Summary for CONCESSION 11

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:00PM

Air System Information

Air System Name CONCESSION 11	Number of zones 1
Equipment Class UNDEF	Floor Area 163.3 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 32.6 kW	Load occurs at Jul 1600
Sensible coil load 23.8 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 3827 L/s	Entering DB / WB 20.0 / 17.1 °C
Max block L/s 3827 L/s	Leaving DB / WB 14.8 / 14.6 °C
Sum of peak zone L/s 3827 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.729	Bypass Factor 0.100
m ² /kW 5.0	Resulting RH 56 %
W/m ² 199.6	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 1.40 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 20.8 kW	Load occurs at Mar 0600
Sensible coil load 16.0 kW	OA DB / WB 23.6 / 23.2 °C
Coil L/s at Mar 0600 3827 L/s	Entering DB / WB 23.5 / 21.1 °C
Max coil L/s 3827 L/s	Leaving DB / WB 20.0 / 19.8 °C
Sensible heat ratio 0.771	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.90 L/s	

Supply Fan Sizing Data

Actual max L/s 3827 L/s	Fan motor BHP 1.19 BHP
Standard L/s 3818 L/s	Fan motor kW 0.89 kW
Actual max L/(s-m ²) 23.44 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 229 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 11

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:00PM

Air System Information

Air System Name CONCESSION 11	Number of zones 1
Equipment Class UNDEF	Floor Area 163.3 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	35.7	3445	3445	Jul 1600	0.4	163.3	21.09

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 11 [171]	1	35.7	Jul 1600	3445	0.4	163.3	21.09

Air System Sizing Summary for CONCESSION 12

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:02PM

Air System Information

Air System Name CONCESSION 12	Number of zones 1
Equipment Class UNDEF	Floor Area 81.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 13.8 kW	Load occurs at Aug 1300
Sensible coil load 9.4 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Aug 1300 1515 L/s	Entering DB / WB 20.0 / 17.3 °C
Max block L/s 1515 L/s	Leaving DB / WB 14.8 / 14.6 °C
Sum of peak zone L/s 1515 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.683	Bypass Factor 0.100
m ² /kW 5.9	Resulting RH 56 %
W/m ² 170.0	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.59 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 8.2 kW	Load occurs at Jul 1400
Sensible coil load 8.2 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1400 1515 L/s	Entering DB / WB 24.5 / 19.1 °C
Max coil L/s 1515 L/s	Leaving DB / WB 20.0 / 17.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.35 L/s	

Supply Fan Sizing Data

Actual max L/s 1515 L/s	Fan motor BHP 0.47 BHP
Standard L/s 1512 L/s	Fan motor kW 0.35 kW
Actual max L/(s-m ²) 18.66 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 114 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CONCESSION 12

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:02PM

Air System Information

Air System Name CONCESSION 12	Number of zones 1
Equipment Class UNDEF	Floor Area 81.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	14.1	1364	1364	Jul 1400	0.2	81.2	16.80

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CONCESSION 12 [154]	1	14.1	Jul 1400	1364	0.2	81.2	16.80

Air System Sizing Summary for OFFICES 1

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:31PM

Air System Information

Air System Name OFFICES 1	Number of zones 1
Equipment Class UNDEF	Floor Area 28.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 6.7 kW	Load occurs at Aug 1200
Sensible coil load 5.2 kW	OA DB / WB 33.0 / 26.7 °C
Coil L/s at Aug 1200 762 L/s	Entering DB / WB 20.0 / 16.8 °C
Max block L/s 762 L/s	Leaving DB / WB 14.4 / 14.1 °C
Sum of peak zone L/s 762 L/s	Coil ADP 13.8 °C
Sensible heat ratio 0.765	Bypass Factor 0.100
m ² /kW 4.2	Resulting RH 54 %
W/m ² 237.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.29 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 4.0 kW	Load occurs at Jun 1500
Sensible coil load 4.0 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 762 L/s	Entering DB / WB 24.3 / 18.8 °C
Max coil L/s 762 L/s	Leaving DB / WB 20.0 / 17.3 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.17 L/s	

Supply Fan Sizing Data

Actual max L/s 762 L/s	Fan motor BHP 0.24 BHP
Standard L/s 760 L/s	Fan motor kW 0.18 kW
Actual max L/(s-m ²) 26.83 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 40 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for OFFICES 1

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:31PM

Air System Information

Air System Name OFFICES 1	Number of zones 1
Equipment Class UNDEF	Floor Area 28.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.1	686	686	Aug 1300	0.0	28.4	24.14

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
OFFICE 1	1	7.1	Aug 1300	686	0.0	28.4	24.14

Air System Sizing Summary for OFFICES 2

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:31PM

Air System Information

Air System Name OFFICES 2	Number of zones 1
Equipment Class UNDEF	Floor Area 28.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 6.7 kW	Load occurs at Aug 1200
Sensible coil load 5.2 kW	OA DB / WB 33.0 / 26.7 °C
Coil L/s at Aug 1200 762 L/s	Entering DB / WB 20.0 / 16.8 °C
Max block L/s 762 L/s	Leaving DB / WB 14.4 / 14.1 °C
Sum of peak zone L/s 762 L/s	Coil ADP 13.8 °C
Sensible heat ratio 0.765	Bypass Factor 0.100
m ² /kW 4.2	Resulting RH 54 %
W/m ² 237.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.29 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 4.0 kW	Load occurs at Jun 1500
Sensible coil load 4.0 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 762 L/s	Entering DB / WB 24.3 / 18.8 °C
Max coil L/s 762 L/s	Leaving DB / WB 20.0 / 17.3 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.17 L/s	

Supply Fan Sizing Data

Actual max L/s 762 L/s	Fan motor BHP 0.24 BHP
Standard L/s 760 L/s	Fan motor kW 0.18 kW
Actual max L/(s-m ²) 26.83 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 40 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for OFFICES 2

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:31PM

Air System Information

Air System Name OFFICES 2	Number of zones 1
Equipment Class UNDEF	Floor Area 28.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.1	686	686	Aug 1300	0.0	28.4	24.14

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
OFFICE 2	1	7.1	Aug 1300	686	0.0	28.4	24.14

Air System Sizing Summary for OFFICES 3

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:31PM

Air System Information

Air System Name OFFICES 3	Number of zones 1
Equipment Class UNDEF	Floor Area 28.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 6.7 kW	Load occurs at Aug 1200
Sensible coil load 5.2 kW	OA DB / WB 33.0 / 26.7 °C
Coil L/s at Aug 1200 762 L/s	Entering DB / WB 20.0 / 16.8 °C
Max block L/s 762 L/s	Leaving DB / WB 14.4 / 14.1 °C
Sum of peak zone L/s 762 L/s	Coil ADP 13.8 °C
Sensible heat ratio 0.765	Bypass Factor 0.100
m ² /kW 4.2	Resulting RH 54 %
W/m ² 237.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.29 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 4.0 kW	Load occurs at Jun 1500
Sensible coil load 4.0 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 762 L/s	Entering DB / WB 24.3 / 18.8 °C
Max coil L/s 762 L/s	Leaving DB / WB 20.0 / 17.3 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.17 L/s	

Supply Fan Sizing Data

Actual max L/s 762 L/s	Fan motor BHP 0.24 BHP
Standard L/s 760 L/s	Fan motor kW 0.18 kW
Actual max L/(s-m ²) 26.83 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 40 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for OFFICES 3

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:31PM

Air System Information

Air System Name OFFICES 3	Number of zones 1
Equipment Class UNDEF	Floor Area 28.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.1	686	686	Aug 1300	0.0	28.4	24.14

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
OFFICE 3	1	7.1	Aug 1300	686	0.0	28.4	24.14

Air System Sizing Summary for OFFICES 4

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:32PM

Air System Information

Air System Name	OFFICES 4	Number of zones	1
Equipment Class	UNDEF	Floor Area	28.4 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	6.7 kW	Load occurs at	Aug 1200
Sensible coil load	5.2 kW	OA DB / WB	33.0 / 26.7 °C
Coil L/s at Aug 1200	762 L/s	Entering DB / WB	20.0 / 16.8 °C
Max block L/s	762 L/s	Leaving DB / WB	14.4 / 14.1 °C
Sum of peak zone L/s	762 L/s	Coil ADP	13.8 °C
Sensible heat ratio	0.765	Bypass Factor	0.100
m ² /kW	4.2	Resulting RH	54 %
W/m ²	237.2	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.29 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	4.0 kW	Load occurs at	Jun 1500
Sensible coil load	4.0 kW	OA DB / WB	34.4 / 27.2 °C
Coil L/s at Jun 1500	762 L/s	Entering DB / WB	24.3 / 18.8 °C
Max coil L/s	762 L/s	Leaving DB / WB	20.0 / 17.3 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.17 L/s		

Supply Fan Sizing Data

Actual max L/s	762 L/s	Fan motor BHP	0.24 BHP
Standard L/s	760 L/s	Fan motor kW	0.18 kW
Actual max L/(s-m ²)	26.83 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	40 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for OFFICES 4

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:32PM

Air System Information

Air System Name OFFICES 4	Number of zones 1
Equipment Class UNDEF	Floor Area 28.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.1	686	686	Aug 1300	0.0	28.4	24.14

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
OFFICE 4	1	7.1	Aug 1300	686	0.0	28.4	24.14

Air System Sizing Summary for OFFICES 02 [159]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:30PM

Air System Information

Air System Name	OFFICES 02 [159]	Number of zones	1
Equipment Class	UNDEF	Floor Area	14.1 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	3.2 kW	Load occurs at	Jun 2100
Sensible coil load	2.5 kW	OA DB / WB	29.4 / 26.0 °C
Coil L/s at Jun 2100	409 L/s	Entering DB / WB	20.0 / 17.1 °C
Max block L/s	409 L/s	Leaving DB / WB	15.0 / 14.7 °C
Sum of peak zone L/s	409 L/s	Coil ADP	14.4 °C
Sensible heat ratio	0.761	Bypass Factor	0.100
m ² /kW	4.4	Resulting RH	56 %
W/m ²	229.7	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.14 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	2.0 kW	Load occurs at	Jun 1500
Sensible coil load	2.0 kW	OA DB / WB	34.4 / 27.2 °C
Coil L/s at Jun 1500	409 L/s	Entering DB / WB	24.1 / 19.1 °C
Max coil L/s	409 L/s	Leaving DB / WB	20.0 / 17.7 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.09 L/s		

Supply Fan Sizing Data

Actual max L/s	409 L/s	Fan motor BHP	0.13 BHP
Standard L/s	408 L/s	Fan motor kW	0.09 kW
Actual max L/(s-m ²)	28.99 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	20 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for OFFICES 02 [159]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:30PM

Air System Information

Air System Name **OFFICES 02 [159]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **14.1** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	3.8	368	368	Jul 2100	0.1	14.1	26.09

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
office [159]	1	3.8	Jul 2100	368	0.1	14.1	26.09

Air System Sizing Summary for Airline Office 1 [182]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:43AM

Air System Information

Air System Name	Airline Office 1 [182]	Number of zones	1
Equipment Class	UNDEF	Floor Area	9.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	1.9 kW	Load occurs at	Jun 1300
Sensible coil load	1.4 kW	OA DB / WB	33.5 / 27.0 °C
Coil L/s at Jun 1300	116 L/s	Entering DB / WB	24.4 / 18.8 °C
Max block L/s	116 L/s	Leaving DB / WB	14.6 / 14.1 °C
Sum of peak zone L/s	116 L/s	Coil ADP	13.5 °C
Sensible heat ratio	0.730	Bypass Factor	0.100
m ² /kW	4.8	Resulting RH	55 %
W/m ²	207.2	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.08 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	116 L/s	Fan motor BHP	0.04 BHP
Standard L/s	115 L/s	Fan motor kW	0.03 kW
Actual max L/(s-m ²)	12.85 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	13 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Airline Office 1 [182]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:43AM

Air System Information

Air System Name Airline Office 1 [182]	Number of zones 1
Equipment Class UNDEF	Floor Area 9.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.1	104	104	Aug 1300	0.0	9.0	11.56

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airline Office 182	1	1.1	Aug 1300	104	0.0	9.0	11.56

Air System Sizing Summary for Airline Office 2 [183]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:43AM

Air System Information

Air System Name	Airline Office 2 [183]	Number of zones	1
Equipment Class	UNDEF	Floor Area	9.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	1.9 kW	Load occurs at	Jun 1300
Sensible coil load	1.4 kW	OA DB / WB	33.5 / 27.0 °C
Coil L/s at Jun 1300	116 L/s	Entering DB / WB	24.4 / 18.8 °C
Max block L/s	116 L/s	Leaving DB / WB	14.6 / 14.1 °C
Sum of peak zone L/s	116 L/s	Coil ADP	13.5 °C
Sensible heat ratio	0.730	Bypass Factor	0.100
m ² /kW	4.8	Resulting RH	55 %
W/m ²	207.2	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.08 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	116 L/s	Fan motor BHP	0.04 BHP
Standard L/s	115 L/s	Fan motor kW	0.03 kW
Actual max L/(s-m ²)	12.85 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	13 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Airline Office 2 [183]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:43AM

Air System Information

Air System Name Airline Office 2 [183]	Number of zones 1
Equipment Class UNDEF	Floor Area 9.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.1	104	104	Aug 1300	0.0	9.0	11.56

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airline Office 183	1	1.1	Aug 1300	104	0.0	9.0	11.56

Air System Sizing Summary for Airline Office 3 [183-a]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:43AM

Air System Information

Air System Name	Airline Office 3 [183-a]	Number of zones	1
Equipment Class	UNDEF	Floor Area	9.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	1.2 kW	Load occurs at	Jun 1300
Sensible coil load	0.8 kW	OA DB / WB	33.5 / 27.0 °C
Coil L/s at Jun 1300	116 L/s	Entering DB / WB	20.0 / 17.6 °C
Max block L/s	116 L/s	Leaving DB / WB	14.6 / 14.4 °C
Sum of peak zone L/s	116 L/s	Coil ADP	14.0 °C
Sensible heat ratio	0.604	Bypass Factor	0.100
m ² /kW	7.2	Resulting RH	56 %
W/m ²	138.3	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.05 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	0.7 kW	Load occurs at	Jul 1500
Sensible coil load	0.7 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Jul 1500	116 L/s	Entering DB / WB	24.8 / 19.5 °C
Max coil L/s	116 L/s	Leaving DB / WB	20.0 / 17.9 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.03 L/s		

Supply Fan Sizing Data

Actual max L/s	116 L/s	Fan motor BHP	0.04 BHP
Standard L/s	115 L/s	Fan motor kW	0.03 kW
Actual max L/(s-m ²)	12.85 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	13 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Air System Sizing Summary for Airline Office 4 [184]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:44AM

Air System Information

Air System Name	Airline Office 4 [184]	Number of zones	1
Equipment Class	UNDEF	Floor Area	9.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	1.2 kW	Load occurs at	Jun 1300
Sensible coil load	0.8 kW	OA DB / WB	33.5 / 27.0 °C
Coil L/s at Jun 1300	116 L/s	Entering DB / WB	20.0 / 17.6 °C
Max block L/s	116 L/s	Leaving DB / WB	14.6 / 14.4 °C
Sum of peak zone L/s	116 L/s	Coil ADP	14.0 °C
Sensible heat ratio	0.604	Bypass Factor	0.100
m ² /kW	7.2	Resulting RH	56 %
W/m ²	138.3	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.05 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	0.7 kW	Load occurs at	Jul 1500
Sensible coil load	0.7 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Jul 1500	116 L/s	Entering DB / WB	24.8 / 19.5 °C
Max coil L/s	116 L/s	Leaving DB / WB	20.0 / 17.9 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.03 L/s		

Supply Fan Sizing Data

Actual max L/s	116 L/s	Fan motor BHP	0.04 BHP
Standard L/s	115 L/s	Fan motor kW	0.03 kW
Actual max L/(s-m ²)	12.85 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	13 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Airline Office 4 [184]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:44AM

Air System Information

Air System Name **Airline Office 4 [184]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **9.0** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.1	104	104	Aug 1300	0.0	9.0	11.56

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airline Office 184	1	1.1	Aug 1300	104	0.0	9.0	11.56

Air System Sizing Summary for Airline Office 5 [185]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:44AM

Air System Information

Air System Name Airline Office 5 [185]	Number of zones 1
Equipment Class UNDEF	Floor Area 9.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 1.2 kW	Load occurs at Jun 1300
Sensible coil load 0.8 kW	OA DB / WB 33.5 / 27.0 °C
Coil L/s at Jun 1300 116 L/s	Entering DB / WB 20.0 / 17.6 °C
Max block L/s 116 L/s	Leaving DB / WB 14.6 / 14.4 °C
Sum of peak zone L/s 116 L/s	Coil ADP 14.0 °C
Sensible heat ratio 0.604	Bypass Factor 0.100
m ² /kW 7.2	Resulting RH 56 %
W/m ² 138.3	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.05 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.7 kW	Load occurs at Jul 1500
Sensible coil load 0.7 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 116 L/s	Entering DB / WB 24.8 / 19.5 °C
Max coil L/s 116 L/s	Leaving DB / WB 20.0 / 17.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.03 L/s	

Supply Fan Sizing Data

Actual max L/s 116 L/s	Fan motor BHP 0.04 BHP
Standard L/s 115 L/s	Fan motor kW 0.03 kW
Actual max L/(s-m ²) 12.85 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 13 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Airline Office 5 [185]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:44AM

Air System Information

Air System Name **Airline Office 5 [185]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **9.0** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.1	104	104	Aug 1300	0.0	9.0	11.56

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airline Office 185	1	1.1	Aug 1300	104	0.0	9.0	11.56

Air System Sizing Summary for Airline Office 6 [185-a]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:44AM

Air System Information

Air System Name Airline Office 6 [185-a]	Number of zones 1
Equipment Class UNDEF	Floor Area 9.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 1.2 kW	Load occurs at Apr 1200
Sensible coil load 0.8 kW	OA DB / WB 30.8 / 25.6 °C
Coil L/s at Apr 1200 124 L/s	Entering DB / WB 20.0 / 17.4 °C
Max block L/s 124 L/s	Leaving DB / WB 14.7 / 14.4 °C
Sum of peak zone L/s 124 L/s	Coil ADP 14.1 °C
Sensible heat ratio 0.641	Bypass Factor 0.100
m ² /kW 7.3	Resulting RH 56 %
W/m ² 137.3	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.05 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.7 kW	Load occurs at Aug 1500
Sensible coil load 0.7 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 124 L/s	Entering DB / WB 24.7 / 19.4 °C
Max coil L/s 124 L/s	Leaving DB / WB 20.0 / 17.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.03 L/s	

Supply Fan Sizing Data

Actual max L/s 124 L/s	Fan motor BHP 0.04 BHP
Standard L/s 123 L/s	Fan motor kW 0.03 kW
Actual max L/(s-m ²) 13.75 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 13 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Airline Office 6 [185-a]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:44AM

Air System Information

Air System Name **Airline Office 6 [185-a]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **9.0** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.2	111	111	Aug 1300	0.0	9.0	12.38

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airline Office 185-a	1	1.2	Aug 1300	111	0.0	9.0	12.38

Air System Sizing Summary for LOST & FOUND BAGGAGE (109)

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:28PM

Air System Information

Air System Name	.....	LOST & FOUND BAGGAGE (109)	Number of zones	.....	1
Equipment Class	.....	UNDEF	Floor Area	.....	38.8 m ²
Air System Type	.....	SZCAV	Location	.....	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	.....	Sum of space airflow rates	Calculation Months	.....	Jan to Dec
Space L/s	.....	Individual peak space loads	Sizing Data	.....	Calculated

Central Cooling Coil Sizing Data

Total coil load	.....	4.0 kW	Load occurs at	.....	Jun 1300
Sensible coil load	.....	2.0 kW	OA DB / WB	.....	33.5 / 27.0 °C
Coil L/s at Jun 1300	.....	320 L/s	Entering DB / WB	.....	20.0 / 18.4 °C
Max block L/s	.....	320 L/s	Leaving DB / WB	.....	14.8 / 14.7 °C
Sum of peak zone L/s	.....	320 L/s	Coil ADP	.....	14.3 °C
Sensible heat ratio	.....	0.493	Bypass Factor	.....	0.100
m ² /kW	.....	9.6	Resulting RH	.....	59 %
W/m ²	.....	103.9	Design supply temp.	.....	14.4 °C
Water flow @ 5.6 °K rise	.....	0.17 L/s	Zone T-stat Check	.....	1 of 1 OK
			Max zone temperature deviation	.....	0.0 °K

Precool Coil Sizing Data

Total coil load	.....	2.1 kW	Load occurs at	.....	Jul 1500
Sensible coil load	.....	2.1 kW	OA DB / WB	.....	35.0 / 27.2 °C
Coil L/s at Jul 1500	.....	320 L/s	Entering DB / WB	.....	25.5 / 20.5 °C
Max coil L/s	.....	320 L/s	Leaving DB / WB	.....	20.0 / 18.8 °C
Sensible heat ratio	.....	1.000	Bypass Factor	.....	0.100
Water flow @ 5.6 °K rise	.....	0.09 L/s			

Supply Fan Sizing Data

Actual max L/s	.....	320 L/s	Fan motor BHP	.....	0.10 BHP
Standard L/s	.....	319 L/s	Fan motor kW	.....	0.07 kW
Actual max L/(s-m ²)	.....	8.25 L/(s-m ²)	Fan static	.....	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	.....	54 L/s	L/s/person	.....	7.00 L/s/person
L/(s-m ²)	.....	1.40 L/(s-m ²)			

Zone Sizing Summary for LOST & FOUND BAGGAGE (109)

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:28PM

Air System Information

Air System Name ... **LOST & FOUND BAGGAGE (109)**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **38.8** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	3.0	288	288	Aug 1300	0.0	38.8	7.42

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
LOST & FOUND BAGGAGE 109	1	3.0	Aug 1300	288	0.0	38.8	7.42

Air System Sizing Summary for BANK (145)

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:45AM

Air System Information

Air System Name BANK (145)	Number of zones 1
Equipment Class UNDEF	Floor Area 19.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 4.7 kW	Load occurs at Aug 1400
Sensible coil load 3.7 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1400 578 L/s	Entering DB / WB 20.0 / 16.9 °C
Max block L/s 578 L/s	Leaving DB / WB 14.7 / 14.4 °C
Sum of peak zone L/s 578 L/s	Coil ADP 14.1 °C
Sensible heat ratio 0.776	Bypass Factor 0.100
m ² /kW 4.1	Resulting RH 55 %
W/m ² 244.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.20 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.9 kW	Load occurs at Aug 1600
Sensible coil load 2.9 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 578 L/s	Entering DB / WB 24.1 / 18.8 °C
Max coil L/s 578 L/s	Leaving DB / WB 20.0 / 17.5 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.12 L/s	

Supply Fan Sizing Data

Actual max L/s 578 L/s	Fan motor BHP 0.18 BHP
Standard L/s 577 L/s	Fan motor kW 0.13 kW
Actual max L/(s-m ²) 29.81 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 27 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for BANK (145)

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:45AM

Air System Information

Air System Name BANK (145)	Number of zones 1
Equipment Class UNDEF	Floor Area 19.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.4	521	521	Aug 1300	0.1	19.4	26.83

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
BANK [142]	1	5.4	Aug 1300	521	0.1	19.4	26.83

Air System Sizing Summary for BHS IN-LINE SCREENING [178]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:45AM

Air System Information

Air System Name **BHS IN-LINE SCREENING [178]**
Equipment Class **UNDEF**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **10.5** m²
Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Central Cooling Coil Sizing Data

Total coil load **4.2** kW
Sensible coil load **3.1** kW
Coil L/s at Jul 1500 **261** L/s
Max block L/s **261** L/s
Sum of peak zone L/s **261** L/s
Sensible heat ratio **0.737**
m²/kW **2.5**
W/m² **397.8**
Water flow @ 5.6 °K rise **0.18** L/s

Load occurs at **Jul 1500**
OA DB / WB **35.0 / 27.2** °C
Entering DB / WB **24.5 / 18.8** °C
Leaving DB / WB **14.7 / 14.2** °C
Coil ADP **13.6** °C
Bypass Factor **0.100**
Resulting RH **55** %
Design supply temp. **14.4** °C
Zone T-stat Check **1 of 1** OK
Max zone temperature deviation **0.0** °K

Supply Fan Sizing Data

Actual max L/s **261** L/s
Standard L/s **261** L/s
Actual max L/(s-m²) **24.89** L/(s-m²)

Fan motor BHP **0.08** BHP
Fan motor kW **0.06** kW
Fan static **125** Pa

Outdoor Ventilation Air Data

Design airflow L/s **28** L/s
L/(s-m²) **2.67** L/(s-m²)

L/s/person **7.00** L/s/person

Zone Sizing Summary for BHS IN-LINE SCREENING [178]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:45AM

Air System Information

Air System Name **BHS IN-LINE SCREENING [178]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **10.5** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.4	235	235	Jul 1500	0.0	10.5	22.40

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
BHS INLINE SCREEN spot	1	2.4	Jul 1500	235	0.0	10.5	22.40

Air System Sizing Summary for CAR RENTAL (146)

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:46AM

Air System Information

Air System Name CAR RENTAL (146)	Number of zones 1
Equipment Class UNDEF	Floor Area 19.8 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 4.7 kW	Load occurs at Jul 1500
Sensible coil load 3.6 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 586 L/s	Entering DB / WB 20.0 / 17.0 °C
Max block L/s 586 L/s	Leaving DB / WB 14.9 / 14.6 °C
Sum of peak zone L/s 586 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.771	Bypass Factor 0.100
m ² /kW 4.2	Resulting RH 56 %
W/m ² 236.7	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.20 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.0 kW	Load occurs at Jul 1400
Sensible coil load 3.0 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1400 586 L/s	Entering DB / WB 24.2 / 18.8 °C
Max coil L/s 586 L/s	Leaving DB / WB 20.0 / 17.4 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.13 L/s	

Supply Fan Sizing Data

Actual max L/s 586 L/s	Fan motor BHP 0.18 BHP
Standard L/s 585 L/s	Fan motor kW 0.14 kW
Actual max L/(s-m ²) 29.61 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 28 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CAR RENTAL (146)

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:46AM

Air System Information

Air System Name **CAR RENTAL (146)**
Equipment Class **UNDEF**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **19.8** m²
Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.5	528	528	Aug 1300	0.1	19.8	26.65

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CAR RENTAL [143]	1	5.5	Aug 1300	528	0.1	19.8	26.65

Air System Sizing Summary for Command and Control Office [129]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:47AM

Air System Information

Air System Name Command and Control Office [129]	Number of zones 1
Equipment Class UNDEF	Floor Area 113.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:	
Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 23.8 kW	Load occurs at Jun 1100
Sensible coil load 17.4 kW	OA DB / WB 31.0 / 26.4 °C
Coil L/s at Jun 1100 2702 L/s	Entering DB / WB 20.0 / 17.0 °C
Max block L/s 2702 L/s	Leaving DB / WB 14.6 / 14.4 °C
Sum of peak zone L/s 2702 L/s	Coil ADP 14.0 °C
Sensible heat ratio 0.734	Bypass Factor 0.100
m ² /kW 4.8	Resulting RH 55 %
W/m ² 209.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 1.02 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 14.3 kW	Load occurs at Aug 1500
Sensible coil load 14.3 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 2702 L/s	Entering DB / WB 24.4 / 18.9 °C
Max coil L/s 2702 L/s	Leaving DB / WB 20.0 / 17.4 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.62 L/s	

Supply Fan Sizing Data

Actual max L/s 2702 L/s	Fan motor BHP 0.84 BHP
Standard L/s 2695 L/s	Fan motor kW 0.63 kW
Actual max L/(s-m ²) 23.83 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 159 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Command and Control Office [129]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:47AM

Air System Information

Air System Name Command and Control Office [129]	Number of zones 1
Equipment Class UNDEF	Floor Area 113.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	25.2	2432	2432	Aug 1300	0.0	113.4	21.44

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
COMMAND&CTRL OFFICE[129]	1	25.2	Aug 1300	2432	0.0	113.4	21.44

Air System Sizing Summary for Custom Office [112]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:04PM

Air System Information

Air System Name	Custom Office [112]	Number of zones	1
Equipment Class	UNDEF	Floor Area	16.5 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	2.5 kW	Load occurs at	Aug 1300
Sensible coil load	1.6 kW	OA DB / WB	34.0 / 27.0 °C
Coil L/s at Aug 1300	260 L/s	Entering DB / WB	20.0 / 17.4 °C
Max block L/s	260 L/s	Leaving DB / WB	14.8 / 14.6 °C
Sum of peak zone L/s	260 L/s	Coil ADP	14.2 °C
Sensible heat ratio	0.648	Bypass Factor	0.100
m ² /kW	6.6	Resulting RH	57 %
W/m ²	152.2	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.11 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	1.4 kW	Load occurs at	Jun 1500
Sensible coil load	1.4 kW	OA DB / WB	34.4 / 27.2 °C
Coil L/s at Jun 1500	260 L/s	Entering DB / WB	24.5 / 19.3 °C
Max coil L/s	260 L/s	Leaving DB / WB	20.0 / 17.9 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.06 L/s		

Supply Fan Sizing Data

Actual max L/s	260 L/s	Fan motor BHP	0.08 BHP
Standard L/s	260 L/s	Fan motor kW	0.06 kW
Actual max L/(s-m ²)	15.78 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	23 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Custom Office [112]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:04PM

Air System Information

Air System Name **Custom Office [112]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **16.5** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.4	234	234	Aug 1300	0.0	16.5	14.20

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CUSTOM OFFICE [112]	1	2.4	Aug 1300	234	0.0	16.5	14.20

Air System Sizing Summary for DOMESTIC GATE LOUNGE [170]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:04PM

Air System Information

Air System Name ... DOMESTIC GATE LOUNGE [170]	Number of zones 1
Equipment Class UNDEF	Floor Area 956.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 157.7 kW	Load occurs at Sep 1500
Sensible coil load 78.9 kW	OA DB / WB 33.9 / 26.7 °C
Coil L/s at Sep 1500 12724 L/s	Entering DB / WB 20.0 / 18.3 °C
Max block L/s 12724 L/s	Leaving DB / WB 14.9 / 14.7 °C
Sum of peak zone L/s 12724 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.500	Bypass Factor 0.100
m ² /kW 6.1	Resulting RH 59 %
W/m ² 165.0	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 6.79 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 85.1 kW	Load occurs at Jul 1600
Sensible coil load 85.1 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 12724 L/s	Entering DB / WB 25.6 / 20.4 °C
Max coil L/s 12724 L/s	Leaving DB / WB 20.0 / 18.7 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 3.66 L/s	

Supply Fan Sizing Data

Actual max L/s 12724 L/s	Fan motor BHP 3.95 BHP
Standard L/s 12693 L/s	Fan motor kW 2.95 kW
Actual max L/(s-m ²) 13.31 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 2231 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 2.33 L/(s-m ²)	

Zone Sizing Summary for DOMESTIC GATE LOUNGE [170]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:04PM

Air System Information

Air System Name ... **DOMESTIC GATE LOUNGE [170]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **956.1** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	118.6	11452	11452	Aug 1500	1.0	956.1	11.98

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
DOMESTIC GATE LOUNGE[170]	1	118.6	Aug 1500	11452	1.0	956.1	11.98

Air System Sizing Summary for Security Check spot [158]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:37PM

Air System Information

Air System Name	Security Check spot [158]	Number of zones	1
Equipment Class	UNDEF	Floor Area	140.7 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	19.8 kW	Load occurs at	Jun 1200
Sensible coil load	10.3 kW	OA DB / WB	32.4 / 26.7 °C
Coil L/s at Jun 1200	1504 L/s	Entering DB / WB	20.0 / 18.1 °C
Max block L/s	1504 L/s	Leaving DB / WB	14.3 / 14.2 °C
Sum of peak zone L/s	1504 L/s	Coil ADP	13.7 °C
Sensible heat ratio	0.518	Bypass Factor	0.100
m ² /kW	7.1	Resulting RH	45 %
W/m ²	141.0	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.85 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	15.2 kW	Load occurs at	Aug 1500
Sensible coil load	15.2 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Aug 1500	1504 L/s	Entering DB / WB	28.4 / 20.9 °C
Max coil L/s	1504 L/s	Leaving DB / WB	20.0 / 18.3 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.65 L/s		

Supply Fan Sizing Data

Actual max L/s	1504 L/s	Fan motor BHP	0.47 BHP
Standard L/s	1501 L/s	Fan motor kW	0.35 kW
Actual max L/(s-m ²)	10.69 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	246 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.75 L/(s-m ²)		

Zone Sizing Summary for Security Check spot [158]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:37PM

Air System Information

Air System Name **Security Check spot [158]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **140.7** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	20.5	1354	1354	Aug 1300	0.0	140.7	9.62

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
SECURITY CHECK partial	1	20.5	Aug 1300	1354	0.0	140.7	9.62

Air System Sizing Summary for SECURITY [132]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:37PM

Air System Information

Air System Name SECURITY [132]	Number of zones 1
Equipment Class UNDEF	Floor Area 16.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 2.3 kW	Load occurs at Jun 1300
Sensible coil load 1.4 kW	OA DB / WB 33.5 / 27.0 °C
Coil L/s at Jun 1300 212 L/s	Entering DB / WB 20.0 / 17.5 °C
Max block L/s 212 L/s	Leaving DB / WB 14.6 / 14.4 °C
Sum of peak zone L/s 212 L/s	Coil ADP 14.0 °C
Sensible heat ratio 0.612	Bypass Factor 0.100
m ² /kW 7.1	Resulting RH 56 %
W/m ² 141.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.10 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.2 kW	Load occurs at Aug 1300
Sensible coil load 1.2 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Aug 1300 212 L/s	Entering DB / WB 24.7 / 19.4 °C
Max coil L/s 212 L/s	Leaving DB / WB 20.0 / 17.8 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.05 L/s	

Supply Fan Sizing Data

Actual max L/s 212 L/s	Fan motor BHP 0.07 BHP
Standard L/s 212 L/s	Fan motor kW 0.05 kW
Actual max L/(s-m ²) 13.28 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 22 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for SECURITY [132]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:37PM

Air System Information

Air System Name SECURITY [132]
 Equipment Class UNDEF
 Air System Type SZCAV

Number of zones 1
 Floor Area 16.0 m²
 Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates
 Space L/s Individual peak space loads

Calculation Months Jan to Dec
 Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.0	191	191	Aug 1300	0.0	16.0	11.95

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
IMMIGRATION OFFICE [132]	1	2.0	Aug 1300	191	0.0	16.0	11.95

Air System Sizing Summary for Electrical Room 2

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:05PM

Air System Information

Air System Name Electrical Room 2	Number of zones 1
Equipment Class UNDEF	Floor Area 16.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 3.3 kW	Load occurs at Jun 1200
Sensible coil load 3.3 kW	OA DB / WB 32.4 / 26.7 °C
Coil L/s at Jun 1200 494 L/s	Entering DB / WB 20.0 / 5.8 °C
Max block L/s 494 L/s	Leaving DB / WB 14.5 / 2.9 °C
Sum of peak zone L/s 494 L/s	Coil ADP 13.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
m ² /kW 4.9	Resulting RH 0 %
W/m ² 204.1	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.14 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.2 kW	Load occurs at Jan 1500
Sensible coil load 2.2 kW	OA DB / WB 29.4 / 23.9 °C
Coil L/s at Jan 1500 494 L/s	Entering DB / WB 23.8 / 7.7 °C
Max coil L/s 494 L/s	Leaving DB / WB 20.0 / 5.8 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.10 L/s	

Supply Fan Sizing Data

Actual max L/s 494 L/s	Fan motor BHP 0.15 BHP
Standard L/s 493 L/s	Fan motor kW 0.11 kW
Actual max L/(s-m ²) 30.89 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 0 L/s	L/s/person 0.00 L/s/person
L/(s-m ²) 0.00 L/(s-m ²)	

Zone Sizing Summary for Electrical Room 2

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:05PM

Air System Information

Air System Name Electrical Room 2	Number of zones 1
Equipment Class UNDEF	Floor Area 16.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	4.6	445	445	Aug 1300	0.0	16.0	27.80

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
ELECTRICAL RM.2 [131]	1	4.6	Aug 1300	445	0.0	16.0	27.80

Air System Sizing Summary for International Gate Lounge [120]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:28PM

Air System Information

Air System Name International Gate Lounge [120]	Number of zones 1
Equipment Class UNDEF	Floor Area 432.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 74.4 kW	Load occurs at Jun 1500
Sensible coil load 36.6 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 6094 L/s	Entering DB / WB 20.0 / 18.4 °C
Max block L/s 6094 L/s	Leaving DB / WB 15.0 / 14.9 °C
Sum of peak zone L/s 6094 L/s	Coil ADP 14.5 °C
Sensible heat ratio 0.493	Bypass Factor 0.100
m ² /kW 5.8	Resulting RH 60 %
W/m ² 171.8	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 3.20 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 39.3 kW	Load occurs at Jul 1500
Sensible coil load 39.3 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 6094 L/s	Entering DB / WB 25.4 / 20.2 °C
Max coil L/s 6094 L/s	Leaving DB / WB 20.0 / 18.4 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 1.69 L/s	

Supply Fan Sizing Data

Actual max L/s 6094 L/s	Fan motor BHP 1.89 BHP
Standard L/s 6079 L/s	Fan motor kW 1.41 kW
Actual max L/(s-m ²) 14.08 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 1010 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 2.33 L/(s-m ²)	

Zone Sizing Summary for International Gate Lounge [120]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:28PM

Air System Information

Air System Name **International Gate Lounge [120]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **432.9** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	56.8	5485	5485	Aug 1500	0.5	432.9	12.67

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
INT'L GATE LOUNGE [120]	1	56.8	Aug 1500	5485	0.5	432.9	12.67

Air System Sizing Summary for LOST AND FOUND BAGGAGE [110]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:30PM

Air System Information

Air System Name LOST AND FOUND BAGGAGE [110]	Number of zones 1
Equipment Class UNDEF	Floor Area 38.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 4.0 kW	Load occurs at Jun 1300
Sensible coil load 2.0 kW	OA DB / WB 33.5 / 27.0 °C
Coil L/s at Jun 1300 321 L/s	Entering DB / WB 20.0 / 18.4 °C
Max block L/s 321 L/s	Leaving DB / WB 14.8 / 14.7 °C
Sum of peak zone L/s 321 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.493	Bypass Factor 0.100
m ² /kW 9.6	Resulting RH 59 %
W/m ² 103.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.17 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.1 kW	Load occurs at Aug 1600
Sensible coil load 2.1 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 321 L/s	Entering DB / WB 25.3 / 20.5 °C
Max coil L/s 321 L/s	Leaving DB / WB 20.0 / 18.8 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.09 L/s	

Supply Fan Sizing Data

Actual max L/s 321 L/s	Fan motor BHP 0.10 BHP
Standard L/s 320 L/s	Fan motor kW 0.07 kW
Actual max L/(s-m ²) 8.25 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 54 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for LOST AND FOUND BAGGAGE [110]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:30PM

Air System Information

Air System Name **LOST AND FOUND BAGGAGE [110]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **38.9** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	3.0	289	289	Aug 1300	0.0	38.9	7.42

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
LOST & FOUND BAGGAGE 110	1	3.0	Aug 1300	289	0.0	38.9	7.42

Air System Sizing Summary for Passport Control 1 [119]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:35PM

Air System Information

Air System Name	Passport Control 1 [119]	Number of zones	1
Equipment Class	UNDEF	Floor Area	157.1 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	39.7 kW	Load occurs at	Aug 1500
Sensible coil load	25.9 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Aug 1500	2075 L/s	Entering DB / WB	25.5 / 20.0 °C
Max block L/s	2075 L/s	Leaving DB / WB	15.1 / 14.6 °C
Sum of peak zone L/s	2075 L/s	Coil ADP	14.0 °C
Sensible heat ratio	0.654	Bypass Factor	0.100
m ² /kW	4.0	Resulting RH	58 %
W/m ²	252.4	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	1.71 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	2075 L/s	Fan motor BHP	0.64 BHP
Standard L/s	2069 L/s	Fan motor kW	0.48 kW
Actual max L/(s-m ²)	13.21 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	367 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	2.33 L/(s-m ²)		

Zone Sizing Summary for Passport Control 1 [119]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:35PM

Air System Information

Air System Name **Passport Control 1 [119]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **157.1** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	19.3	1867	1867	Aug 1500	0.2	157.1	11.88

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
PASSPORT CONTROL 1 [119]	1	19.3	Aug 1500	1867	0.2	157.1	11.88

Air System Sizing Summary for PASSPORT CONTROL 2 [121]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:35PM

Air System Information

Air System Name	PASSPORT CONTROL 2 [121]	Number of zones	1
Equipment Class	UNDEF	Floor Area	41.8 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	7.3 kW	Load occurs at	Jul 1300
Sensible coil load	3.6 kW	OA DB / WB	34.0 / 27.0 °C
Coil L/s at Jul 1300	552 L/s	Entering DB / WB	20.0 / 18.3 °C
Max block L/s	552 L/s	Leaving DB / WB	14.6 / 14.4 °C
Sum of peak zone L/s	552 L/s	Coil ADP	14.0 °C
Sensible heat ratio	0.497	Bypass Factor	0.100
m ² /kW	5.8	Resulting RH	58 %
W/m ²	173.8	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.31 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	3.8 kW	Load occurs at	Aug 1500
Sensible coil load	3.8 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Aug 1500	552 L/s	Entering DB / WB	25.7 / 20.5 °C
Max coil L/s	552 L/s	Leaving DB / WB	20.0 / 18.7 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.16 L/s		

Supply Fan Sizing Data

Actual max L/s	552 L/s	Fan motor BHP	0.17 BHP
Standard L/s	551 L/s	Fan motor kW	0.13 kW
Actual max L/(s-m ²)	13.20 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	98 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	2.33 L/(s-m ²)		

Zone Sizing Summary for PASSPORT CONTROL 2 [121]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:35PM

Air System Information

Air System Name **PASSPORT CONTROL 2 [121]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **41.8** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.1	497	497	Aug 1300	0.0	41.8	11.88

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
PASSPORT CONTROL 2 [121]	1	5.1	Aug 1300	497	0.0	41.8	11.88

Air System Sizing Summary for Security Check [158]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:37PM

Air System Information

Air System Name **Security Check [158]**
Equipment Class **UNDEF**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **195.2** m²
Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Central Cooling Coil Sizing Data

Total coil load **32.2** kW
Sensible coil load **19.3** kW
Coil L/s at Jun 1300 **1126** L/s
Max block L/s **1126** L/s
Sum of peak zone L/s **1126** L/s
Sensible heat ratio **0.600**
m²/kW **6.1**
W/m² **165.1**
Water flow @ 5.6 °K rise **1.39** L/s

Load occurs at **Jun 1300**
OA DB / WB **33.5 / 27.0** °C
Entering DB / WB **29.0 / 22.0** °C
Leaving DB / WB **14.7 / 14.2** °C
Coil ADP **13.1** °C
Bypass Factor **0.100**
Resulting RH **46** %
Design supply temp. **14.4** °C
Zone T-stat Check **1 of 1** OK
Max zone temperature deviation **0.0** °K

Supply Fan Sizing Data

Actual max L/s **1126** L/s
Standard L/s **1124** L/s
Actual max L/(s-m²) **5.77** L/(s-m²)

Fan motor BHP **0.35** BHP
Fan motor kW **0.26** kW
Fan static **125** Pa

Outdoor Ventilation Air Data

Design airflow L/s **342** L/s
L/(s-m²) **1.75** L/(s-m²)

L/s/person **7.00** L/s/person

Zone Sizing Summary for Security Check [158]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:37PM

Air System Information

Air System Name **Security Check [158]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **195.2** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	15.4	1014	1014	Aug 1300	0.0	195.2	5.19

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
SECURITY CHECK [158]	1	15.4	Aug 1300	1014	0.0	195.2	5.19

Air System Sizing Summary for Security Office 157

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:39PM

Air System Information

Air System Name	Security Office 157	Number of zones	1
Equipment Class	UNDEF	Floor Area	16.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	2.3 kW	Load occurs at	Jun 1300
Sensible coil load	1.4 kW	OA DB / WB	33.5 / 27.0 °C
Coil L/s at Jun 1300	212 L/s	Entering DB / WB	20.0 / 17.5 °C
Max block L/s	212 L/s	Leaving DB / WB	14.6 / 14.4 °C
Sum of peak zone L/s	212 L/s	Coil ADP	14.0 °C
Sensible heat ratio	0.612	Bypass Factor	0.100
m ² /kW	7.1	Resulting RH	56 %
W/m ²	141.5	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.10 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	1.2 kW	Load occurs at	Aug 1300
Sensible coil load	1.2 kW	OA DB / WB	34.0 / 27.0 °C
Coil L/s at Aug 1300	212 L/s	Entering DB / WB	24.7 / 19.4 °C
Max coil L/s	212 L/s	Leaving DB / WB	20.0 / 17.8 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.05 L/s		

Supply Fan Sizing Data

Actual max L/s	212 L/s	Fan motor BHP	0.07 BHP
Standard L/s	212 L/s	Fan motor kW	0.05 kW
Actual max L/(s-m ²)	13.28 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	22 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Security Office 157

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:39PM

Air System Information

Air System Name **Security Office 157**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **16.0** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.0	191	191	Aug 1300	0.0	16.0	11.95

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
SECURITY OFFICE [133]	1	2.0	Aug 1300	191	0.0	16.0	11.95

Air System Sizing Summary for Staff and Goods [122]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:39PM

Air System Information

Air System Name	Staff and Goods [122]	Number of zones	1
Equipment Class	UNDEF	Floor Area	38.7 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	7.9 kW	Load occurs at	Jun 1300
Sensible coil load	5.7 kW	OA DB / WB	33.5 / 27.0 °C
Coil L/s at Jun 1300	864 L/s	Entering DB / WB	20.0 / 17.0 °C
Max block L/s	864 L/s	Leaving DB / WB	14.5 / 14.2 °C
Sum of peak zone L/s	864 L/s	Coil ADP	13.9 °C
Sensible heat ratio	0.724	Bypass Factor	0.100
m ² /kW	4.9	Resulting RH	55 %
W/m ²	203.0	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.34 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	4.5 kW	Load occurs at	Aug 1500
Sensible coil load	4.5 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Aug 1500	864 L/s	Entering DB / WB	24.3 / 18.8 °C
Max coil L/s	864 L/s	Leaving DB / WB	20.0 / 17.4 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.19 L/s		

Supply Fan Sizing Data

Actual max L/s	864 L/s	Fan motor BHP	0.27 BHP
Standard L/s	861 L/s	Fan motor kW	0.20 kW
Actual max L/(s-m ²)	22.31 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	54 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Staff and Goods [122]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:39PM

Air System Information

Air System Name **Staff and Goods [122]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **38.7** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	8.0	777	777	Aug 1300	0.0	38.7	20.08

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
STAFF&GOODS [122]	1	8.0	Aug 1300	777	0.0	38.7	20.08

Air System Sizing Summary for Ticketing Office [141]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:39PM

Air System Information

Air System Name Ticketing Office [141]	Number of zones 1
Equipment Class UNDEF	Floor Area 19.8 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 4.7 kW	Load occurs at Aug 1300
Sensible coil load 3.6 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Aug 1300 586 L/s	Entering DB / WB 20.0 / 17.0 °C
Max block L/s 586 L/s	Leaving DB / WB 14.9 / 14.6 °C
Sum of peak zone L/s 586 L/s	Coil ADP 14.4 °C
Sensible heat ratio 0.770	Bypass Factor 0.100
m ² /kW 4.3	Resulting RH 56 %
W/m ² 235.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.20 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.9 kW	Load occurs at Jul 1600
Sensible coil load 2.9 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 586 L/s	Entering DB / WB 24.1 / 18.8 °C
Max coil L/s 586 L/s	Leaving DB / WB 20.0 / 17.5 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.13 L/s	

Supply Fan Sizing Data

Actual max L/s 586 L/s	Fan motor BHP 0.18 BHP
Standard L/s 585 L/s	Fan motor kW 0.14 kW
Actual max L/(s-m ²) 29.60 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 28 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Ticketing Office [141]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:39PM

Air System Information

Air System Name Ticketing Office [141]	Number of zones 1
Equipment Class UNDEF	Floor Area 19.8 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.5	527	527	Aug 1300	0.1	19.8	26.64

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
TICKETING OFFICE [141]	1	5.5	Aug 1300	527	0.1	19.8	26.64

Air System Sizing Summary for PAHU

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:32PM

Air System Information

Air System Name	PAHU	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	3692.6 m ²
Air System Type	TEMPER	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Precool Coil Sizing Data

Total coil load	316.1 kW	Load occurs at	Jul 1500
Sensible coil load	149.0 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Jul 1500	6695 L/s	Entering DB / WB	35.0 / 27.2 °C
Max coil L/s	6695 L/s	Leaving DB / WB	16.5 / 16.1 °C
Sensible heat ratio	0.472	Bypass Factor	0.100
Water flow @ 5.6 °K rise	N/A		

Supply Fan Sizing Data

Actual max L/s	6695 L/s	Fan motor BHP	4.16 BHP
Standard L/s	6679 L/s	Fan motor kW	3.10 kW
Actual max L/(s-m ²)	1.81 L/(s-m ²)	Fan static	250 Pa

Outdoor Ventilation Air Data

Design airflow L/s	6695 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.81 L/(s-m ²)		

Zone Sizing Summary for PAHU

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:32PM

Air System Information

Air System Name **PAHU**
Equipment Class **SPLT AHU**
Air System Type **TEMPER**

Number of zones **1**
Floor Area **3692.6** m²
Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	503.9	6695	6695	Aug 1500	3.3	3692.6	1.81

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airline Office 182	1	1.1	Aug 1300	13	0.0	9.0	1.40
Airline Office 183	1	1.1	Aug 1300	13	0.0	9.0	1.40
Airline Office 183-a	1	1.1	Aug 1300	13	0.0	9.0	1.40
Airline Office 184	1	1.1	Aug 1300	13	0.0	9.0	1.40
AOD	1	3.0	Aug 1300	33	0.0	23.6	1.40
BANK [142]	1	5.2	Aug 1300	27	0.1	19.4	1.40
BHS INLINE SCREEN spot	1	2.4	Jul 1500	28	0.0	10.5	2.67
BHS Xray	1	6.4	Aug 1300	0	0.0	14.1	0.00
CAR RENTAL [143]	1	5.3	Aug 1300	28	0.1	19.8	1.40
CASHIER	1	0.8	Aug 1300	9	0.0	6.2	1.40
CHECK-IN spot cool [157]	1	65.8	Aug 1300	849	0.1	485.1	1.75
COMMAND&CTRL OFFICE[129]	1	25.0	Aug 1300	159	0.0	113.4	1.40
CONCESSION 01 [111]	1	7.3	Aug 1300	115	0.0	82.4	1.40
CONCESSION 02 [105]	1	9.5	Aug 1300	58	0.1	41.2	1.40
CONCESSION 04 [125]	1	8.4	Aug 1300	125	0.0	89.2	1.40
CONCESSION 05 [134]	1	6.2	Aug 1300	99	0.0	70.9	1.40
CONCESSION 06 [123]	1	8.4	Aug 1300	136	0.0	97.3	1.40
CONCESSION 07 [146]	1	9.1	Aug 1300	78	0.1	55.6	1.40
CONCESSION 08 [148]	1	16.5	Aug 1300	127	0.2	90.9	1.40
CONCESSION 09 [181]	1	7.5	Aug 1300	119	0.0	85.0	1.40
CONCESSION 10 [163]	1	6.5	Aug 1300	96	0.0	68.5	1.40
CONCESSION 11 [171]	1	34.8	Jul 1600	229	0.4	163.3	1.40
CONCESSION 12 [154]	1	13.7	Jul 1400	114	0.2	81.2	1.40
CUSTOM OFFICE [112]	1	2.3	Aug 1300	23	0.0	16.5	1.40
DOMESTIC GATE LOUNGE[170	1	116.7	Aug 1500	2231	1.0	956.1	2.33
ELECTRICAL RM.2 [131]	1	4.6	Aug 1300	0	0.0	16.0	0.00
FOBS	1	2.2	Aug 1300	25	0.0	18.2	1.40
ICTS	1	1.1	Aug 1300	11	0.0	8.0	1.40
IMMIGRATION OFFICE [132]	1	2.0	Aug 1300	22	0.0	16.0	1.40
INT'L GATE LOUNGE [120]	1	55.7	Aug 1500	1010	0.5	432.9	2.33
INTELLIGENCE	1	2.2	Aug 1300	23	0.0	16.1	1.40
LOST & FOUND BAGGAGE 109	1	2.9	Aug 1300	54	0.0	38.8	1.40
LOST & FOUND BAGGAGE 110	1	2.9	Aug 1300	54	0.0	38.9	1.40
office [159]	1	3.7	Jul 2100	20	0.1	14.1	1.40
OFFICES [128	1	25.0	Aug 1300	241	0.0	172.3	1.40
PASSPORT CONTROL 2 [121]	1	5.1	Aug 1300	98	0.0	41.8	2.33

Zone Sizing Summary for PAHU

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:32PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
QUARANTINE	1	4.7	Aug 1300	53	0.0	38.1	1.40
SECURITY CHECK partial	1	20.9	Aug 1300	246	0.0	140.7	1.75
SECURITY OFFICE [133]	1	2.0	Aug 1300	22	0.0	16.0	1.40
STAFF&GOODS [122]	1	8.0	Aug 1300	54	0.0	38.7	1.40
TICKETING OFFICE [141]	1	5.3	Aug 1300	28	0.1	19.8	1.40

Air System Sizing Summary for FOBS

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:06PM

Air System Information

Air System Name FOBS	Number of zones 1
Equipment Class UNDEF	Floor Area 18.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 2.5 kW	Load occurs at Jul 1400
Sensible coil load 1.6 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1400 245 L/s	Entering DB / WB 20.0 / 17.6 °C
Max block L/s 245 L/s	Leaving DB / WB 14.7 / 14.5 °C
Sum of peak zone L/s 245 L/s	Coil ADP 14.1 °C
Sensible heat ratio 0.616	Bypass Factor 0.100
m ² /kW 7.2	Resulting RH 57 %
W/m ² 139.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.11 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.4 kW	Load occurs at Aug 1500
Sensible coil load 1.4 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 245 L/s	Entering DB / WB 24.8 / 19.5 °C
Max coil L/s 245 L/s	Leaving DB / WB 20.0 / 18.0 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.06 L/s	

Supply Fan Sizing Data

Actual max L/s 245 L/s	Fan motor BHP 0.08 BHP
Standard L/s 244 L/s	Fan motor kW 0.06 kW
Actual max L/(s-m ²) 13.44 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 25 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for FOBS

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:06PM

Air System Information

Air System Name FOBS	Number of zones 1
Equipment Class UNDEF	Floor Area 18.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.3	220	220	Aug 1300	0.0	18.2	12.09

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
FOBS	1	2.3	Aug 1300	220	0.0	18.2	12.09

Air System Sizing Summary for Check in spot cooling

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:47AM

Air System Information

Air System Name	Check in spot cooling	Number of zones	1
Equipment Class	UNDEF	Floor Area	485.1 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	118.7 kW	Load occurs at	Jul 1300
Sensible coil load	85.3 kW	OA DB / WB	34.0 / 27.0 °C
Coil L/s at Jul 1300	7104 L/s	Entering DB / WB	24.5 / 18.9 °C
Max block L/s	7104 L/s	Leaving DB / WB	14.5 / 14.0 °C
Sum of peak zone L/s	7104 L/s	Coil ADP	13.4 °C
Sensible heat ratio	0.719	Bypass Factor	0.100
m ² /kW	4.1	Resulting RH	55 %
W/m ²	244.8	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	5.11 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	7104 L/s	Fan motor BHP	2.21 BHP
Standard L/s	7086 L/s	Fan motor kW	1.64 kW
Actual max L/(s-m ²)	14.64 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	849 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.75 L/(s-m ²)		

Zone Sizing Summary for Check in spot cooling

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:47AM

Air System Information

Air System Name **Check in spot cooling**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **485.1** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	66.2	6393	6393	Aug 1300	0.1	485.1	13.18

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CHECK-IN spot cool [157]	1	66.2	Aug 1300	6393	0.1	485.1	13.18

Air System Sizing Summary for AOD [127]

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:45AM

Air System Information

Air System Name	AOD [127]	Number of zones	1
Equipment Class	UNDEF	Floor Area	23.6 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	3.4 kW	Load occurs at	Aug 1200
Sensible coil load	2.1 kW	OA DB / WB	33.0 / 26.7 °C
Coil L/s at Aug 1200	333 L/s	Entering DB / WB	20.0 / 17.5 °C
Max block L/s	333 L/s	Leaving DB / WB	14.7 / 14.5 °C
Sum of peak zone L/s	333 L/s	Coil ADP	14.1 °C
Sensible heat ratio	0.626	Bypass Factor	0.100
m ² /kW	7.0	Resulting RH	56 %
W/m ²	143.6	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.15 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	1.9 kW	Load occurs at	Aug 1600
Sensible coil load	1.9 kW	OA DB / WB	34.7 / 27.2 °C
Coil L/s at Aug 1600	333 L/s	Entering DB / WB	24.7 / 19.5 °C
Max coil L/s	333 L/s	Leaving DB / WB	20.0 / 18.0 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.08 L/s		

Supply Fan Sizing Data

Actual max L/s	333 L/s	Fan motor BHP	0.10 BHP
Standard L/s	332 L/s	Fan motor kW	0.08 kW
Actual max L/(s-m ²)	14.10 L/(s-m ²)	Fan static	124 Pa

Outdoor Ventilation Air Data

Design airflow L/s	33 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for AOD [127]

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:45AM

Air System Information

Air System Name **AOD [127]**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **23.6** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	3.1	299	299	Aug 1300	0.0	23.6	12.69

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
AOD	1	3.1	Aug 1300	299	0.0	23.6	12.69

Air System Sizing Summary for CASHIER

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:46AM

Air System Information

Air System Name CASHIER	Number of zones 1
Equipment Class UNDEF	Floor Area 6.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 0.9 kW	Load occurs at Jul 1100
Sensible coil load 0.6 kW	OA DB / WB 31.6 / 26.4 °C
Coil L/s at Jul 1100 90 L/s	Entering DB / WB 20.0 / 17.5 °C
Max block L/s 90 L/s	Leaving DB / WB 14.8 / 14.6 °C
Sum of peak zone L/s 90 L/s	Coil ADP 14.2 °C
Sensible heat ratio 0.629	Bypass Factor 0.100
m ² /kW 6.9	Resulting RH 57 %
W/m ² 144.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.04 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.5 kW	Load occurs at Aug 1600
Sensible coil load 0.5 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 90 L/s	Entering DB / WB 24.6 / 19.5 °C
Max coil L/s 90 L/s	Leaving DB / WB 20.0 / 18.0 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.02 L/s	

Supply Fan Sizing Data

Actual max L/s 90 L/s	Fan motor BHP 0.03 BHP
Standard L/s 89 L/s	Fan motor kW 0.02 kW
Actual max L/(s-m ²) 14.44 L/(s-m ²)	Fan static 124 Pa

Outdoor Ventilation Air Data

Design airflow L/s 9 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for CASHIER

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:46AM

Air System Information

Air System Name CASHIER	Number of zones 1
Equipment Class UNDEF	Floor Area 6.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	0.8	81	81	Aug 1300	0.0	6.2	13.00

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
CASHIER	1	0.8	Aug 1300	81	0.0	6.2	13.00

Air System Sizing Summary for HOLD F

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:06PM

Air System Information

Air System Name HOLD F	Number of zones 1
Equipment Class UNDEF	Floor Area 5.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 0.6 kW	Load occurs at Aug 1200
Sensible coil load 0.3 kW	OA DB / WB 33.0 / 26.7 °C
Coil L/s at Aug 1200 48 L/s	Entering DB / WB 20.0 / 18.2 °C
Max block L/s 48 L/s	Leaving DB / WB 14.9 / 14.7 °C
Sum of peak zone L/s 48 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.522	Bypass Factor 0.100
m ² /kW 9.2	Resulting RH 58 %
W/m ² 108.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.02 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.3 kW	Load occurs at Jun 1500
Sensible coil load 0.3 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 48 L/s	Entering DB / WB 25.2 / 20.3 °C
Max coil L/s 48 L/s	Leaving DB / WB 20.0 / 18.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.01 L/s	

Supply Fan Sizing Data

Actual max L/s 48 L/s	Fan motor BHP 0.01 BHP
Standard L/s 48 L/s	Fan motor kW 0.01 kW
Actual max L/(s-m ²) 9.18 L/(s-m ²)	Fan static 124 Pa

Outdoor Ventilation Air Data

Design airflow L/s 7 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for HOLD F

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:06PM

Air System Information

Air System Name HOLD F	Number of zones 1
Equipment Class UNDEF	Floor Area 5.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	0.4	43	43	Aug 1300	0.0	5.2	8.26

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
HOLD F	1	0.4	Aug 1300	43	0.0	5.2	8.26

Air System Sizing Summary for HOLD M

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:27PM

Air System Information

Air System Name HOLD M	Number of zones 1
Equipment Class UNDEF	Floor Area 5.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 0.6 kW	Load occurs at Aug 1200
Sensible coil load 0.3 kW	OA DB / WB 33.0 / 26.7 °C
Coil L/s at Aug 1200 48 L/s	Entering DB / WB 20.0 / 18.2 °C
Max block L/s 48 L/s	Leaving DB / WB 14.9 / 14.7 °C
Sum of peak zone L/s 48 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.522	Bypass Factor 0.100
m ² /kW 9.2	Resulting RH 58 %
W/m ² 108.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.02 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.3 kW	Load occurs at Jun 1500
Sensible coil load 0.3 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 48 L/s	Entering DB / WB 25.2 / 20.3 °C
Max coil L/s 48 L/s	Leaving DB / WB 20.0 / 18.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.01 L/s	

Supply Fan Sizing Data

Actual max L/s 48 L/s	Fan motor BHP 0.01 BHP
Standard L/s 48 L/s	Fan motor kW 0.01 kW
Actual max L/(s-m ²) 9.18 L/(s-m ²)	Fan static 124 Pa

Outdoor Ventilation Air Data

Design airflow L/s 7 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for HOLD M

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:27PM

Air System Information

Air System Name HOLD M	Number of zones 1
Equipment Class UNDEF	Floor Area 5.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	0.4	43	43	Aug 1300	0.0	5.2	8.26

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
HOLD M	1	0.4	Aug 1300	43	0.0	5.2	8.26

Air System Sizing Summary for ICTS

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:27PM

Air System Information

Air System Name	ICTS	Number of zones	1
Equipment Class	UNDEF	Floor Area	8.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	1.2 kW	Load occurs at	Aug 1200
Sensible coil load	0.8 kW	OA DB / WB	33.0 / 26.7 °C
Coil L/s at Aug 1200	119 L/s	Entering DB / WB	20.0 / 17.5 °C
Max block L/s	119 L/s	Leaving DB / WB	14.7 / 14.5 °C
Sum of peak zone L/s	119 L/s	Coil ADP	14.1 °C
Sensible heat ratio	0.637	Bypass Factor	0.100
m ² /kW	6.8	Resulting RH	56 %
W/m ²	148.0	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.05 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	0.7 kW	Load occurs at	Aug 1500
Sensible coil load	0.7 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Aug 1500	119 L/s	Entering DB / WB	24.6 / 19.4 °C
Max coil L/s	119 L/s	Leaving DB / WB	20.0 / 17.8 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.03 L/s		

Supply Fan Sizing Data

Actual max L/s	119 L/s	Fan motor BHP	0.04 BHP
Standard L/s	118 L/s	Fan motor kW	0.03 kW
Actual max L/(s-m ²)	14.85 L/(s-m ²)	Fan static	124 Pa

Outdoor Ventilation Air Data

Design airflow L/s	11 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for ICTS

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:27PM

Air System Information

Air System Name ICTS	Number of zones 1
Equipment Class UNDEF	Floor Area 8.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.1	107	107	Aug 1300	0.0	8.0	13.36

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
ICTS	1	1.1	Aug 1300	107	0.0	8.0	13.36

Air System Sizing Summary for INTELLIGENCE

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:27PM

Air System Information

Air System Name INTELLIGENCE	Number of zones 1
Equipment Class UNDEF	Floor Area 16.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 2.3 kW	Load occurs at May 1300
Sensible coil load 1.5 kW	OA DB / WB 32.4 / 26.4 °C
Coil L/s at May 1300 237 L/s	Entering DB / WB 20.0 / 17.5 °C
Max block L/s 237 L/s	Leaving DB / WB 14.8 / 14.6 °C
Sum of peak zone L/s 237 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.638	Bypass Factor 0.100
m ² /kW 7.0	Resulting RH 57 %
W/m ² 143.7	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.10 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.3 kW	Load occurs at Aug 1500
Sensible coil load 1.3 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 237 L/s	Entering DB / WB 24.6 / 19.3 °C
Max coil L/s 237 L/s	Leaving DB / WB 20.0 / 17.8 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.06 L/s	

Supply Fan Sizing Data

Actual max L/s 237 L/s	Fan motor BHP 0.07 BHP
Standard L/s 237 L/s	Fan motor kW 0.05 kW
Actual max L/(s-m ²) 14.73 L/(s-m ²)	Fan static 124 Pa

Outdoor Ventilation Air Data

Design airflow L/s 23 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for INTELLIGENCE

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:27PM

Air System Information

Air System Name INTELLIGENCE	Number of zones 1
Equipment Class UNDEF	Floor Area 16.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.2	214	214	Aug 1300	0.0	16.1	13.26

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
INTELLIGENCE	1	2.2	Aug 1300	214	0.0	16.1	13.26

Air System Sizing Summary for QUARANTINE

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:35PM

Air System Information

Air System Name QUARANTINE	Number of zones 1
Equipment Class UNDEF	Floor Area 38.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 5.4 kW	Load occurs at Jun 1300
Sensible coil load 3.3 kW	OA DB / WB 33.5 / 27.0 °C
Coil L/s at Jun 1300 506 L/s	Entering DB / WB 20.0 / 17.5 °C
Max block L/s 506 L/s	Leaving DB / WB 14.6 / 14.3 °C
Sum of peak zone L/s 506 L/s	Coil ADP 14.0 °C
Sensible heat ratio 0.613	Bypass Factor 0.100
m ² /kW 7.0	Resulting RH 56 %
W/m ² 141.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.23 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.9 kW	Load occurs at Jun 1500
Sensible coil load 2.9 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 506 L/s	Entering DB / WB 24.7 / 19.5 °C
Max coil L/s 506 L/s	Leaving DB / WB 20.0 / 17.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.12 L/s	

Supply Fan Sizing Data

Actual max L/s 506 L/s	Fan motor BHP 0.16 BHP
Standard L/s 505 L/s	Fan motor kW 0.12 kW
Actual max L/(s-m ²) 13.28 L/(s-m ²)	Fan static 124 Pa

Outdoor Ventilation Air Data

Design airflow L/s 53 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for QUARANTINE

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:35PM

Air System Information

Air System Name QUARANTINE	Number of zones 1
Equipment Class UNDEF	Floor Area 38.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	4.7	455	455	Aug 1300	0.0	38.1	11.95

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
QUARANTINE	1	4.7	Aug 1300	455	0.0	38.1	11.95

Air System Sizing Summary for BHS IN-LINE SCREENING xray

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
11:46AM

Air System Information

Air System Name	BHS IN-LINE SCREENING xray	Number of zones	1
Equipment Class	UNDEF	Floor Area	14.1 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	7.3 kW	Load occurs at	Sep 1200
Sensible coil load	7.3 kW	OA DB / WB	31.9 / 26.2 °C
Coil L/s at Sep 1200	696 L/s	Entering DB / WB	23.1 / 7.3 °C
Max block L/s	696 L/s	Leaving DB / WB	14.4 / 2.9 °C
Sum of peak zone L/s	696 L/s	Coil ADP	13.4 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
m ² /kW	1.9	Resulting RH	0 %
W/m ²	515.9	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.31 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	696 L/s	Fan motor BHP	0.22 BHP
Standard L/s	694 L/s	Fan motor kW	0.16 kW
Actual max L/(s-m ²)	49.35 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	0 L/s	L/s/person	0.00 L/s/person
L/(s-m ²)	0.00 L/(s-m ²)		

Zone Sizing Summary for BHS IN-LINE SCREENING xray

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 11:46AM

Air System Information

Air System Name **BHS IN-LINE SCREENING xray**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **14.1** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	6.5	626	626	Aug 1300	0.0	14.1	44.41

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
BHS Xray	1	6.5	Aug 1300	626	0.0	14.1	44.41

Air System Sizing Summary for MTG

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:30PM

Air System Information

Air System Name MTG	Number of zones 1
Equipment Class UNDEF	Floor Area 16.6 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 6.7 kW	Load occurs at Jul 1200
Sensible coil load 4.4 kW	OA DB / WB 33.0 / 26.7 °C
Coil L/s at Jul 1200 666 L/s	Entering DB / WB 20.0 / 17.3 °C
Max block L/s 666 L/s	Leaving DB / WB 14.5 / 14.3 °C
Sum of peak zone L/s 666 L/s	Coil ADP 13.9 °C
Sensible heat ratio 0.661	Bypass Factor 0.100
m ² /kW 2.5	Resulting RH 55 %
W/m ² 401.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.29 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.8 kW	Load occurs at Jul 1600
Sensible coil load 3.8 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 666 L/s	Entering DB / WB 24.7 / 19.3 °C
Max coil L/s 666 L/s	Leaving DB / WB 20.0 / 17.7 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.16 L/s	

Supply Fan Sizing Data

Actual max L/s 666 L/s	Fan motor BHP 0.21 BHP
Standard L/s 665 L/s	Fan motor kW 0.15 kW
Actual max L/(s-m ²) 40.13 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 58 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 3.50 L/(s-m ²)	

Zone Sizing Summary for MTG

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:30PM

Air System Information

Air System Name **MTG**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **16.6** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	6.2	600	600	Aug 1300	0.0	16.6	36.12

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
MTG.	1	6.2	Aug 1300	600	0.0	16.6	36.12

Air System Sizing Summary for COPY

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:02PM

Air System Information

Air System Name COPY	Number of zones 1
Equipment Class UNDEF	Floor Area 16.6 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 5.1 kW	Load occurs at Aug 1200
Sensible coil load 4.1 kW	OA DB / WB 33.0 / 26.7 °C
Coil L/s at Aug 1200 625 L/s	Entering DB / WB 20.0 / 16.6 °C
Max block L/s 625 L/s	Leaving DB / WB 14.5 / 14.2 °C
Sum of peak zone L/s 625 L/s	Coil ADP 13.9 °C
Sensible heat ratio 0.818	Bypass Factor 0.100
m ² /kW 3.3	Resulting RH 54 %
W/m ² 305.0	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.22 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.1 kW	Load occurs at Sep 1500
Sensible coil load 3.1 kW	OA DB / WB 33.9 / 26.7 °C
Coil L/s at Sep 1500 625 L/s	Entering DB / WB 24.2 / 18.6 °C
Max coil L/s 625 L/s	Leaving DB / WB 20.0 / 17.2 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.13 L/s	

Supply Fan Sizing Data

Actual max L/s 625 L/s	Fan motor BHP 0.19 BHP
Standard L/s 624 L/s	Fan motor kW 0.14 kW
Actual max L/(s-m ²) 37.66 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 23 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for COPY

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:02PM

Air System Information

Air System Name COPY	Number of zones 1
Equipment Class UNDEF	Floor Area 16.6 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.8	563	563	Aug 1300	0.0	16.6	33.89

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
COPY	1	5.8	Aug 1300	563	0.0	16.6	33.89

Air System Sizing Summary for Security Office 156

Project Name: New Bohol International Airport (PTB)
Prepared by: VVR Engineering Design Services

09/06/2013
12:39PM

Air System Information

Air System Name	Security Office 156	Number of zones	1
Equipment Class	UNDEF	Floor Area	16.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	2.3 kW	Load occurs at	Jun 1300
Sensible coil load	1.4 kW	OA DB / WB	33.5 / 27.0 °C
Coil L/s at Jun 1300	212 L/s	Entering DB / WB	20.0 / 17.5 °C
Max block L/s	212 L/s	Leaving DB / WB	14.6 / 14.4 °C
Sum of peak zone L/s	212 L/s	Coil ADP	14.0 °C
Sensible heat ratio	0.612	Bypass Factor	0.100
m ² /kW	7.1	Resulting RH	56 %
W/m ²	141.5	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.10 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	1.2 kW	Load occurs at	Aug 1300
Sensible coil load	1.2 kW	OA DB / WB	34.0 / 27.0 °C
Coil L/s at Aug 1300	212 L/s	Entering DB / WB	24.7 / 19.4 °C
Max coil L/s	212 L/s	Leaving DB / WB	20.0 / 17.8 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.05 L/s		

Supply Fan Sizing Data

Actual max L/s	212 L/s	Fan motor BHP	0.07 BHP
Standard L/s	212 L/s	Fan motor kW	0.05 kW
Actual max L/(s-m ²)	13.28 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	22 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Security Office 156

Project Name: New Bohol International Airport (PTB)
 Prepared by: VVR Engineering Design Services

09/06/2013
 12:39PM

Air System Information

Air System Name Security Office 156	Number of zones 1
Equipment Class UNDEF	Floor Area 16.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.0	191	191	Aug 1300	0.0	16.0	11.95

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
SECURITY OFFICE [133]	1	2.0	Aug 1300	191	0.0	16.0	11.95

2) Control Tower and Operation & Administration Building

Project: New Bohol International Airport and Sustainable Environment Protection (ADMIN Ground Floor)

Subject: Cooling Load Calculation

Date: 09/09/2013

Cooling and Ventilation Load Calculation																		
Item No.	Room	Room No.	Type of AC System	Total Floor Area (sq. m.)	Ceiling Height (m.)	Ceiling Area (sq.m.)	Wall Area(sq.m.)	Occupancy m ² /Person	Person	Lighting (w/sq. m.)	Electric Eq'ment (w/sq.m)	Eq'ment (kw)	Fresh Air		Temperature Setpoint (Celsius)	Calculated Cooling Capacity		
													Flowrate ASHRAE 62.1 -2007 (lps)	Sensible Heat (w/person)		Latent Heat (w/person)	Total Coil Load (kw)	Sensible Coil Load (kw)
Ground Floor																		
1	Storage	1-11	Full	14.84	2.7	14.8							64	67		24° +/- 1°		
2	Electrical Rm	1-10	Full	34.87	3.7	34.9							64	67		24° +/- 1°		
3	FOBS	1-12	Full	71.66	2.7	71.7	7.0	5	14	25	40		64	67	119	24° +/- 1°	11.2	7.3
4	FSS Radio	1-13	Full	11.66	2.7	11.7		5	2	25	40		64	67	19	24° +/- 1°	2.3	1.6
5	FSS FIC	1-14	Full	11.88	2.7	11.9		5	2	25	40		64	67	20	24° +/- 1°	1.5	0.8
6	Security Office	1-15	Full	49.97	2.7	50.0		5	10	25	40		64	67	83	24° +/- 1°	7.9	5.2
7	Record and Supply	1-18	Full	24.87	2.7	24.9		5	5	25	40		64	67	41	24° +/- 1°	3.1	1.8
8	Human Resources	1-19	Full	73.15	2.7	73.2	28.3	5	15	25	40		64	67	121	24° +/- 1°	12.2	8.3
9	Mechanical Rm.	1-20	Full	33.7	3.7	33.7							64	67		24° +/- 1°		
10	Handicap Toilet	1-21	Full	7.36	2.7	7.4							64	67		24° +/- 1°		
11	Hallway 1	1-09	Partial	51.05	2.4	51.1	33.7	10	5	20	0		64	67	65	28° +/- 2°	0.8	0.3
12	Hallway 3	1-23	Partial	33.04	2.4	33.0	30.4	10	3	20	0		64	67	42	28° +/- 2°	0.1	0.0
13	Janitor Rm.	1-22	Full	6.46	2.7	6.5							64	67		24° +/- 1°		
14	Financial Section	1-24	Full	30.42	2.7	30.4	14.6	5	6	25	40		64	67	50	24° +/- 1°	5.6	4.0
15	Toilet M	1-25	Full	14.53	2.7	14.5							64	67		24° +/- 1°		
16	Toilet F	1-26	Full	14.54	2.7	14.5							64	67		24° +/- 1°		
17	Clinic (First Aid)	1-27	Full	22.23	2.7	22.2	22.2	5	4	25	40		64	67	37	24° +/- 1°	3.6	2.4
18	Security	1-28	Full	7.91	2.7	7.9		5	2	25	40		64	67	13	24° +/- 1°	1.0	0.6
19	Lobby	1-16	Partial	79.05	3.00	79.1		10	8	20	0		64	67	101	28° +/- 2°	3.8	2.1
20	Locker F	1-03	Full	14.23	2.7	14.2	21.3	5	3	25	5		64	67	24	24° +/- 1°	1.7	1.0
21	Locker M	1-06	Full	11.71	2.7	11.7	14.6	5	2	25	5		64	67	19	24° +/- 1°	1.5	1.0
22	Toilet F	1-04	Full	16.54	2.7	16.5							64	67		24° +/- 1°		
23	Toilet M	1-05	Full	15.1	2.7	15.1							64	67		24° +/- 1°		
24	Kitchen	1-07	Full	13.29	2.7	13.3		5	3	25	5		64	67	22	24° +/- 1°	1.6	1.0

Project: New Bohol International Airport and Sustainable Environment Protection (ADMIN Ground Floor)
 Subject: Cooling Load Calculation
 Date: 09/09/2013

Cooling and Ventilation Load Calculation																		
Item No.	Room	Room No.	Type of AC System	Total Floor Area (sq. m.)	Ceiling Height (m.)	Ceiling Area (sq.m.)	Wall Area(sq.m.)	Occupancy m ² /Person	Person	Lighting (w/sq. m.)	Electric Eq'ment (w/sq.m)	Eq'ment (kw)	Calculated Cooling Capacity		Fresh Air Flowrate ASHRAE 62.1 -2007 (lps)	Temperature Setpoint (Celsius)	Total Coil Load (kw)	Sensible Coil Load (kw)
													Sensible Heat (w/person)	Latent Heat (w/person)				
25	Dining	1-08	Full	46.94	2.7	46.9		2	23	25	40		64	67	131	24° +/- 1°	12.4	6.6

Total Calculated Cooling Capacity = **70.3 kW**

Project: New Bohol International Airport and Sustainable Environment Protection (ADMIN 2nd Floor)
 Subject: Cooling Load Calculation
 Date: 09/09/2013

Cooling and Ventilation Load Calculation																		
Item No.	Room	Room Number	Type of AC System	Total Floor Area (sq. m.)	Ceiling Height (m.)	Ceiling Area (sq.m.)	Wall Area(sq.m.)	Occupancy m ² /Person	Person	Lighting (w/sq. m.)	Electric Eq'ment (w/sq.m)	Eq'ment (kw)	Fresh Air Flowrate ASHRAE 62.1 -2007 (lps)		Temperature Setpoint (Celsius)	Calculated Cooling Capacity		
													Sensible Heat (w/person)	Latent Heat (w/person)		Total Coil Load (kw)	Sensible Coil Load (kw)	
Ground Floor																		
1	AIRPORT DEPT. MANAGER	2-16	Full	48.02	2.7	48.0		5	10	25	40		64	67	80	24°+/- 1°	8.8	6.2
2	AIRPORT MANAGER	2-17	Full	49.62	2.7	49.6		5	10	25	40		64	67	82	24°+/- 1°	10.2	7.5
3	ANS&FIC OFFICE	2-08	Full	42.83	2.7	42.8		5	9	25	40		64	67	71	24°+/- 1°	9.0	6.7
4	ATC OFFICE	2-03	Full	29.91	2.7	29.9	29.5	5	6	25	40		64	67	50	24°+/- 1°	5.4	3.8
5	ATC/FIC OFFICE	2-06	Full	31.73	2.7	31.7	14.7	5	6	25	40		64	67	53	24°+/- 1°	6.4	4.7
6	EPS	2-09	Full	7.19	3.7	7.2							64	67		24°+/- 1°		
7	EQUIPMENT RM	2-10	Full	94.91	2.7	94.9	7.2	20	5	25	40	9	64	67	103	24°+/- 1°	20.5	19.2
8	Hallway	2-07	Partial	49.12	2.4	49.1	21.0	10	5	20	0		64	67	63	28° +/- 2°	2.9	1.7
9	Hallway 6	2-18	Partial	34.72	2.4	34.7	16.0	10	3	20	0		64	67	44	28° +/- 2°	2.1	1.2
10	Lobby	2-13	Partial	79.71	3.0	79.7	75.0	10	8	20	0		64	67	102	28° +/- 2°	5.2	3.2
11	MEETING RM (CONFERENCE)	2-15	Full	49.68	2.7	49.7		5	10	25	5		64	67	82	24°+/- 1°	7.5	4.8
12	NAP RM (F)	2-22	Full	30.54	2.7	30.5	14.7	5	6	25	5		64	67	51	24°+/- 1°	4.7	3.1
13	NAP RM (M)	2-01	Full	32.96	2.7	33.0	14.7	5	7	25	5		64	67	55	24°+/- 1°	5.4	3.6
14	OFFICE 1	2-19	Full	30.45	2.7	30.5	14.7	5	6	25	40		64	67	51	24°+/- 1°	6.2	4.6
15	STO. 1	2-04	Full	6.21	2.7	6.2							64	67		24°+/- 1°		
16	STO. 2	2-05	Full	5.54	2.7	5.5							64	67		24°+/- 1°		
17	STORE	2-12	Full	15.07	2.7	15.1							64	67		24°+/- 1°		
18	TOILET (F)	2-21	Full	14.05	2.7	14.1							64	67		24°+/- 1°		
19	TOILET (M)	2-20	Full	14.05	2.7	14.1							64	67		24°+/- 1°		
20	TOILET (M)	2-02	Full	16.71	2.7	16.7							64	67		24°+/- 1°		
21	WORKSHOP(EQUIPMENT)	2-11	Full	33.95	2.4	34.0	16.8	5	7	25	40		64	67	56	24°+/- 1°	5.8	4.0

Total Calculated Cooling Capacity = 100.1 kW

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

***COOLING LOAD CALCULATION
CTO ADMINISTRATION BUILDING***

PREPARED BY:

VVR ENGINEERING DESIGN SERVICES

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

SPACE INPUT DATA

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

09/06/2013
01:15PM

Airport Dept. Mngr. 2-16

1. General Details:

Floor Area **48.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	16.2	10	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	48.0	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

09/06/2013
01:15PM

Airport Manager 2-17

1. General Details:

Floor Area **49.6** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	17.1	10	0	0
NE	23.3	8	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure NE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	49.6	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Unconditioned Space**
Floor Area **41.7** m²
Total Floor U-Value **1.291** W/(m²·°K)
Unconditioned Space Max Temp. **27.0** °C
Ambient at Space Max Temp. **36.0** °C
Unconditioned Space Min Temp. **27.0** °C
Ambient at Space Min Temp. **12.8** °C

7. Partitions:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

09/06/2013
01:15PM

ANS&FIC 2-08

1. General Details:

Floor Area **42.8** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	17.7	10	0	0
SW	23.3	8	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure SW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	42.8	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Unconditioned Space**
Floor Area **15.0** m²
Total Floor U-Value **1.291** W/(m²·°K)
Unconditioned Space Max Temp. **27.0** °C
Ambient at Space Max Temp. **36.0** °C
Unconditioned Space Min Temp. **27.0** °C
Ambient at Space Min Temp. **12.8** °C

7. Partitions:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

09/06/2013
01:15PM

ATC OFFICE 2-03

1. General Details:

Floor Area **29.9** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	15.8	8	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	29.9	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **29.5** m²
U-Value **1.496** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

09/06/2013
01:15PM

ATC/FIC OFFICE 2-06

1. General Details:

Floor Area **31.7** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SW	15.0	3	0	0
SE	17.1	10	0	0

3.1. Construction Types for Exposure SW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	31.7	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **14.7** m²
U-Value **1.496** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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Space Input Data

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VVR Engineering Design Services

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01:15PM

Corridor

1. General Details:

Floor Area **149.1** m²
Avg. Ceiling Height **2.4** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	149.1	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **57.8** m²
U-Value **1.496** W/(m²-°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
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Equipment Rm 2-10

1. General Details:

Floor Area **94.9** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	31.8	20	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	94.9	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **7.2** m²
U-Value **1.496** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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Hallway

1. General Details:

Floor Area **49.1** m²
Avg. Ceiling Height **2.4** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	49.1	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **21.0** m²
U-Value **1.496** W/(m²-°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

2.4. People:

Occupancy **10.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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01:15PM

Hallway 6

1. General Details:

Floor Area **34.7** m²
Avg. Ceiling Height **2.4** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	34.7	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **16.0** m²
U-Value **1.496** W/(m²-°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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Lobby

1. General Details:

Floor Area **79.7** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	19.1	19	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	79.7	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **75.0** m²
U-Value **1.496** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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Meeting Rm 2-15

1. General Details:

Floor Area **49.7** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **2.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	17.1	10	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	49.7	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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Nap Rm F 2-22

1. General Details:

Floor Area **30.5** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	16.5	10	0	0
SSE	6.8	0	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure SSE

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	30.5	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **14.7** m²
U-Value **1.496** W/(m²-°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

09/06/2013
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Nap Rm M 2-01

1. General Details:

Floor Area **33.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	18.0	10	0	0
NE	6.8	0	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure NE

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	33.0	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Unconditioned Space**
Floor Area **15.0** m²
Total Floor U-Value **1.291** W/(m²·°K)
Unconditioned Space Max Temp. **27.0** °C
Ambient at Space Max Temp. **36.0** °C
Unconditioned Space Min Temp. **27.0** °C
Ambient at Space Min Temp. **12.8** °C

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **14.7** m²
U-Value **1.496** W/(m²·°K)

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
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7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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01:15PM

Office 1 2-19

1. General Details:

Floor Area **30.5** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	15.1	4	0	0
SE	16.5	10	0	0

3.1. Construction Types for Exposure NE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

3.2. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW 1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	30.5	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **14.7** m²
U-Value **1.496** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

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Space Input Data

New Bohol Airport Project (CTO Admin 2F)
VVR Engineering Design Services

09/06/2013
01:15PM

WORKSHOP EQMT 2-11

1. General Details:

Floor Area **34.0** m²
Avg. Ceiling Height **2.4** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **People**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	15.2	0	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	34.0	0	0

4.1. Construction Types for Exposure H

Roof Type **Roof Assembly**

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **16.8** m²
U-Value **1.496** W/(m²-°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Clinic First Aid 1-27

1. General Details:

Floor Area **22.2** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	16.5	10	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **22.2** m²
Total Floor U-Value **0.568** W/(m²-°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²-°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **22.2** m²
U-Value **1.291** W/(m²-°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **22.2** m²
U-Value **1.291** W/(m²-°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
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Corridors

1. General Details:

Floor Area **148.4** m²
Avg. Ceiling Height **2.4** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **148.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **44.7** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **148.4** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

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Dining 1-08

1. General Details:

Floor Area **46.9** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	25.2	20	0	0
SW	15.1	5	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

3.2. Construction Types for Exposure SW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **46.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy **2.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **46.9** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
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Electrical 1-10

1. General Details:

Floor Area **34.9** m²
Avg. Ceiling Height **3.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SW	21.9	0	0	0

3.1. Construction Types for Exposure SW

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **34.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **24.1** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **34.9** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
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Financial Section 1-24

1. General Details:

Floor Area **30.4** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	15.1	5	0	0
SE	16.5	15	0	0

3.1. Construction Types for Exposure NE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

3.2. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **30.4** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **14.4** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **30.4** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

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FOBS 1-12

1. General Details:

Floor Area **71.7** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	23.4	22	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **71.7** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **7.0** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **71.7** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

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FSS FIC 1-14

1. General Details:

Floor Area 11.9 m²
Avg. Ceiling Height 2.7 m
Building Weight 341.8 kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 7.0 L/s/person
OA Requirement 2 0.00 L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage 25.00 W/m²
Ballast Multiplier 1.15
Schedule **Lighting**

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage 40.00 W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling 0.05 ACH
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area 11.9 m²
Total Floor U-Value 0.568 W/(m²·°K)
Exposed Perimeter 0.0 m
Edge Insulation R-Value 0.00 (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy 5.00 m²/person
Activity Level **User defined**
Sensible 64.0 W/person
Latent 67.0 W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule **None**
Latent 0 W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area 11.9 m²
U-Value 1.291 W/(m²·°K)
Uncondit. Space Max Temp 23.9 °C
Ambient at Space Max Temp 35.0 °C
Uncondit. Space Min Temp 23.9 °C
Ambient at Space Min Temp 12.8 °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

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FSS Radio 1-13

1. General Details:

Floor Area **11.7** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	8.1	7	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **11.7** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **11.7** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

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Hallway 1

1. General Details:

Floor Area **51.1** m²
Avg. Ceiling Height **2.4** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **0.00** W/m²
Schedule **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **51.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **33.7** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **10.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **148.4** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

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Hallway 3

1. General Details:

Floor Area **33.0** m²
Avg. Ceiling Height **2.4** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **0.00** W/m²
Schedule **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **33.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **30.4** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

2.4. People:

Occupancy **10.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **148.4** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

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Human Resources 1-19

1. General Details:

Floor Area **73.2** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	33.3	29	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **73.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **28.3** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **73.2** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Kitchen 1-07

1. General Details:

Floor Area **13.3** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	7.5	5	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **13.3** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **13.3** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Lobby

1. General Details:

Floor Area **79.1** m²
Avg. Ceiling Height **3.0** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **20.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **10.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **0.00** W/m²
Schedule **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	32.2	32	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **79.1** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **46.8** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **148.4** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Locker F 1-03

1. General Details:

Floor Area **14.2** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

2.3. Electrical Equipment:

Wattage **5.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8.0	5	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **14.2** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area **21.3** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **27.0** °C
Ambient at Space Max Temp **36.0** °C
Uncondit. Space Min Temp **27.0** °C
Ambient at Space Min Temp **12.8** °C

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **14.2** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Locker M 1-06

1. General Details:

Floor Area 11.7 m²
Avg. Ceiling Height 2.7 m
Building Weight 341.8 kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 7.0 L/s/person
OA Requirement 2 0.00 L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage 25.00 W/m²
Ballast Multiplier 1.15
Schedule **Lighting**

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage 5.00 W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	6.7	5	0	0

3.1. Construction Types for Exposure SE

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling 0.05 ACH
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area 11.7 m²
Total Floor U-Value 0.568 W/(m²·°K)
Exposed Perimeter 0.0 m
Edge Insulation R-Value 0.00 (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type **Wall Partition**
Area 14.6 m²
U-Value 1.291 W/(m²·°K)
Uncondit. Space Max Temp 27.0 °C
Ambient at Space Max Temp 36.0 °C
Uncondit. Space Min Temp 27.0 °C
Ambient at Space Min Temp 12.8 °C

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area 11.7 m²
U-Value 1.291 W/(m²·°K)
Uncondit. Space Max Temp 23.9 °C
Ambient at Space Max Temp 35.0 °C
Uncondit. Space Min Temp 23.9 °C
Ambient at Space Min Temp 12.8 °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Record and Supply 1-18

1. General Details:

Floor Area **24.9** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **24.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **24.9** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Security 1-28

1. General Details:

Floor Area **7.9** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **7.9** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **7.9** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Security Office 1-15

1. General Details:

Floor Area **50.0** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s·m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	17.1	15	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**
1st Window Type **WINDOW**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **50.0** m²
Total Floor U-Value **0.568** W/(m²·°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²·°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **50.0** m²
U-Value **1.291** W/(m²·°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

Space Input Data

New Bohol Airport Project (CTO Admin Bldg. GF)
VVR Engineering Design Services

09/06/2013
01:20PM

Storage 1-11

1. General Details:

Floor Area **14.8** m²
Avg. Ceiling Height **2.7** m
Building Weight **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **User-Defined**
OA Requirement 1 **7.0** L/s/person
OA Requirement 2 **0.00** L/(s-m²)
Space Usage Defaults **ASHRAE Std 62.1-2004**

2. Internals:

2.1. Overhead Lighting:

Fixture Type **Recessed (Unvented)**
Wattage **25.00** W/m²
Ballast Multiplier **1.15**
Schedule **Lighting**

2.2. Task Lighting:

Wattage **0.00** W/m²
Schedule **None**

2.3. Electrical Equipment:

Wattage **40.00** W/m²
Schedule **Equipment**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	17.9	0	0	0
SW	7.3	0	0	0

3.1. Construction Types for Exposure NW

Wall Type **WALL ASSEMBLY**

3.2. Construction Types for Exposure SW

Wall Type **WALL ASSEMBLY**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling **0.05** ACH
Design Heating **0.00** L/s
Energy Analysis **0.00** L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type **Slab Floor On Grade**
Floor Area **14.8** m²
Total Floor U-Value **0.568** W/(m²-°K)
Exposed Perimeter **0.0** m
Edge Insulation R-Value **0.00** (m²-°K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

2.4. People:

Occupancy **5.00** m²/person
Activity Level **User defined**
Sensible **64.0** W/person
Latent **67.0** W/person
Schedule **PEOPLE**

2.5. Miscellaneous Loads:

Sensible **0** W
Schedule **None**
Latent **0** W
Schedule **None**

7.2. 2nd Partition Details:

Partition Type **Ceiling Partition**
Area **14.8** m²
U-Value **1.291** W/(m²-°K)
Uncondit. Space Max Temp **23.9** °C
Ambient at Space Max Temp **35.0** °C
Uncondit. Space Min Temp **23.9** °C
Ambient at Space Min Temp **12.8** °C

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

AIR SYSTEM INPUT DATA

Airport Dept. Manager Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **Airport Dept. Manager**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airport Dept. Mngr. 2-16	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW
 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Airport Dept. Manager Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

09/06/2013
01:41PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 977.1 L/s
Ventilation Airflow 67.2 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	879.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

Airport Manager Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **Airport Manager**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airport Manager 2-17	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Airport Manager Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **1211.0** L/s
 Ventilation Airflow **69.4** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	1089.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

ANS&FIC OFFICE Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **ANS&FIC OFFICE**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
ANS&FIC 2-08	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

ANS&FIC OFFICE Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **1080.7** L/s
 Ventilation Airflow **59.9** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	972.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

ATC OFFICE Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **ATC OFFICE**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
ATC OFFICE 2-03	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

ATC OFFICE Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **631.4** L/s
 Ventilation Airflow **41.9** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	568.3	-	-	

5. Equipment Data

No Equipment Data required for this system.

ATC/FIC OFFICE Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **ATC/FIC OFFICE**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
ATC/FIC OFFICE 2-06	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

ATC/FIC OFFICE Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 772.3 L/s
 Ventilation Airflow 44.4 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	695.0	-	-	

5. Equipment Data

No Equipment Data required for this system.

CORRIDOR Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **CORRIDOR**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Corridor	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **28.0** °C
 Cooling T-stat: Unocc. **34.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C

CORRIDOR Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

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Supply Fan Airflow **992.6** L/s
Ventilation Airflow **208.7** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	893.3	-	-	

5. Equipment Data

No Equipment Data required for this system.

EQUIPMENT RM Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
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1. General Details:

Air System Name **EQUIPMENT RM**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Equipment Rm 2-10	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

EQUIPMENT RM Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **2986.9** L/s
 Ventilation Airflow **33.2** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	2688.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

Hallway Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **Hallway**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Hallway	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **28.0** °C
 Cooling T-stat: Unocc. **34.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Hallway Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **277.9** L/s
 Ventilation Airflow **34.4** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	250.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Hallway 6 Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **Hallway 6**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Hallway 6	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **28.0** °C
 Cooling T-stat: Unocc. **34.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Hallway 6 Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **196.3** L/s
 Ventilation Airflow **24.3** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	176.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

Lobby Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name Lobby
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Capacity - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 125 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Lobby	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 28.0 °C
 Cooling T-stat: Unocc. 34.0 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

 Thermostat Schedule fan
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

Lobby Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **554.4** L/s
 Ventilation Airflow **55.8** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	498.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

MEETING RM (CONFERENCE) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **MEETING RM (CONFERENCE)**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Meeting Rm 2-15	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

MEETING RM (CONFERENCE) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
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Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 905.9 L/s
 Ventilation Airflow 174.0 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	815.3	-	-	

5. Equipment Data

No Equipment Data required for this system.

NAP RM (F) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **NAP RM (F)**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Nap Rm F 2-22	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

NAP RM (F) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 536.3 L/s
Ventilation Airflow 42.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	482.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

NAP RM (M) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **NAP RM (M)**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Nap Rm M 2-01	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

NAP RM (M) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **582.1** L/s
 Ventilation Airflow **46.2** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	523.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

OFFICE 1 Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **OFFICE 1**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Office 1 2-19	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

OFFICE 1 Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

09/06/2013
01:41PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 745.9 L/s
Ventilation Airflow 42.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	671.3	-	-	

5. Equipment Data

No Equipment Data required for this system.

PAHU 2 Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **PAHU 2**
 Equipment Type **Split AHU**
 Air System Type **Tempering Ventilation**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Cooling Coil Data:

Setpoint **16.9** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Air-Cooled DX**
 Schedule **JFMAMJJASOND**

Ventilation Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **250** Pa
 Overall Efficiency **54** %
 Schedule **fan**
 Average Zone Temperature **23.9** °C

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Airport Dept. Mngr. 2-16	x1
Airport Manager 2-17	x1
ANS&FIC 2-08	x1
ATC OFFICE 2-03	x1
ATC/FIC OFFICE 2-06	x1
Equipment Rm 2-10	x1
Meeting Rm 2-15	x1
Nap Rm F 2-22	x1
Nap Rm M 2-01	x1
Office 1 2-19	x1
WORKSHOP EQMT 2-11	x1
Hallway	x1
Hallway 6	x1
Lobby	x1

4. Sizing Data (Computer-Generated):

System Sizing Data:

Ventilation Fan Airflow **783.6** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Data is not available.

5. Equipment Data

PAHU 2 Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

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Vent. Cooling Unit - Air-Cooled DX

Estimated Maximum Load	37.0	kW
Design OAT	35.0	°C
Equipment Sizing	Auto-Sized	
Capacity Oversizing Factor	0	%
ARI Performance Rating	3.22	EER
Conventional Cutoff OAT	12.8	°C
Low Temperature Operation	Used	
Low Temperature Cutoff OAT	-17.8	°C

WORKSHOP(EQUIPMENT) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:41PM

1. General Details:

Air System Name **WORKSHOP(EQUIPMENT)**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
WORKSHOP EQMT 2-11	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.4** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **fan**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone	Terminal Type	Min. Airflow	Fan Performance	Fan Efficiency	Design Supply Temperature
1	Diffuser	0.00 L/s/person	-	-	-

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

WORKSHOP(EQUIPMENT) Input Data

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

09/06/2013
01:41PM

Zone Unit Heat Source Any
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
Supply Fan Airflow 628.4 L/s
Ventilation Airflow 47.6 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	565.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

Clinic 1-27 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Clinic 1-27**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Clinic First Aid 1-27	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

Clinic 1-27 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
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Zone Unit Heat Source Any
 Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature 14.4 °C
 Supply Fan Airflow 427.6 L/s
 Ventilation Airflow 31.1 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
 Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	384.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

Corridors Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Corridors**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Corridors	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **27.0** °C
 Cooling T-stat: Unocc. **32.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **481.4** L/s
 Ventilation Airflow **207.8** L/s

Corridors Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

09/06/2013
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Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
Cooling Latent 20 %
Heating 0 %

Zone Sizing Data:

Zone Airflow Sizing Method Sum of space airflow rates
Space Airflow Sizing Method Individual peak space loads

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	433.2	-	-	

5. Equipment Data

No Equipment Data required for this system.

Dining 1-08 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name Dining 1-08
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Capacity - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 125 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Dining 1-08	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 23.0 °C
 Cooling T-stat: Unocc. 29.0 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

 Thermostat Schedule Thermostat
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

 Zone Unit Heat Source Any

Dining 1-08 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

09/06/2013
01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
Supply Fan Airflow **1041.7** L/s
Ventilation Airflow **164.2** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	937.5	-	-	

5. Equipment Data

No Equipment Data required for this system.

Electrical 1-10 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Electrical 1-10**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Electrical 1-10	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**
 Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **475.4** L/s
 Ventilation Airflow **48.9** L/s

Electrical 1-10 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

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Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
Cooling Latent **20** %
Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	427.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

Financial Section 1-24 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Financial Section 1-24**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Financial Section 1-24	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Financial Section 1-24 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **637.5** L/s
 Ventilation Airflow **42.6** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	573.8	-	-	

5. Equipment Data

No Equipment Data required for this system.

FOBS 1-12 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **FOBS 1-12**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
FOBS 1-12	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

FOBS 1-12 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **1199.2** L/s
 Ventilation Airflow **100.4** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	1079.3	-	-	

5. Equipment Data

No Equipment Data required for this system.

FSS FIC 1-14 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **FSS FIC 1-14**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
FSS FIC 1-14	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

FSS FIC 1-14 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
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Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **127.4** L/s
 Ventilation Airflow **16.7** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	114.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

FSS RADIO 1-13 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **FSS RADIO 1-13**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
FSS Radio 1-13	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

FSS RADIO 1-13 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **262.9** L/s
 Ventilation Airflow **16.4** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	236.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

Hallway 1 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Hallway 1**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Hallway 1	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **27.0** °C
 Cooling T-stat: Unocc. **32.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Hallway 1 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **79.9** L/s
 Ventilation Airflow **35.8** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	71.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

Hallway 3 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Hallway 3**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Hallway 3	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **27.0** °C
 Cooling T-stat: Unocc. **32.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Hallway 3 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **33.0** L/s
 Ventilation Airflow **23.1** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	29.7	-	-	

5. Equipment Data

No Equipment Data required for this system.

Human Resources 1-19 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Human Resources 1-19**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Human Resources 1-19	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Human Resources 1-19 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **1371.8** L/s
 Ventilation Airflow **102.5** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	1234.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

Kitchen 1-07 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Kitchen 1-07**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Kitchen 1-07	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Kitchen 1-07 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **167.8** L/s
 Ventilation Airflow **18.6** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	151.0	-	-	

5. Equipment Data

No Equipment Data required for this system.

Lobby Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name Lobby
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Capacity - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 125 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Lobby	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 27.0 °C
 Cooling T-stat: Unocc. 32.0 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

 Thermostat Schedule Thermostat
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

 Zone Unit Heat Source Any

Lobby Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **434.5** L/s
 Ventilation Airflow **55.4** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	391.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Locker F 1-03 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name Locker F 1-03
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Capacity - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 125 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Locker F 1-03	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 23.0 °C
 Cooling T-stat: Unocc. 29.0 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

Thermostat Schedule Thermostat
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None
 Zone Unit Heat Source Any

Locker F 1-03 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **188.9** L/s
 Ventilation Airflow **19.9** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	170.0	-	-	

5. Equipment Data

No Equipment Data required for this system.

Locker M 1-06 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name Locker M 1-06
 Equipment Type Undefined
 Air System Type Single Zone CAV
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Precool Coil Data:

Setpoint 20.0 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Coil position Downstream of Mixing Point

Central Cooling Data:

Supply Air Temperature 14.4 °C
 Coil Bypass Factor 0.100
 Cooling Source Any
 Schedule JFMAMJJASOND
 Capacity Control Cycled or Staged Capacity - Fan On

Supply Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 125 Pa
 Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:

Duct Heat Gain 10 %
 Duct Leakage 10 %

Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Locker M 1-06	x1

Thermostats and Zone Data:

Zone All
 Cooling T-stat: Occ. 23.0 °C
 Cooling T-stat: Unocc. 29.0 °C
 Heating T-stat: Occ. 21.1 °C
 Heating T-stat: Unocc. 15.6 °C
 T-stat Throttling Range 1.67 °K
 Diversity Factor 100 %
 Direct Exhaust Airflow 0.0 L/s
 Direct Exhaust Fan kW 0.0 kW

 Thermostat Schedule Thermostat
 Unoccupied Cooling is Available

Supply Terminals Data:

Zone All
 Terminal Type Diffuser
 Minimum Airflow 0.00 L/s/person

Zone Heating Units:

Zone All
 Zone Heating Unit Type None

 Zone Unit Heat Source Any

Locker M 1-06 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **165.6** L/s
 Ventilation Airflow **16.4** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	149.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

PAHU Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name PAHU
 Equipment Type Split AHU
 Air System Type Tempering Ventilation
 Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control Constant Ventilation Airflow
 Ventilation Sizing Method Sum of Space OA Airflows
 Unocc. Damper Position Closed
 Damper Leak Rate 0 %
 Outdoor Air CO2 Level 400 ppm

Cooling Coil Data:

Setpoint 16.9 °C
 Coil Bypass Factor 0.100
 Cooling Source Air-Cooled DX
 Schedule JFMAMJJASOND

Ventilation Fan Data:

Fan Type Forward Curved
 Configuration Draw-thru
 Fan Performance 250 Pa
 Overall Efficiency 54 %
 Schedule FAN
 Average Zone Temperature 23.9 °C

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Clinic First Aid 1-27	x1
Dining 1-08	x1
Financial Section 1-24	x1
FOBS 1-12	x1
FSS FIC 1-14	x1
FSS Radio 1-13	x1
Human Resources 1-19	x1
Kitchen 1-07	x1
Locker F 1-03	x1
Locker M 1-06	x1
Record and Supply 1-18	x1
Security 1-28	x1
Security Office 1-15	x1
Hallway 1	x1
Hallway 3	x1
Lobby	x1

4. Sizing Data (Computer-Generated):

System Sizing Data:

Ventilation Fan Airflow 758.7 L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T 5.6 °K
 Hot Water Delta-T 11.1 °K

Safety Factors:

Cooling Sensible 20 %
 Cooling Latent 20 %
 Heating 0 %

Zone Sizing Data:

Zone Data is not available.

5. Equipment Data

PAHU Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

09/06/2013
01:37PM

Vent. Cooling Unit - Air-Cooled DX

Estimated Maximum Load	35.8	kW
Design OAT	35.0	°C
Equipment Sizing	Auto-Sized	
Capacity Oversizing Factor	0	%
ARI Performance Rating	3.22	EER
Conventional Cutoff OAT	12.8	°C
Low Temperature Operation	Used	
Low Temperature Cutoff OAT	-17.8	°C

Record & Supply 1-18 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Record & Supply 1-18**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Record and Supply 1-18	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Record & Supply 1-18 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **266.5** L/s
 Ventilation Airflow **34.9** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	239.8	-	-	

5. Equipment Data

No Equipment Data required for this system.

Security 1-28 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Security 1-28**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Security 1-28	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Security 1-28 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **84.5** L/s
 Ventilation Airflow **11.1** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	76.1	-	-	

5. Equipment Data

No Equipment Data required for this system.

Security Office 1-15 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

1. General Details:

Air System Name **Security Office 1-15**
 Equipment Type **Undefined**
 Air System Type **Single Zone CAV**
 Number of zones **1**

2. System Components:

Ventilation Air Data:

Airflow Control **Constant Ventilation Airflow**
 Ventilation Sizing Method **Sum of Space OA Airflows**
 Unocc. Damper Position **Closed**
 Damper Leak Rate **0** %
 Outdoor Air CO2 Level **400** ppm

Precool Coil Data:

Setpoint **20.0** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Coil position **Downstream of Mixing Point**

Central Cooling Data:

Supply Air Temperature **14.4** °C
 Coil Bypass Factor **0.100**
 Cooling Source **Any**
 Schedule **JFMAMJJASOND**
 Capacity Control **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type **Forward Curved**
 Configuration **Draw-thru**
 Fan Performance **125** Pa
 Overall Efficiency **54** %

Duct System Data:

Supply Duct Data:

Duct Heat Gain **10** %
 Duct Leakage **10** %

Return Duct or Plenum Data:

Return Air Via **Ducted Return**

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
Security Office 1-15	x1

Thermostats and Zone Data:

Zone **All**
 Cooling T-stat: Occ. **23.0** °C
 Cooling T-stat: Unocc. **29.0** °C
 Heating T-stat: Occ. **21.1** °C
 Heating T-stat: Unocc. **15.6** °C
 T-stat Throttling Range **1.67** °K
 Diversity Factor **100** %
 Direct Exhaust Airflow **0.0** L/s
 Direct Exhaust Fan kW **0.0** kW

 Thermostat Schedule **Thermostat**
 Unoccupied Cooling is **Available**

Supply Terminals Data:

Zone **All**
 Terminal Type **Diffuser**
 Minimum Airflow **0.00** L/s/person

Zone Heating Units:

Zone **All**
 Zone Heating Unit Type **None**

 Zone Unit Heat Source **Any**

Security Office 1-15 Input Data

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:37PM

Zone Heating Unit Schedule **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature **14.4** °C
 Supply Fan Airflow **829.3** L/s
 Ventilation Airflow **70.0** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T **5.6** °K
 Hot Water Delta-T **11.1** °K

Safety Factors:

Cooling Sensible **20** %
 Cooling Latent **20** %
 Heating **0** %

Zone Sizing Data:

Zone Airflow Sizing Method **Sum of space airflow rates**
 Space Airflow Sizing Method **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- (L/s)
1	746.4	-	-	

5. Equipment Data

No Equipment Data required for this system.

***NEW BOHOL AIRPORT CONSTRUCTION AND
SUSTAINABLE ENVIRONMENT PROTECTION PROJECT***

AIR SIZING SUMMARY DATA

Air System Sizing Summary for Airport Dept. Manager

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

09/06/2013
01:40PM

Air System Information

Air System Name	Airport Dept. Manager	Number of zones	1
Equipment Class	UNDEF	Floor Area	48.0 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	8.8 kW	Load occurs at	Jun 1600
Sensible coil load	6.2 kW	OA DB / WB	34.2 / 27.2 °C
Coil L/s at Jun 1600	977 L/s	Entering DB / WB	20.0 / 17.2 °C
Max block L/s	977 L/s	Leaving DB / WB	14.8 / 14.5 °C
Sum of peak zone L/s	977 L/s	Coil ADP	14.2 °C
Sensible heat ratio	0.700	Bypass Factor	0.100
m ² /kW	5.4	Resulting RH	56 %
W/m ²	183.6	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.38 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	5.0 kW	Load occurs at	Jun 1700
Sensible coil load	5.0 kW	OA DB / WB	33.6 / 27.0 °C
Coil L/s at Jun 1700	977 L/s	Entering DB / WB	24.3 / 18.9 °C
Max coil L/s	977 L/s	Leaving DB / WB	20.0 / 17.5 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.22 L/s		

Supply Fan Sizing Data

Actual max L/s	977 L/s	Fan motor BHP	0.30 BHP
Standard L/s	975 L/s	Fan motor kW	0.23 kW
Actual max L/(s-m ²)	20.36 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	67 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Airport Dept. Manager

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name Airport Dept. Manager	Number of zones 1
Equipment Class UNDEF	Floor Area 48.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	9.1	879	879	Jul 1600	0.1	48.0	18.32

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airport Dept. Mngr. 2-16	1	9.1	Jul 1600	879	0.1	48.0	18.32

Air System Sizing Summary for Airport Manager

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name Airport Manager	Number of zones 1
Equipment Class UNDEF	Floor Area 49.6 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 10.2 kW	Load occurs at Jul 1600
Sensible coil load 7.5 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 1211 L/s	Entering DB / WB 20.0 / 17.1 °C
Max block L/s 1211 L/s	Leaving DB / WB 14.9 / 14.6 °C
Sum of peak zone L/s 1211 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.736	Bypass Factor 0.100
m ² /kW 4.9	Resulting RH 56 %
W/m ² 204.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.44 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 6.2 kW	Load occurs at Aug 1800
Sensible coil load 6.2 kW	OA DB / WB 33.2 / 26.8 °C
Coil L/s at Aug 1800 1211 L/s	Entering DB / WB 24.2 / 19.2 °C
Max coil L/s 1211 L/s	Leaving DB / WB 20.0 / 17.8 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.27 L/s	

Supply Fan Sizing Data

Actual max L/s 1211 L/s	Fan motor BHP 0.38 BHP
Standard L/s 1208 L/s	Fan motor kW 0.28 kW
Actual max L/(s-m ²) 24.42 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 69 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Airport Manager

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name **Airport Manager**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **49.6** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	11.2	1090	1090	Jul 1600	0.1	49.6	21.97

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airport Manager 2-17	1	11.2	Jul 1600	1090	0.1	49.6	21.97

Air System Sizing Summary for ANS&FIC OFFICE

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name ANS&FIC OFFICE	Number of zones 1
Equipment Class UNDEF	Floor Area 42.8 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 9.0 kW	Load occurs at Jul 1700
Sensible coil load 6.7 kW	OA DB / WB 34.1 / 27.0 °C
Coil L/s at Jul 1700 1081 L/s	Entering DB / WB 20.0 / 17.1 °C
Max block L/s 1081 L/s	Leaving DB / WB 14.9 / 14.6 °C
Sum of peak zone L/s 1081 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.742	Bypass Factor 0.100
m ² /kW 4.8	Resulting RH 56 %
W/m ² 209.7	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.39 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 5.3 kW	Load occurs at Aug 1900
Sensible coil load 5.3 kW	OA DB / WB 32.0 / 26.5 °C
Coil L/s at Aug 1900 1081 L/s	Entering DB / WB 24.1 / 19.0 °C
Max coil L/s 1081 L/s	Leaving DB / WB 20.0 / 17.7 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.23 L/s	

Supply Fan Sizing Data

Actual max L/s 1081 L/s	Fan motor BHP 0.34 BHP
Standard L/s 1078 L/s	Fan motor kW 0.25 kW
Actual max L/(s-m ²) 25.25 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 60 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for ANS&FIC OFFICE

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name ANS&FIC OFFICE	Number of zones 1
Equipment Class UNDEF	Floor Area 42.8 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	10.0	973	973	Aug 1600	0.1	42.8	22.72

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
ANS&FIC 2-08	1	10.0	Aug 1600	973	0.1	42.8	22.72

Air System Sizing Summary for ATC OFFICE

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name ATC OFFICE	Number of zones 1
Equipment Class UNDEF	Floor Area 29.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 5.4 kW	Load occurs at Aug 1500
Sensible coil load 3.8 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 631 L/s	Entering DB / WB 20.0 / 17.3 °C
Max block L/s 631 L/s	Leaving DB / WB 15.0 / 14.8 °C
Sum of peak zone L/s 631 L/s	Coil ADP 14.5 °C
Sensible heat ratio 0.703	Bypass Factor 0.100
m ² /kW 5.6	Resulting RH 56 %
W/m ² 179.4	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.23 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.2 kW	Load occurs at Sep 1400
Sensible coil load 3.2 kW	OA DB / WB 33.6 / 26.6 °C
Coil L/s at Sep 1400 631 L/s	Entering DB / WB 24.3 / 19.0 °C
Max coil L/s 631 L/s	Leaving DB / WB 20.0 / 17.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.14 L/s	

Supply Fan Sizing Data

Actual max L/s 631 L/s	Fan motor BHP 0.20 BHP
Standard L/s 630 L/s	Fan motor kW 0.15 kW
Actual max L/(s-m ²) 21.12 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 42 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for ATC OFFICE

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name ATC OFFICE	Number of zones 1
Equipment Class UNDEF	Floor Area 29.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.9	568	568	Aug 1600	0.1	29.9	19.01

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
ATC OFFICE 2-03	1	5.9	Aug 1600	568	0.1	29.9	19.01

Air System Sizing Summary for ATC/FIC OFFICE

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name ATC/FIC OFFICE	Number of zones 1
Equipment Class UNDEF	Floor Area 31.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 6.4 kW	Load occurs at Aug 1600
Sensible coil load 4.7 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 772 L/s	Entering DB / WB 20.0 / 17.2 °C
Max block L/s 772 L/s	Leaving DB / WB 15.0 / 14.7 °C
Sum of peak zone L/s 772 L/s	Coil ADP 14.4 °C
Sensible heat ratio 0.732	Bypass Factor 0.100
m ² /kW 5.0	Resulting RH 56 %
W/m ² 200.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.27 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.9 kW	Load occurs at Jul 1700
Sensible coil load 3.9 kW	OA DB / WB 34.1 / 27.0 °C
Coil L/s at Jul 1700 772 L/s	Entering DB / WB 24.2 / 19.0 °C
Max coil L/s 772 L/s	Leaving DB / WB 20.0 / 17.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.17 L/s	

Supply Fan Sizing Data

Actual max L/s 772 L/s	Fan motor BHP 0.24 BHP
Standard L/s 770 L/s	Fan motor kW 0.18 kW
Actual max L/(s-m ²) 24.36 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 44 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for ATC/FIC OFFICE

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name ATC/FIC OFFICE	Number of zones 1
Equipment Class UNDEF	Floor Area 31.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.2	695	695	Sep 1600	0.1	31.7	21.93

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
ATC/FIC OFFICE 2-06	1	7.2	Sep 1600	695	0.1	31.7	21.93

Air System Sizing Summary for CORRIDOR

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	CORRIDOR	Number of zones	1
Equipment Class	UNDEF	Floor Area	149.1 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	25.4 kW	Load occurs at	Jul 1700
Sensible coil load	17.4 kW	OA DB / WB	34.1 / 27.0 °C
Coil L/s at Jul 1700	993 L/s	Entering DB / WB	29.1 / 21.1 °C
Max block L/s	993 L/s	Leaving DB / WB	14.6 / 13.9 °C
Sum of peak zone L/s	993 L/s	Coil ADP	13.0 °C
Sensible heat ratio	0.683	Bypass Factor	0.100
m ² /kW	5.9	Resulting RH	42 %
W/m ²	170.5	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	1.10 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	993 L/s	Fan motor BHP	0.31 BHP
Standard L/s	990 L/s	Fan motor kW	0.23 kW
Actual max L/(s-m ²)	6.66 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	209 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for CORRIDOR

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name **CORRIDOR**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **149.1** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	14.6	893	893	Aug 1700	0.1	149.1	5.99

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Corridor	1	14.6	Aug 1700	893	0.1	149.1	5.99

Air System Sizing Summary for EQUIPMENT RM

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name EQUIPMENT RM	Number of zones 1
Equipment Class UNDEF	Floor Area 94.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 20.5 kW	Load occurs at Jun 1700
Sensible coil load 19.2 kW	OA DB / WB 33.6 / 27.0 °C
Coil L/s at Jun 1700 2987 L/s	Entering DB / WB 20.0 / 16.4 °C
Max block L/s 2987 L/s	Leaving DB / WB 14.7 / 14.3 °C
Sum of peak zone L/s 2987 L/s	Coil ADP 14.1 °C
Sensible heat ratio 0.934	Bypass Factor 0.100
m ² /kW 4.6	Resulting RH 54 %
W/m ² 216.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.88 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 13.7 kW	Load occurs at May 1900
Sensible coil load 13.7 kW	OA DB / WB 30.3 / 25.9 °C
Coil L/s at May 1900 2987 L/s	Entering DB / WB 23.8 / 18.4 °C
Max coil L/s 2987 L/s	Leaving DB / WB 20.0 / 17.1 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.59 L/s	

Supply Fan Sizing Data

Actual max L/s 2987 L/s	Fan motor BHP 0.93 BHP
Standard L/s 2980 L/s	Fan motor kW 0.69 kW
Actual max L/(s-m ²) 31.47 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 33 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 0.35 L/(s-m ²)	

Zone Sizing Summary for EQUIPMENT RM

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name **EQUIPMENT RM**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **94.9** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	27.7	2688	2688	Jul 1600	0.1	94.9	28.33

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Equipment Rm 2-10	1	27.7	Jul 1600	2688	0.1	94.9	28.33

Air System Sizing Summary for Hallway

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway	Number of zones 1
Equipment Class UNDEF	Floor Area 49.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 2.9 kW	Load occurs at Aug 1600
Sensible coil load 1.7 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 278 L/s	Entering DB / WB 20.0 / 18.0 °C
Max block L/s 278 L/s	Leaving DB / WB 15.1 / 14.9 °C
Sum of peak zone L/s 278 L/s	Coil ADP 14.5 °C
Sensible heat ratio 0.564	Bypass Factor 0.100
m ² /kW 16.8	Resulting RH 43 %
W/m ² 59.7	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.13 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.7 kW	Load occurs at Jul 1000
Sensible coil load 2.8 kW	OA DB / WB 30.1 / 26.0 °C
Coil L/s at Jul 1000 278 L/s	Entering DB / WB 28.3 / 22.7 °C
Max coil L/s 278 L/s	Leaving DB / WB 20.0 / 19.5 °C
Sensible heat ratio 0.750	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.16 L/s	

Supply Fan Sizing Data

Actual max L/s 278 L/s	Fan motor BHP 0.09 BHP
Standard L/s 277 L/s	Fan motor kW 0.06 kW
Actual max L/(s-m ²) 5.66 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 34 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 0.70 L/(s-m ²)	

Zone Sizing Summary for Hallway

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway	Number of zones 1
Equipment Class UNDEF	Floor Area 49.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	4.1	250	250	Aug 1700	0.0	49.1	5.09

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Hallway	1	4.1	Aug 1700	250	0.0	49.1	5.09

Air System Sizing Summary for Hallway 6

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway 6	Number of zones 1
Equipment Class UNDEF	Floor Area 34.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 2.1 kW	Load occurs at Aug 1600
Sensible coil load 1.2 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 196 L/s	Entering DB / WB 20.0 / 18.0 °C
Max block L/s 196 L/s	Leaving DB / WB 15.1 / 14.9 °C
Sum of peak zone L/s 196 L/s	Coil ADP 14.5 °C
Sensible heat ratio 0.563	Bypass Factor 0.100
m ² /kW 16.8	Resulting RH 43 %
W/m ² 59.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.09 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.6 kW	Load occurs at Jun 1000
Sensible coil load 1.9 kW	OA DB / WB 29.5 / 26.0 °C
Coil L/s at Jun 1000 196 L/s	Entering DB / WB 28.2 / 22.7 °C
Max coil L/s 196 L/s	Leaving DB / WB 20.0 / 19.5 °C
Sensible heat ratio 0.744	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.11 L/s	

Supply Fan Sizing Data

Actual max L/s 196 L/s	Fan motor BHP 0.06 BHP
Standard L/s 196 L/s	Fan motor kW 0.05 kW
Actual max L/(s-m ²) 5.66 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 24 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 0.70 L/(s-m ²)	

Zone Sizing Summary for Hallway 6

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway 6	Number of zones 1
Equipment Class UNDEF	Floor Area 34.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.9	177	177	Aug 1700	0.0	34.7	5.09

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Hallway 6	1	2.9	Aug 1700	177	0.0	34.7	5.09

Air System Sizing Summary for Lobby

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name Lobby	Number of zones 1
Equipment Class UNDEF	Floor Area 79.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 5.2 kW	Load occurs at Aug 1600
Sensible coil load 3.2 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 554 L/s	Entering DB / WB 20.0 / 17.8 °C
Max block L/s 554 L/s	Leaving DB / WB 15.3 / 15.1 °C
Sum of peak zone L/s 554 L/s	Coil ADP 14.8 °C
Sensible heat ratio 0.604	Bypass Factor 0.100
m ² /kW 15.3	Resulting RH 43 %
W/m ² 65.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.22 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 7.0 kW	Load occurs at Jun 1000
Sensible coil load 5.5 kW	OA DB / WB 29.5 / 26.0 °C
Coil L/s at Jun 1000 554 L/s	Entering DB / WB 28.2 / 22.6 °C
Max coil L/s 554 L/s	Leaving DB / WB 20.0 / 19.5 °C
Sensible heat ratio 0.777	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.30 L/s	

Supply Fan Sizing Data

Actual max L/s 554 L/s	Fan motor BHP 0.17 BHP
Standard L/s 553 L/s	Fan motor kW 0.13 kW
Actual max L/(s-m ²) 6.96 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 56 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 0.70 L/(s-m ²)	

Zone Sizing Summary for Lobby

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name Lobby	Number of zones 1
Equipment Class UNDEF	Floor Area 79.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	8.1	499	499	Aug 1600	0.1	79.7	6.26

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Lobby	1	8.1	Aug 1600	499	0.1	79.7	6.26

Air System Sizing Summary for MEETING RM (CONFERENCE)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name MEETING RM (CONFERENCE)	Number of zones 1
Equipment Class UNDEF	Floor Area 49.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 12.3 kW	Load occurs at Jun 1700
Sensible coil load 5.8 kW	OA DB / WB 33.6 / 27.0 °C
Coil L/s at Jun 1700 906 L/s	Entering DB / WB 20.0 / 18.5 °C
Max block L/s 906 L/s	Leaving DB / WB 14.7 / 14.6 °C
Sum of peak zone L/s 906 L/s	Coil ADP 14.1 °C
Sensible heat ratio 0.469	Bypass Factor 0.100
m ² /kW 4.0	Resulting RH 59 %
W/m ² 248.0	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.53 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 6.2 kW	Load occurs at Jul 1500
Sensible coil load 6.2 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 906 L/s	Entering DB / WB 25.6 / 20.5 °C
Max coil L/s 906 L/s	Leaving DB / WB 20.0 / 18.8 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.27 L/s	

Supply Fan Sizing Data

Actual max L/s 906 L/s	Fan motor BHP 0.28 BHP
Standard L/s 904 L/s	Fan motor kW 0.21 kW
Actual max L/(s-m ²) 18.23 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 174 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 3.50 L/(s-m ²)	

Zone Sizing Summary for MEETING RM (CONFERENCE)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name **MEETING RM (CONFERENCE)**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **49.7** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	8.4	815	815	Jul 1600	0.1	49.7	16.40

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Meeting Rm 2-15	1	8.4	Jul 1600	815	0.1	49.7	16.40

Air System Sizing Summary for NAP RM (F)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name NAP RM (F)	Number of zones 1
Equipment Class UNDEF	Floor Area 30.5 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 4.7 kW	Load occurs at Jul 1600
Sensible coil load 3.1 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 536 L/s	Entering DB / WB 20.0 / 17.5 °C
Max block L/s 536 L/s	Leaving DB / WB 15.2 / 14.9 °C
Sum of peak zone L/s 536 L/s	Coil ADP 14.6 °C
Sensible heat ratio 0.660	Bypass Factor 0.100
m ² /kW 6.5	Resulting RH 58 %
W/m ² 154.8	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.20 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.8 kW	Load occurs at Aug 1500
Sensible coil load 2.8 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 536 L/s	Entering DB / WB 24.4 / 19.0 °C
Max coil L/s 536 L/s	Leaving DB / WB 20.0 / 17.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.12 L/s	

Supply Fan Sizing Data

Actual max L/s 536 L/s	Fan motor BHP 0.17 BHP
Standard L/s 535 L/s	Fan motor kW 0.12 kW
Actual max L/(s-m ²) 17.58 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 43 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for NAP RM (F)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name NAP RM (F)	Number of zones 1
Equipment Class UNDEF	Floor Area 30.5 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.0	483	483	Sep 1600	0.1	30.5	15.83

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Nap Rm F 2-22	1	5.0	Sep 1600	483	0.1	30.5	15.83

Air System Sizing Summary for NAP RM (M)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name NAP RM (M)	Number of zones 1
Equipment Class UNDEF	Floor Area 33.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 5.4 kW	Load occurs at Aug 1600
Sensible coil load 3.6 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 582 L/s	Entering DB / WB 20.0 / 17.3 °C
Max block L/s 582 L/s	Leaving DB / WB 14.8 / 14.6 °C
Sum of peak zone L/s 582 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.671	Bypass Factor 0.100
m ² /kW 6.1	Resulting RH 57 %
W/m ² 163.5	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.23 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.1 kW	Load occurs at Aug 1700
Sensible coil load 3.1 kW	OA DB / WB 34.1 / 27.0 °C
Coil L/s at Aug 1700 582 L/s	Entering DB / WB 24.4 / 19.2 °C
Max coil L/s 582 L/s	Leaving DB / WB 20.0 / 17.7 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.13 L/s	

Supply Fan Sizing Data

Actual max L/s 582 L/s	Fan motor BHP 0.18 BHP
Standard L/s 581 L/s	Fan motor kW 0.13 kW
Actual max L/(s-m ²) 17.64 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 46 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for NAP RM (M)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name NAP RM (M)	Number of zones 1
Equipment Class UNDEF	Floor Area 33.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.4	524	524	Aug 1600	0.1	33.0	15.87

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Nap Rm M 2-01	1	5.4	Aug 1600	524	0.1	33.0	15.87

Air System Sizing Summary for OFFICE 1

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name OFFICE 1	Number of zones 1
Equipment Class UNDEF	Floor Area 30.5 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 6.2 kW	Load occurs at Jul 1600
Sensible coil load 4.6 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 746 L/s	Entering DB / WB 20.0 / 17.1 °C
Max block L/s 746 L/s	Leaving DB / WB 14.9 / 14.7 °C
Sum of peak zone L/s 746 L/s	Coil ADP 14.4 °C
Sensible heat ratio 0.735	Bypass Factor 0.100
m ² /kW 4.9	Resulting RH 56 %
W/m ² 203.4	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.27 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.8 kW	Load occurs at Jul 1800
Sensible coil load 3.8 kW	OA DB / WB 33.2 / 26.8 °C
Coil L/s at Jul 1800 746 L/s	Entering DB / WB 24.2 / 19.0 °C
Max coil L/s 746 L/s	Leaving DB / WB 20.0 / 17.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.16 L/s	

Supply Fan Sizing Data

Actual max L/s 746 L/s	Fan motor BHP 0.23 BHP
Standard L/s 744 L/s	Fan motor kW 0.17 kW
Actual max L/(s-m ²) 24.46 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 43 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for OFFICE 1

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

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 01:40PM

Air System Information

Air System Name OFFICE 1	Number of zones 1
Equipment Class UNDEF	Floor Area 30.5 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	6.9	671	671	Aug 1600	0.1	30.5	22.01

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Office 1 2-19	1	6.9	Aug 1600	671	0.1	30.5	22.01

Air System Sizing Summary for PAHU 2

Project Name: New Bohol Airport Project (CTO Admin 2F)
Prepared by: VVR Engineering Design Services

09/06/2013
01:40PM

Air System Information

Air System Name	PAHU 2	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	638.1 m ²
Air System Type	TEMPER	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Precool Coil Sizing Data

Total coil load	37.0 kW	Load occurs at	Jul 1500
Sensible coil load	17.4 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Jul 1500	784 L/s	Entering DB / WB	35.0 / 27.2 °C
Max coil L/s	784 L/s	Leaving DB / WB	16.5 / 16.1 °C
Sensible heat ratio	0.472	Bypass Factor	0.100
Water flow @ 5.6 °K rise	N/A		

Supply Fan Sizing Data

Actual max L/s	784 L/s	Fan motor BHP	0.49 BHP
Standard L/s	782 L/s	Fan motor kW	0.36 kW
Actual max L/(s-m ²)	1.23 L/(s-m ²)	Fan static	250 Pa

Outdoor Ventilation Air Data

Design airflow L/s	784 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.23 L/(s-m ²)		

Zone Sizing Summary for PAHU 2

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name **PAHU 2**
 Equipment Class **SPLT AHU**
 Air System Type **TEMPER**

Number of zones **1**
 Floor Area **638.1** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	116.9	784	784	Aug 1600	1.1	638.1	1.23

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Airport Dept. Mngr. 2-16	1	8.9	Jul 1600	67	0.1	48.0	1.40
Airport Manager 2-17	1	11.0	Jul 1600	69	0.1	49.6	1.40
ANS&FIC 2-08	1	9.8	Aug 1600	60	0.1	42.8	1.40
ATC OFFICE 2-03	1	5.7	Aug 1600	42	0.1	29.9	1.40
ATC/FIC OFFICE 2-06	1	7.0	Sep 1600	44	0.1	31.7	1.40
Equipment Rm 2-10	1	27.4	Jul 1600	33	0.1	94.9	0.35
Meeting Rm 2-15	1	8.3	Jul 1600	174	0.1	49.7	3.50
Nap Rm F 2-22	1	4.8	Sep 1600	43	0.1	30.5	1.40
Nap Rm M 2-01	1	5.2	Aug 1600	46	0.1	33.0	1.40
Office 1 2-19	1	6.7	Aug 1600	43	0.1	30.5	1.40
WORKSHOP EQMT 2-11	1	5.7	Jul 1800	48	0.0	34.0	1.40
Hallway	1	4.6	Aug 1700	34	0.0	49.1	0.70
Hallway 6	1	3.2	Aug 1700	24	0.0	34.7	0.70
Lobby	1	9.7	Aug 1600	56	0.1	79.7	0.70

Air System Sizing Summary for WORKSHOP(EQUIPMENT)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name WORKSHOP(EQUIPMENT)	Number of zones 1
Equipment Class UNDEF	Floor Area 34.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 5.8 kW	Load occurs at Jul 1800
Sensible coil load 4.0 kW	OA DB / WB 33.2 / 26.8 °C
Coil L/s at Jul 1800 628 L/s	Entering DB / WB 20.0 / 17.3 °C
Max block L/s 628 L/s	Leaving DB / WB 14.8 / 14.5 °C
Sum of peak zone L/s 628 L/s	Coil ADP 14.2 °C
Sensible heat ratio 0.683	Bypass Factor 0.100
m ² /kW 5.9	Resulting RH 56 %
W/m ² 170.6	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.25 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 3.2 kW	Load occurs at Jul 1500
Sensible coil load 3.2 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 628 L/s	Entering DB / WB 24.3 / 19.1 °C
Max coil L/s 628 L/s	Leaving DB / WB 20.0 / 17.7 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.14 L/s	

Supply Fan Sizing Data

Actual max L/s 628 L/s	Fan motor BHP 0.20 BHP
Standard L/s 627 L/s	Fan motor kW 0.15 kW
Actual max L/(s-m ²) 18.48 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 48 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for WORKSHOP(EQUIPMENT)

Project Name: New Bohol Airport Project (CTO Admin 2F)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:40PM

Air System Information

Air System Name **WORKSHOP(EQUIPMENT)**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **34.0** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.8	566	566	Jul 1800	0.0	34.0	16.63

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
WORKSHOP EQMT 2-11	1	5.8	Jul 1800	566	0.0	34.0	16.63

Air System Sizing Summary for Clinic 1-27

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:36PM

Air System Information

Air System Name Clinic 1-27	Number of zones 1
Equipment Class UNDEF	Floor Area 22.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 3.6 kW	Load occurs at Aug 1300
Sensible coil load 2.4 kW	OA DB / WB 34.0 / 27.0 °C
Coil L/s at Aug 1300 428 L/s	Entering DB / WB 20.0 / 17.5 °C
Max block L/s 428 L/s	Leaving DB / WB 15.3 / 15.0 °C
Sum of peak zone L/s 428 L/s	Coil ADP 14.7 °C
Sensible heat ratio 0.677	Bypass Factor 0.100
m ² /kW 6.1	Resulting RH 58 %
W/m ² 162.7	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.15 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 2.2 kW	Load occurs at Aug 1600
Sensible coil load 2.2 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1600 428 L/s	Entering DB / WB 24.4 / 19.3 °C
Max coil L/s 428 L/s	Leaving DB / WB 20.0 / 17.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.10 L/s	

Supply Fan Sizing Data

Actual max L/s 428 L/s	Fan motor BHP 0.13 BHP
Standard L/s 427 L/s	Fan motor kW 0.10 kW
Actual max L/(s-m ²) 19.26 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 31 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Clinic 1-27

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Clinic 1-27	Number of zones 1
Equipment Class UNDEF	Floor Area 22.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	4.0	385	385	Nov 1100	0.0	22.2	17.34

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Clinic First Aid 1-27	1	4.0	Nov 1100	385	0.0	22.2	17.34

Air System Sizing Summary for Corridors

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	Corridors	Number of zones	1
Equipment Class	UNDEF	Floor Area	148.4 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	16.3 kW	Load occurs at	Jul 1400
Sensible coil load	9.0 kW	OA DB / WB	34.7 / 27.2 °C
Coil L/s at Jul 1400	481 L/s	Entering DB / WB	30.3 / 23.3 °C
Max block L/s	481 L/s	Leaving DB / WB	14.8 / 14.3 °C
Sum of peak zone L/s	481 L/s	Coil ADP	13.1 °C
Sensible heat ratio	0.552	Bypass Factor	0.100
m ² /kW	9.1	Resulting RH	49 %
W/m ²	110.1	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.70 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	481 L/s	Fan motor BHP	0.15 BHP
Standard L/s	480 L/s	Fan motor kW	0.11 kW
Actual max L/(s-m ²)	3.24 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	208 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Corridors

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Corridors	Number of zones 1
Equipment Class UNDEF	Floor Area 148.4 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	6.6	433	433	Jan 2300	0.0	148.4	2.92

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Corridors	1	6.6	Jan 2300	433	0.0	148.4	2.92

Air System Sizing Summary for Dining 1-08

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Dining 1-08	Number of zones 1
Equipment Class UNDEF	Floor Area 46.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 12.4 kW	Load occurs at Sep 1500
Sensible coil load 6.6 kW	OA DB / WB 33.9 / 26.7 °C
Coil L/s at Sep 1500 1042 L/s	Entering DB / WB 20.0 / 18.1 °C
Max block L/s 1042 L/s	Leaving DB / WB 14.8 / 14.6 °C
Sum of peak zone L/s 1042 L/s	Coil ADP 14.2 °C
Sensible heat ratio 0.528	Bypass Factor 0.100
m ² /kW 3.8	Resulting RH 59 %
W/m ² 265.1	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.53 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 6.7 kW	Load occurs at Jun 1500
Sensible coil load 6.7 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 1042 L/s	Entering DB / WB 25.3 / 20.6 °C
Max coil L/s 1042 L/s	Leaving DB / WB 20.0 / 18.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.29 L/s	

Supply Fan Sizing Data

Actual max L/s 1042 L/s	Fan motor BHP 0.32 BHP
Standard L/s 1039 L/s	Fan motor kW 0.24 kW
Actual max L/(s-m ²) 22.21 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 164 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 3.50 L/(s-m ²)	

Zone Sizing Summary for Dining 1-08

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Dining 1-08	Number of zones 1
Equipment Class UNDEF	Floor Area 46.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	9.7	938	938	Oct 1500	0.1	46.9	19.99

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Dining 1-08	1	9.7	Oct 1500	938	0.1	46.9	19.99

Air System Sizing Summary for Electrical 1-10

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	Electrical 1-10	Number of zones	1
Equipment Class	UNDEF	Floor Area	34.9 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	7.1 kW	Load occurs at	Aug 1800
Sensible coil load	5.3 kW	OA DB / WB	33.2 / 26.8 °C
Coil L/s at Aug 1800	475 L/s	Entering DB / WB	24.3 / 18.9 °C
Max block L/s	475 L/s	Leaving DB / WB	15.1 / 14.6 °C
Sum of peak zone L/s	475 L/s	Coil ADP	14.1 °C
Sensible heat ratio	0.737	Bypass Factor	0.100
m ² /kW	4.9	Resulting RH	56 %
W/m ²	204.7	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.31 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Supply Fan Sizing Data

Actual max L/s	475 L/s	Fan motor BHP	0.15 BHP
Standard L/s	474 L/s	Fan motor kW	0.11 kW
Actual max L/(s-m ²)	13.62 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	49 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Electrical 1-10

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name **Electrical 1-10**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **34.9** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	4.4	428	428	Nov 1800	0.0	34.9	12.26

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Electrical 1-10	1	4.4	Nov 1800	428	0.0	34.9	12.26

Air System Sizing Summary for Financial Section 1-24

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	Financial Section 1-24	Number of zones	1
Equipment Class	UNDEF	Floor Area	30.4 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	5.6 kW	Load occurs at	Aug 1300
Sensible coil load	4.0 kW	OA DB / WB	34.0 / 27.0 °C
Coil L/s at Aug 1300	638 L/s	Entering DB / WB	20.0 / 17.2 °C
Max block L/s	638 L/s	Leaving DB / WB	14.8 / 14.5 °C
Sum of peak zone L/s	638 L/s	Coil ADP	14.2 °C
Sensible heat ratio	0.708	Bypass Factor	0.100
m ² /kW	5.4	Resulting RH	56 %
W/m ²	185.5	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.24 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	3.4 kW	Load occurs at	Jul 1700
Sensible coil load	3.4 kW	OA DB / WB	34.1 / 27.0 °C
Coil L/s at Jul 1700	638 L/s	Entering DB / WB	24.4 / 19.2 °C
Max coil L/s	638 L/s	Leaving DB / WB	20.0 / 17.8 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.14 L/s		

Supply Fan Sizing Data

Actual max L/s	638 L/s	Fan motor BHP	0.20 BHP
Standard L/s	636 L/s	Fan motor kW	0.15 kW
Actual max L/(s-m ²)	20.97 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	43 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for Financial Section 1-24

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name **Financial Section 1-24**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **30.4** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.9	574	574	Aug 1400	0.1	30.4	18.87

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Financial Section 1-24	1	5.9	Aug 1400	574	0.1	30.4	18.87

Air System Sizing Summary for FOBS 1-12

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name FOBS 1-12	Number of zones 1
Equipment Class UNDEF	Floor Area 71.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 11.2 kW	Load occurs at Jun 1600
Sensible coil load 7.3 kW	OA DB / WB 34.2 / 27.2 °C
Coil L/s at Jun 1600 1199 L/s	Entering DB / WB 20.0 / 17.5 °C
Max block L/s 1199 L/s	Leaving DB / WB 15.0 / 14.7 °C
Sum of peak zone L/s 1199 L/s	Coil ADP 14.4 °C
Sensible heat ratio 0.652	Bypass Factor 0.100
m ² /kW 6.4	Resulting RH 57 %
W/m ² 155.6	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.48 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 6.4 kW	Load occurs at Aug 1700
Sensible coil load 6.4 kW	OA DB / WB 34.1 / 27.0 °C
Coil L/s at Aug 1700 1199 L/s	Entering DB / WB 24.4 / 19.3 °C
Max coil L/s 1199 L/s	Leaving DB / WB 20.0 / 17.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.27 L/s	

Supply Fan Sizing Data

Actual max L/s 1199 L/s	Fan motor BHP 0.37 BHP
Standard L/s 1196 L/s	Fan motor kW 0.28 kW
Actual max L/(s-m ²) 16.72 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 100 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for FOBS 1-12

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name FOBS 1-12	Number of zones 1
Equipment Class UNDEF	Floor Area 71.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	11.1	1079	1079	Jun 1600	0.1	71.7	15.05

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
FOBS 1-12	1	11.1	Jun 1600	1079	0.1	71.7	15.05

Air System Sizing Summary for FSS FIC 1-14

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	FSS FIC 1-14	Number of zones	1
Equipment Class	UNDEF	Floor Area	11.9 m ²
Air System Type	SZCAV	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	1.5 kW	Load occurs at	Jun 0800
Sensible coil load	0.8 kW	OA DB / WB	27.1 / 25.4 °C
Coil L/s at Jun 0800	127 L/s	Entering DB / WB	20.0 / 17.8 °C
Max block L/s	127 L/s	Leaving DB / WB	14.5 / 14.4 °C
Sum of peak zone L/s	127 L/s	Coil ADP	13.9 °C
Sensible heat ratio	0.564	Bypass Factor	0.100
m ² /kW	8.0	Resulting RH	57 %
W/m ²	124.7	Design supply temp.	14.4 °C
Water flow @ 5.6 °K rise	0.06 L/s	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 °K

Precool Coil Sizing Data

Total coil load	0.8 kW	Load occurs at	Jul 1400
Sensible coil load	0.8 kW	OA DB / WB	34.7 / 27.2 °C
Coil L/s at Jul 1400	127 L/s	Entering DB / WB	25.0 / 19.7 °C
Max coil L/s	127 L/s	Leaving DB / WB	20.0 / 18.0 °C
Sensible heat ratio	1.000	Bypass Factor	0.100
Water flow @ 5.6 °K rise	0.03 L/s		

Supply Fan Sizing Data

Actual max L/s	127 L/s	Fan motor BHP	0.04 BHP
Standard L/s	127 L/s	Fan motor kW	0.03 kW
Actual max L/(s-m ²)	10.70 L/(s-m ²)	Fan static	125 Pa

Outdoor Ventilation Air Data

Design airflow L/s	17 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.40 L/(s-m ²)		

Zone Sizing Summary for FSS FIC 1-14

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name FSS FIC 1-14	Number of zones 1
Equipment Class UNDEF	Floor Area 11.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.2	115	115	Jan 2300	0.0	11.9	9.63

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
FSS FIC 1-14	1	1.2	Jan 2300	115	0.0	11.9	9.63

Air System Sizing Summary for FSS RADIO 1-13

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name FSS RADIO 1-13	Number of zones 1
Equipment Class UNDEF	Floor Area 11.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 2.3 kW	Load occurs at Jun 1600
Sensible coil load 1.6 kW	OA DB / WB 34.2 / 27.2 °C
Coil L/s at Jun 1600 263 L/s	Entering DB / WB 20.0 / 17.2 °C
Max block L/s 263 L/s	Leaving DB / WB 14.9 / 14.6 °C
Sum of peak zone L/s 263 L/s	Coil ADP 14.3 °C
Sensible heat ratio 0.717	Bypass Factor 0.100
m ² /kW 5.1	Resulting RH 56 %
W/m ² 194.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.10 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.3 kW	Load occurs at Jul 1500
Sensible coil load 1.3 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 263 L/s	Entering DB / WB 24.1 / 18.8 °C
Max coil L/s 263 L/s	Leaving DB / WB 20.0 / 17.4 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.06 L/s	

Supply Fan Sizing Data

Actual max L/s 263 L/s	Fan motor BHP 0.08 BHP
Standard L/s 262 L/s	Fan motor kW 0.06 kW
Actual max L/(s-m ²) 22.47 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 16 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for FSS RADIO 1-13

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name FSS RADIO 1-13	Number of zones 1
Equipment Class UNDEF	Floor Area 11.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.4	237	237	Jun 1600	0.0	11.7	20.22

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
FSS Radio 1-13	1	2.4	Jun 1600	237	0.0	11.7	20.22

Air System Sizing Summary for Hallway 1

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway 1	Number of zones 1
Equipment Class UNDEF	Floor Area 51.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 0.8 kW	Load occurs at May 0500
Sensible coil load 0.3 kW	OA DB / WB 24.6 / 24.3 °C
Coil L/s at May 0500 80 L/s	Entering DB / WB 20.0 / 19.7 °C
Max block L/s 80 L/s	Leaving DB / WB 17.2 / 17.2 °C
Sum of peak zone L/s 80 L/s	Coil ADP 16.9 °C
Sensible heat ratio 0.359	Bypass Factor 0.100
m ² /kW 67.2	Resulting RH 59 %
W/m ² 14.9	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.03 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.6 kW	Load occurs at Jul 1500
Sensible coil load 1.0 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 80 L/s	Entering DB / WB 30.6 / 24.3 °C
Max coil L/s 80 L/s	Leaving DB / WB 20.0 / 19.4 °C
Sensible heat ratio 0.626	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.07 L/s	

Supply Fan Sizing Data

Actual max L/s 80 L/s	Fan motor BHP 0.02 BHP
Standard L/s 80 L/s	Fan motor kW 0.02 kW
Actual max L/(s-m ²) 1.56 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 36 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 0.70 L/(s-m ²)	

Zone Sizing Summary for Hallway 1

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway 1	Number of zones 1
Equipment Class UNDEF	Floor Area 51.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.1	72	72	Jan 2300	0.0	51.1	1.41

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Hallway 1	1	1.1	Jan 2300	72	0.0	51.1	1.41

Air System Sizing Summary for Hallway 3

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway 3	Number of zones 1
Equipment Class UNDEF	Floor Area 33.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 0.1 kW	Load occurs at May 0500
Sensible coil load 0.0 kW	OA DB / WB 24.6 / 24.3 °C
Coil L/s at May 0500 33 L/s	Entering DB / WB 20.0 / 19.9 °C
Max block L/s 33 L/s	Leaving DB / WB 19.3 / 19.3 °C
Sum of peak zone L/s 33 L/s	Coil ADP 19.2 °C
Sensible heat ratio 0.347	Bypass Factor 0.100
m ² /kW 391.6	Resulting RH 72 %
W/m ² 2.6	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.00 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.0 kW	Load occurs at Jul 1500
Sensible coil load 0.5 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Jul 1500 33 L/s	Entering DB / WB 32.6 / 26.1 °C
Max coil L/s 33 L/s	Leaving DB / WB 20.0 / 19.5 °C
Sensible heat ratio 0.517	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.04 L/s	

Supply Fan Sizing Data

Actual max L/s 33 L/s	Fan motor BHP 0.01 BHP
Standard L/s 33 L/s	Fan motor kW 0.01 kW
Actual max L/(s-m ²) 1.00 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 23 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 0.70 L/(s-m ²)	

Zone Sizing Summary for Hallway 3

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Hallway 3	Number of zones 1
Equipment Class UNDEF	Floor Area 33.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	0.4	30	30	Jan 2300	0.0	33.0	0.90

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Hallway 3	1	0.4	Jan 2300	30	0.0	33.0	0.90

Air System Sizing Summary for Human Resources 1-19

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Human Resources 1-19	Number of zones 1
Equipment Class UNDEF	Floor Area 73.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 12.2 kW	Load occurs at Jun 1500
Sensible coil load 8.3 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 1372 L/s	Entering DB / WB 20.0 / 17.4 °C
Max block L/s 1372 L/s	Leaving DB / WB 15.0 / 14.8 °C
Sum of peak zone L/s 1372 L/s	Coil ADP 14.4 °C
Sensible heat ratio 0.675	Bypass Factor 0.100
m ² /kW 6.0	Resulting RH 57 %
W/m ² 167.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.52 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 7.3 kW	Load occurs at Jul 1700
Sensible coil load 7.3 kW	OA DB / WB 34.1 / 27.0 °C
Coil L/s at Jul 1700 1372 L/s	Entering DB / WB 24.4 / 19.2 °C
Max coil L/s 1372 L/s	Leaving DB / WB 20.0 / 17.8 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.31 L/s	

Supply Fan Sizing Data

Actual max L/s 1372 L/s	Fan motor BHP 0.43 BHP
Standard L/s 1368 L/s	Fan motor kW 0.32 kW
Actual max L/(s-m ²) 18.74 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 102 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Human Resources 1-19

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name **Human Resources 1-19**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **73.2** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	12.7	1235	1235	Jun 1600	0.1	73.2	16.87

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Human Resources 1-19	1	12.7	Jun 1600	1235	0.1	73.2	16.87

Air System Sizing Summary for Kitchen 1-07

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Kitchen 1-07	Number of zones 1
Equipment Class UNDEF	Floor Area 13.3 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 1.6 kW	Load occurs at Oct 1400
Sensible coil load 1.0 kW	OA DB / WB 32.5 / 26.0 °C
Coil L/s at Oct 1400 168 L/s	Entering DB / WB 20.0 / 17.8 °C
Max block L/s 168 L/s	Leaving DB / WB 15.2 / 15.0 °C
Sum of peak zone L/s 168 L/s	Coil ADP 14.6 °C
Sensible heat ratio 0.606	Bypass Factor 0.100
m ² /kW 8.3	Resulting RH 58 %
W/m ² 121.1	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.07 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.9 kW	Load occurs at Jul 1600
Sensible coil load 0.9 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 168 L/s	Entering DB / WB 24.7 / 19.9 °C
Max coil L/s 168 L/s	Leaving DB / WB 20.0 / 18.4 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.04 L/s	

Supply Fan Sizing Data

Actual max L/s 168 L/s	Fan motor BHP 0.05 BHP
Standard L/s 167 L/s	Fan motor kW 0.04 kW
Actual max L/(s-m ²) 12.62 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 19 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Kitchen 1-07

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Kitchen 1-07	Number of zones 1
Equipment Class UNDEF	Floor Area 13.3 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.6	151	151	Nov 1100	0.0	13.3	11.35

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Kitchen 1-07	1	1.6	Nov 1100	151	0.0	13.3	11.35

Air System Sizing Summary for Lobby

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Lobby	Number of zones 1
Equipment Class UNDEF	Floor Area 79.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 3.8 kW	Load occurs at Oct 1100
Sensible coil load 2.1 kW	OA DB / WB 29.4 / 25.2 °C
Coil L/s at Oct 1100 435 L/s	Entering DB / WB 20.0 / 18.4 °C
Max block L/s 435 L/s	Leaving DB / WB 16.1 / 15.9 °C
Sum of peak zone L/s 435 L/s	Coil ADP 15.6 °C
Sensible heat ratio 0.540	Bypass Factor 0.100
m ² /kW 20.8	Resulting RH 49 %
W/m ² 48.1	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.16 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 5.5 kW	Load occurs at Jun 1900
Sensible coil load 4.0 kW	OA DB / WB 31.5 / 26.5 °C
Coil L/s at Jun 1900 435 L/s	Entering DB / WB 27.6 / 22.6 °C
Max coil L/s 435 L/s	Leaving DB / WB 20.0 / 19.5 °C
Sensible heat ratio 0.726	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.24 L/s	

Supply Fan Sizing Data

Actual max L/s 435 L/s	Fan motor BHP 0.13 BHP
Standard L/s 433 L/s	Fan motor kW 0.10 kW
Actual max L/(s-m ²) 5.49 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 55 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 0.70 L/(s-m ²)	

Zone Sizing Summary for Lobby

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Lobby	Number of zones 1
Equipment Class UNDEF	Floor Area 79.1 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	5.9	391	391	Nov 1100	0.1	79.1	4.94

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Lobby	1	5.9	Nov 1100	391	0.1	79.1	4.94

Air System Sizing Summary for Locker F 1-03

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Locker F 1-03	Number of zones 1
Equipment Class UNDEF	Floor Area 14.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 1.7 kW	Load occurs at Sep 1000
Sensible coil load 1.0 kW	OA DB / WB 29.0 / 25.5 °C
Coil L/s at Sep 1000 189 L/s	Entering DB / WB 20.0 / 17.9 °C
Max block L/s 189 L/s	Leaving DB / WB 15.4 / 15.2 °C
Sum of peak zone L/s 189 L/s	Coil ADP 14.9 °C
Sensible heat ratio 0.600	Bypass Factor 0.100
m ² /kW 8.1	Resulting RH 59 %
W/m ² 123.2	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.07 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.1 kW	Load occurs at Aug 1400
Sensible coil load 1.1 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Aug 1400 189 L/s	Entering DB / WB 24.7 / 19.9 °C
Max coil L/s 189 L/s	Leaving DB / WB 20.0 / 18.3 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.05 L/s	

Supply Fan Sizing Data

Actual max L/s 189 L/s	Fan motor BHP 0.06 BHP
Standard L/s 188 L/s	Fan motor kW 0.04 kW
Actual max L/(s-m ²) 13.30 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 20 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Locker F 1-03

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Locker F 1-03	Number of zones 1
Equipment Class UNDEF	Floor Area 14.2 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.8	170	170	Nov 1100	0.0	14.2	11.97

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Locker F 1-03	1	1.8	Nov 1100	170	0.0	14.2	11.97

Air System Sizing Summary for Locker M 1-06

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Locker M 1-06	Number of zones 1
Equipment Class UNDEF	Floor Area 11.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 1.5 kW	Load occurs at Oct 1400
Sensible coil load 1.0 kW	OA DB / WB 32.5 / 26.0 °C
Coil L/s at Oct 1400 166 L/s	Entering DB / WB 20.0 / 17.6 °C
Max block L/s 166 L/s	Leaving DB / WB 15.1 / 14.9 °C
Sum of peak zone L/s 166 L/s	Coil ADP 14.6 °C
Sensible heat ratio 0.632	Bypass Factor 0.100
m ² /kW 7.6	Resulting RH 58 %
W/m ² 130.8	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.07 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.9 kW	Load occurs at Jun 1500
Sensible coil load 0.9 kW	OA DB / WB 34.4 / 27.2 °C
Coil L/s at Jun 1500 166 L/s	Entering DB / WB 24.7 / 20.1 °C
Max coil L/s 166 L/s	Leaving DB / WB 20.0 / 18.6 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.04 L/s	

Supply Fan Sizing Data

Actual max L/s 166 L/s	Fan motor BHP 0.05 BHP
Standard L/s 165 L/s	Fan motor kW 0.04 kW
Actual max L/(s-m ²) 14.16 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 16 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Locker M 1-06

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name Locker M 1-06	Number of zones 1
Equipment Class UNDEF	Floor Area 11.7 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	1.5	149	149	Nov 1100	0.0	11.7	12.74

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Locker M 1-06	1	1.5	Nov 1100	149	0.0	11.7	12.74

Air System Sizing Summary for PAHU

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name	PAHU	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	553.2 m ²
Air System Type	TEMPER	Location	Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Precool Coil Sizing Data

Total coil load	35.8 kW	Load occurs at	Jul 1500
Sensible coil load	16.9 kW	OA DB / WB	35.0 / 27.2 °C
Coil L/s at Jul 1500	759 L/s	Entering DB / WB	35.0 / 27.2 °C
Max coil L/s	759 L/s	Leaving DB / WB	16.5 / 16.1 °C
Sensible heat ratio	0.472	Bypass Factor	0.100
Water flow @ 5.6 °K rise	N/A		

Supply Fan Sizing Data

Actual max L/s	759 L/s	Fan motor BHP	0.47 BHP
Standard L/s	757 L/s	Fan motor kW	0.35 kW
Actual max L/(s-m ²)	1.37 L/(s-m ²)	Fan static	250 Pa

Outdoor Ventilation Air Data

Design airflow L/s	759 L/s	L/s/person	7.00 L/s/person
L/(s-m ²)	1.37 L/(s-m ²)		

Zone Sizing Summary for PAHU

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

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Air System Information

Air System Name **PAHU**
 Equipment Class **SPLT AHU**
 Air System Type **TEMPER**

Number of zones **1**
 Floor Area **553.2** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	69.1	759	759	Jul 1600	0.6	553.2	1.37

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Clinic First Aid 1-27	1	3.8	Nov 1100	31	0.0	22.2	1.40
Dining 1-08	1	9.4	Oct 1500	164	0.1	46.9	3.50
Financial Section 1-24	1	5.7	Aug 1400	43	0.1	30.4	1.40
FOBS 1-12	1	10.9	Jun 1600	100	0.1	71.7	1.40
FSS FIC 1-14	1	1.2	Jan 2300	17	0.0	11.9	1.40
FSS Radio 1-13	1	2.4	Jun 1600	16	0.0	11.7	1.40
Human Resources 1-19	1	12.4	Jun 1600	102	0.1	73.2	1.40
Kitchen 1-07	1	1.5	Nov 1100	19	0.0	13.3	1.40
Locker F 1-03	1	1.7	Nov 1100	20	0.0	14.2	1.40
Locker M 1-06	1	1.5	Nov 1100	16	0.0	11.7	1.40
Record and Supply 1-18	1	2.4	Jan 2300	35	0.0	24.9	1.40
Security 1-28	1	0.8	Jan 2300	11	0.0	7.9	1.40
Security Office 1-15	1	7.5	Jun 1600	70	0.0	50.0	1.40
Hallway 1	1	2.0	Jan 2300	36	0.0	51.1	0.70
Hallway 3	1	1.3	Jan 2300	23	0.0	33.0	0.70
Lobby	1	7.5	Nov 1100	55	0.1	79.1	0.70

Air System Sizing Summary for Record & Supply 1-18

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:36PM

Air System Information

Air System Name Record & Supply 1-18	Number of zones 1
Equipment Class UNDEF	Floor Area 24.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 3.1 kW	Load occurs at Jun 0600
Sensible coil load 1.8 kW	OA DB / WB 25.8 / 25.1 °C
Coil L/s at Jun 0600 266 L/s	Entering DB / WB 20.0 / 17.8 °C
Max block L/s 266 L/s	Leaving DB / WB 14.5 / 14.4 °C
Sum of peak zone L/s 266 L/s	Coil ADP 13.9 °C
Sensible heat ratio 0.564	Bypass Factor 0.100
m ² /kW 8.0	Resulting RH 57 %
W/m ² 124.7	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.13 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 1.6 kW	Load occurs at Jul 1600
Sensible coil load 1.6 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 266 L/s	Entering DB / WB 25.1 / 19.8 °C
Max coil L/s 266 L/s	Leaving DB / WB 20.0 / 18.2 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.07 L/s	

Supply Fan Sizing Data

Actual max L/s 266 L/s	Fan motor BHP 0.08 BHP
Standard L/s 266 L/s	Fan motor kW 0.06 kW
Actual max L/(s-m ²) 10.70 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 35 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Record & Supply 1-18

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:36PM

Air System Information

Air System Name **Record & Supply 1-18**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **24.9** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	2.5	240	240	Jan 2300	0.0	24.9	9.63

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Record and Supply 1-18	1	2.5	Jan 2300	240	0.0	24.9	9.63

Air System Sizing Summary for Security 1-28

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:36PM

Air System Information

Air System Name Security 1-28	Number of zones 1
Equipment Class UNDEF	Floor Area 7.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 1.0 kW	Load occurs at Jun 0200
Sensible coil load 0.6 kW	OA DB / WB 26.4 / 25.3 °C
Coil L/s at Jun 0200 85 L/s	Entering DB / WB 20.0 / 17.8 °C
Max block L/s 85 L/s	Leaving DB / WB 14.6 / 14.4 °C
Sum of peak zone L/s 85 L/s	Coil ADP 13.9 °C
Sensible heat ratio 0.563	Bypass Factor 0.100
m ² /kW 8.0	Resulting RH 57 %
W/m ² 124.6	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.04 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 0.5 kW	Load occurs at Jul 1700
Sensible coil load 0.5 kW	OA DB / WB 34.1 / 27.0 °C
Coil L/s at Jul 1700 85 L/s	Entering DB / WB 25.0 / 19.8 °C
Max coil L/s 85 L/s	Leaving DB / WB 20.0 / 18.2 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.02 L/s	

Supply Fan Sizing Data

Actual max L/s 85 L/s	Fan motor BHP 0.03 BHP
Standard L/s 84 L/s	Fan motor kW 0.02 kW
Actual max L/(s-m ²) 10.70 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 11 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Security 1-28

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:36PM

Air System Information

Air System Name Security 1-28	Number of zones 1
Equipment Class UNDEF	Floor Area 7.9 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	0.8	76	76	Jan 2300	0.0	7.9	9.63

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Security 1-28	1	0.8	Jan 2300	76	0.0	7.9	9.63

Air System Sizing Summary for Security Office 1-15

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:36PM

Air System Information

Air System Name Security Office 1-15	Number of zones 1
Equipment Class UNDEF	Floor Area 50.0 m ²
Air System Type SZCAV	Location Manila, Philippines

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Sum of space airflow rates	Calculation Months Jan to Dec
Space L/s Individual peak space loads	Sizing Data Calculated

Central Cooling Coil Sizing Data

Total coil load 7.9 kW	Load occurs at Jul 1600
Sensible coil load 5.2 kW	OA DB / WB 34.7 / 27.2 °C
Coil L/s at Jul 1600 829 L/s	Entering DB / WB 20.0 / 17.4 °C
Max block L/s 829 L/s	Leaving DB / WB 14.8 / 14.5 °C
Sum of peak zone L/s 829 L/s	Coil ADP 14.2 °C
Sensible heat ratio 0.660	Bypass Factor 0.100
m ² /kW 6.3	Resulting RH 56 %
W/m ² 158.1	Design supply temp. 14.4 °C
Water flow @ 5.6 °K rise 0.34 L/s	Zone T-stat Check 1 of 1 OK
	Max zone temperature deviation 0.0 °K

Precool Coil Sizing Data

Total coil load 4.5 kW	Load occurs at Aug 1500
Sensible coil load 4.5 kW	OA DB / WB 35.0 / 27.2 °C
Coil L/s at Aug 1500 829 L/s	Entering DB / WB 24.6 / 19.4 °C
Max coil L/s 829 L/s	Leaving DB / WB 20.0 / 17.9 °C
Sensible heat ratio 1.000	Bypass Factor 0.100
Water flow @ 5.6 °K rise 0.19 L/s	

Supply Fan Sizing Data

Actual max L/s 829 L/s	Fan motor BHP 0.26 BHP
Standard L/s 827 L/s	Fan motor kW 0.19 kW
Actual max L/(s-m ²) 16.59 L/(s-m ²)	Fan static 125 Pa

Outdoor Ventilation Air Data

Design airflow L/s 70 L/s	L/s/person 7.00 L/s/person
L/(s-m ²) 1.40 L/(s-m ²)	

Zone Sizing Summary for Security Office 1-15

Project Name: New Bohol Airport Project (CTO Admin Bldg. GF)
 Prepared by: VVR Engineering Design Services

09/06/2013
 01:36PM

Air System Information

Air System Name **Security Office 1-15**
 Equipment Class **UNDEF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **50.0** m²
 Location **Manila, Philippines**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	7.7	746	746	Jun 1600	0.0	50.0	14.93

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
Security Office 1-15	1	7.7	Jun 1600	746	0.0	50.0	14.93

2. Electrical Calculation

(1) LOAD CALCULATION

(2) VOLTAGE DROP CALCULATION

(3) ILLUMINATION

(1) LOAD CALCULATION

- 1) Passenger Terminal Building
- 2) Power House
- 3) Aeronautical Ground Lights
- 4) Air Navigation System
- 5) Control Tower & Fire Station
- 6) Water Pump Station
- 7) Sewerage Treatment Plant
- 8) LLZ, GS and VOR Building
- 9) Summary Load

1) Passanger Terminal Building

TR1-PTB = 700KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSGNE-PTB

I FL = 700 KVA ÷ (0.230 x 1.732) =

USE: 4 Sets [3-240mm² XLPE +1- 30mm² TW]

2000AT, 2000AF, 3P ACB

Panel : LPN1 (BMS Control)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	28W LED Down Light	21	0.028	=	0.735	-
2	28W LED Down Light	16	0.028	=	0.560	-
3	120W LED Wall Light	7	0.120	=	1.050	-
4	120W LED Wall Light	6	0.120	=	0.900	-
5	24W LED Down Light	12	0.024	=	0.360	-
6	24W LED Down Light	12	0.024	=	0.360	-
7	24W LED Down Light	12	0.024	=	0.360	-
8	24W LED Down Light	12	0.024	=	0.360	-
9	120W LED Wall Light	4	0.120	=	0.600	-
10	120W LED Wall Light	4	0.120	=	0.600	-
11	8W LED Down Light, Toilet1	10	0.008	=	0.100	-
12	8W LED Down Light, Toilet1	10	0.008	=	0.100	-
13	50W LED Down Light Arrival Bus Gate (Domestic)	7	0.050	=	0.438	-
14	20W LED Down Light, Toilet2	20	0.008	=	0.200	-
15	Spare			=	0.000	-
16	Spare			=	0.000	-
					6.723	kVA
					13.17 * 1.732 = 22.81 A	
					22.81 A * 230V * 1.732 =	9.087 kVA

Panel : LPN2 (BMS Control)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	120W LED Wall Light	4	0.120	=	0.600	-
2	120W LED Wall Light	6	0.120	=	0.900	-
3	24W LED Down Light, Toilet2	19	0.008	=	0.190	-
4	24W LED Down Light, Staff Goods	4	0.024	=	0.120	-
5	24W LED Down Light, Security Office	11	0.024	=	0.330	-
6	24W LED Down Light, Security Office	11	0.024	=	0.330	-
7	120W LED Wall Light	4	0.120	=	0.600	-
8	8W LED Down Light, Toilet4	9	0.008	=	0.090	-
9	24W LED Down Light, Corridor	14	0.024	=	0.420	-
10	8W LED Down Light, Toilet	18	0.008	=	0.180	-
11	120W LED Wall Light	4	0.120	=	0.600	-
12	120W LED Wall Light	4	0.120	=	0.600	-
13	120W LED Wall Light	4	0.120	=	0.600	-
14	120W LED Wall Light	4	0.120	=	0.600	-
15	Spare			=	0.000	-
16	Spare			=	0.000	-
					6.160	kVA
					11.27 x 1.732 = 19.51 A	
					19.51 * 230V * 1.732 =	7.772 kVA

Panel : LPN3 (BMS Control)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	8W LED Down Light, Toilet6	19	0.008	=	0.190	-
2	120W LED Wall Light	6	0.120	=	0.900	-
3	120W LED Wall Light	6	0.120	=	0.900	-
4	120W LED Wall Light For Baggage Make-Up	3	0.120	=	0.450	-
5	120W LED Wall Light For Baggage Make-Up	3	0.120	=	0.450	-
6	28W LED Down Light	9	0.028	=	0.315	-
7	28W LED Down Light	9	0.028	=	0.315	-
8	2 x 28W LED Down Light Fluorescent	24	0.028	=	0.840	-
9	2 x 28W LED Down Light Fluorescent BHS In-Line	20	0.028	=	0.700	-
10	24W LED Down Light Check-In	26	0.024	=	0.780	-
11	24W LED Down Light Check-In	26	0.024	=	0.780	-
12	120W LED Wall Light	5	0.120	=	0.750	-
13	120W LED Wall Light	4	0.120	=	0.600	-
14	Spare			=	0.000	-
15	Spare			=	0.000	-
16	Spare			=	0.000	-
					7.970	kVA
					15.08 x 1.732 = 26.11 A	
					26.11 * 230V * 1.732 =	10.401 kVA

Panel : LPN4 (BMS Control)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	50W LED Up Light	5	0.050	=	0.313	-
2	50W LED Down Light	12	0.050	=	0.750	-
3	50W LED Down Light	12	0.050	=	0.750	-
4	50W LED Down Light	12	0.050	=	0.750	-
5	50W LED Down Light	12	0.050	=	0.750	-
6	50W LED Down Light	12	0.050	=	0.750	-
7	50W LED Up Light	5	0.050	=	0.313	-
8	50W LED Up Light	7	0.050	=	0.438	-
9	120W LED Wall Light	5	0.120	=	0.750	-
10	120W LED Wall Light	4	0.120	=	0.600	-
11	120W LED Wall Light	4	0.120	=	0.600	-
	50W LED Up Light	4	0.050	=	0.250	-
12	120W LED Wall Light	5	0.120	=	0.750	-
	50W LED Up Light	5	0.050	=	0.313	-
13	120W LED Wall Light	5	0.120	=	0.750	-
	50W LED Up Light	5	0.050	=	0.313	-
14	120W LED Wall Light	5	0.120	=	0.750	-
15	120W LED Wall Light	5	0.120	=	0.750	-
	50W LED Up Light	5	0.050	=	0.313	-
16	120W LED Wall Light	5	0.120	=	0.750	-
17	50W LED Up Light	7	0.050	=	0.438	-
18	Spare			=	0.000	-
19	Spare			=	0.000	-
20	Spare			=	0.000	-
					12.138	kVA
				20.86 x 1.732 = 36.13 A		
				36.13 * 230V * 1.732 =	14.393	kVA

Panel : LPN5 (BMS Control)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	28W Fluorescent Light	16	0.028	=	0.560	-
2	120W LED Wall Light	2	0.120	=	0.300	-
	31W LED Recessed Light	2	0.031	=	0.078	-
	8W LED Down Light For Lost, Found & Quarantine	3	0.008	=	0.030	-
3	28W Fluorescent Light	14	0.028	=	0.490	-
4	31W LED Recessed Light	5	0.031	=	0.194	-
	8W LED Down Light	4	0.008	=	0.040	-
	24W LED Down Light For Custom, Toilet & Pantry	4	0.024	=	0.120	-
5	31W LED Recessed Light	8	0.031	=	0.310	-
	8W LED Downl Light	6	0.008	=	0.060	-
6	24W LED Downl Light	12	0.024	=	0.360	-
	28W Fluorescent Light For Storage	2	0.028	=	0.070	-
7	31W LED Recessed Light	8	0.031	=	0.310	-
8	31W LED Recessed Light	8	0.031	=	0.310	-
9	31W LED Recessed Light	7	0.031	=	0.271	-
	28W Fluorescent Light For FOBS, Security Office	2	0.028	=	0.070	-
10	31W LED Recessed Light	6	0.031	=	0.233	-
11	28W Fluorescent Light For Electrical Room	12	0.028	=	0.420	-
12	31W LED Recessed Light	2	0.031	=	0.078	-
	24W LED Downl Light	4	0.024	=	0.120	-
	8W LED Downl Light For Pantry, Toilet	10	0.008	=	0.100	-
13	Spare			=		-
14	Spare			=		-
					4.523	kVA
				7.86 x 1.732 = 13.61 A		
				13.61 * 230V * 1.732 =	5.422	kVA

Panel : PN1

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	5-Duplex Outlet For Pantry & Office EE Room	1	1.725	=	1.725	-
2	4-Duplex Outlet For BHS In-Line	1	1.380	=	1.380	-
3	2-Duplex Outlet For Hand Dryer, Power	1	3.440	=	3.440	-
	4-Duplex Outlet For Urinal	1		=	0.000	-
4	5-Duplex Outlet (Floor Mounted Type)For Domestic Gate Lounge	1	1.725	=	1.725	-
5	4-Duplex Outlet For Domestic Gate Lounge	1	1.380	=	1.380	-
6	3-Duplex Outlet For Check-In	1	1.035	=	1.035	-
7	4-Duplex Outlet For FIDS, PA, Clock Free Standing Rack	1	1.380	=	1.380	-
8	2-Duplex Outlet For Public Pay Phone & Domestic Gate Lounge	1	0.690	=	0.690	-
9	7-Duplex Outlet For Check-In	1	2.415	=	2.415	-
10	4-Duplex Outlet For Check-In	1	1.380	=	1.380	-
11	5-Duplex Outlet For Check-In	1	1.725	=	1.725	-
12	Spare					
13	Spare					
14	Spare					
					18.275	kVA
			36 x 1.732 = 62.35 A			
			62.35 * 230V * 1.732 =		24.838	kVA

Panel : PN2

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	5-Duplex Outlet For security Office, Electrical/FM200 Room	1	1.725	=	1.725	-
2	2-Duplex Outlet For Hnad Dryer, Urinal Supply	1	3.440	=	3.440	-
3	2-Duplex Outlet For Hnad Dryer, Urinal Supply	1	3.440	=	3.440	-
4	2-Duplex Outlet For Hnad Dryer, Urinal Supply	1	3.440	=	3.440	-
5	2-Duplex Outlet For Floor Mounted Type	1	1.725	=	1.725	-
	3-Duplex Outlet For International Gate Lounge	1		=	0.000	-
6	5-Duplex Outlet For Corridor, Pantry	1	1.725	=	1.725	-
7	6-Duplex Outlet For Ticket, Bank & Car Rental Office	1	2.070	=	2.070	-
8	6-Duplex Outlet For Custom Office	1	2.070	=	2.070	-
9	7-Duplex Outlet For Hand Dryer, Urinal Supply	1	3.440	=	3.440	-
10	4-Duplex Outlet For Baggage Claim	1	1.380	=	1.380	-
11	7-Duplex Outlet For Baggage Claim & Mechanical Room	1	2.415	=	2.415	-
12	4-Duplex Outlet For Hand Dryer, Urinal Supply	1	3.440	=	3.440	-
13	7-Duplex Outlet For Chasher	1	2.415	=	2.415	-
14	6-Duplex Outlet For Offices	1	2.070	=	2.070	-
15	5-Duplex Outlet For Offices	1	1.725	=	1.725	-
16	Spare			=	0.000	-
17	Spare			=	0.000	-
18	Spare			=	0.000	-
					36.520	kVA
			63 x 1.732 = 109.116 A			
			109.116 * 230V * 1.732 =		43.467	kVA

Panel : PACN

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	VRF1	1	50.000	=	50.000	-
2	VRF2	1	50.000	=	50.000	-
3	VRF3	1	50.000	=	50.000	-
4	VRF4	1	50.000	=	50.000	-
5	6-FCU For Lost & Found, Concession105	1	0.420	=	0.420	-
6	5-FCU For Concession & Duty Free	1	0.755	=	0.755	-
7	6-FCU For Toilet, Office, Bank, Car Rental, Concession146	1	0.350	=	0.350	-
8	6-FCU For Offices	1	0.420	=	0.420	-
9	3-FCU For International Gate Lounge	1	2.375	=	2.375	-
10	7-FCU ForFOBS. Security Office & Concession123	1	0.490	=	0.490	-
11	5-FCU For Security Office	1	0.590	=	0.590	-
12	3-FCU For Domestic Gate Lounge, Concession164	1	2.375	=	2.375	-
13	8-FCU For Check-In, Offices, Concession154	1	0.800	=	0.800	-
14	5-FCU For Domestic Gate Lounge, BHS In-Line	1	1.635	=	1.635	-
15	8-FCU For Concession134 & 148	1	0.560	=	0.560	-
16	Spare			=	0.000	-
					210.770	kVA
			17.98 x 1.732 + 500 + 125(25%) = 562.39 A			
			562.39 * 230V * 1.732 =		224.034	kVA

Panel : PVN

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>	
1	EF-3, SF-3	1	0.900	=	0.900	-	
2	EF-5, SF-13, EF-6 & EF-11	1	1.200	=	1.200	-	
3	SF-2	1	1.600	=	1.600	-	
4	EF-2	1	1.600	=	1.600	-	
5	EF-14, EF-16	1	0.430	=	0.430	-	
6	EF-8, EF-9	1	1.050	=	1.050	-	
7	EF-10, EF-1, SF-1, EF-12	1	0.900	=	0.900	-	
8	EF-4	1	2.400	=	2.400	-	
9	EF-7, EF-15	1	0.195	=	0.195	-	
10	Spare			=	0.000	-	
11	Spare			=	0.000	-	
12	Spare			=	0.000	-	
					10.275		kVA
5.85 x 1.732 + 25.29 + 25% (6.02) = 36.92 A							
36.92 * 230V * 1.732 =					14.707		kVA

Panel : PNC1 For Concession

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>	
1	Concession 167	1	3.450	=	3.450	-	
2	Concession 166	1	3.450	=	3.450	-	
3	Concession 170	1	3.450	=	3.450	-	
4	Concession 171	1	3.450	=	3.450	-	
5	Concession 164	1	3.450	=	3.450	-	
6	Concession 177	1	3.450	=	3.450	-	
7	Concession 180	1	3.450	=	3.450	-	
8	Spare			=	0.000	-	
9	Spare			=	0.000	-	
					24.150		kVA
45 x 1.732 = 77.94 A							
77.94 * 230V * 1.732 =					31.048		kVA

Panel : PNC2 For Concession

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>	
1	Concession 163	1	3.450	=	3.450	-	
2	Concession 159	1	3.450	=	3.450	-	
3	Concession 152	1	3.450	=	3.450	-	
4	Concession 118 (Duty free)	1	3.450	=	3.450	-	
5	Concession 161	1	3.450	=	3.450	-	
6	Concession 111 (Duty Free)	1	3.450	=	3.450	-	
7	Concession 103	1	3.450	=	3.450	-	
8	Spare			=	0.000	-	
9	Spare			=	0.000	-	
					24.150		kVA
45 x 1.732 = 77.94 A							
77.94 * 230V * 1.732 =					31.048		kVA

Panel : LPNE1 (BMS Control)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	28W LED Down Light For Baggage Breakdown	8	0.028	=	0.280	0.280
2	120W LED Wall Light For Baggage Claim, Domestic	4	0.120	=	0.600	0.600
3	120W LED Wall Light For Baggage Claim, International	4	0.120	=	0.600	0.600
4	120W LED Wall Light For International Gate Lounge	4	0.120	=	0.600	0.600
5	120W LED Wall Light For Domestic Gate Lounge	7	0.120	=	1.050	1.050
6	120W LED Wall Light For Baggage Make-Up	4	0.120	=	0.600	0.600
7	28W LED Down Light Fluorescent For Baggage Make-Up	6	0.028	=	0.210	0.210
8	24W LED Down Light For Check-In	15	0.024	=	0.450	0.450
9	120W LED Wall Light For Public Concourse	6	0.120	=	0.900	0.900
10	24W LED Wall Light For Security Check	6	0.024	=	0.180	0.180
11	8W LED Down Light for Toilet4	10	0.008	=	0.100	0.100
12	8W LED Down Light for Toilet5	8	0.008	=	0.080	0.080
13	8W LED Down Light for Toilet2	10	0.008	=	0.100	0.100
14	24W LED TYPE DOWN LIGHT FOR BAGGAGE CLAIM (INTER)	12	0.024	=	0.360	0.360
	120W LED Wall Light	2	0.120	=	0.300	0.300
15	12 - 24W LED TYPE DOWN LIGHT FOR BAGGAGE CLAIM (DOVE)	12	0.024	=	0.360	0.360
	120W LED Wall Light	2	0.120	=	0.300	0.300
16	8W LED Down Light for Toilet1	10	0.008	=	0.100	0.100
17	Spare			=	0.000	0.000
18	Spare			=	0.000	0.000
					7.170	7.170 kVA
					12.42 x 1.732 = 21.51 A	
					21.51 * 230V * 1.732 =	8.569 kVA

Panel : LPNE2

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	120W LED Wall Light	2	0.120	=	0.300	0.300
	31W LED Down Light For Lost & Found	2	0.031	=	0.078	0.078
2	31W LED Recessed Light For Custom	3	0.031	=	0.116	0.116
3	31W LED Recessed Light For Ticket, Bank, Car Rent	6	0.031	=	0.233	0.233
4	31W LED Recessed Light For CCO	10	0.031	=	0.388	0.388
	24W LED Recessed Light For Office	3	0.024	=	0.090	0.090
5	31W LED Recessed Light For Chasher	5	0.031	=	0.194	0.194
	24W LED Down Light	2	0.024	=	0.060	0.060
6	31W LED Recessed Light For Offices	8	0.031	=	0.310	0.310
7	31W LED Recessed Light For Airline Offices	6	0.031	=	0.233	0.233
8	Spare			=	0.000	0.000
9	Spare			=	0.000	0.000
10	Spare			=	0.000	0.000
					2.000	2.000 kVA
					5.99 x 1.732 = 10.37 A	
					10.37 * 230V * 1.732 =	4.131 kVA

Panel : UPSE1

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	6-Outlet For 200W FIDS at Airline Office	1	1.500	=	1.500	1.500
2	7-Outlet For 200W FIDS at Check-in	1	1.750	=	1.750	1.750
	9-Outlet For Digital Clock	1		=	0.000	0.000
3	9-Outlet For 200W FIDS at Check-in	1	2.250	=	2.250	2.250
4	4-Outlet For 200W FIDS at Baggage Meke-up, Concession, BHS In-Line	1	1.000	=	1.000	1.000
5	4-Outlet For 200W FIDS at International & Domestic Lounge	1	1.000	=	1.000	1.000
	1-Outlet For Digital Clock	1		=	0.000	0.000
6	4-Outlet For 200W FIDS at Public Concourse	1	1.000	=	1.000	1.000
	4-Outlet For Digital Clock	1		=	0.000	0.000
7	4-Outlet For 2 Concession	1	0.750	=	0.750	0.750
	1-Outlet For Digital Clock	1		=	0.000	0.000
8	4-Outlet For 200W FIDS at Baggage Claim	1	1.000	=	1.000	1.000
	3-Outlet For Digital Clock	1		=	0.000	0.000
9	1-Supply For FIDS	1	1.250	=	1.250	1.250
10	1-Supply For CCTV	1	1.250	=	1.250	1.250
11	1-Supply For Public Address	1	1.250	=	1.250	1.250
12	1-Supply For Mater Clock & FDAS	1	1.250	=	1.250	1.250
13	1-Supply For BMS	1	1.250	=	1.250	1.250
14	Spare			=	0.000	0.000
15	Spare			=	0.000	0.000
16	Spare			=	0.000	0.000
					16.500	16.500 kVA
					29.32 x 1.732 = 50.78 A	
					50.78 * 230V * 1.732 =	20.229 kVA

Panel : UPSE2

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	24W LED Down Light For Check-In	11	0.024	=	0.330	0.330
2	24W LED Down Light For Security Check	5	0.024	=	0.150	0.150
3	24W LED Down Light For Staff, Goods	5	0.024	=	0.150	0.150
4	31W LED Recessed Light For CCO	5	0.031	=	0.194	0.194
5	10W LED Exit Light	3	0.010	=	0.038	0.038
	24W LED Down Light For Corridor	8	0.024	=	0.240	0.240
6	10W LED Exit Light	4	0.010	=	0.050	0.050
	24W LED Down Light For Corridor	5	0.024	=	0.150	0.150
7	10W LED Exit Light For Domestic & International Airline Offices	2	0.010	=	0.025	0.025
8	10W LED Exit Light For Domestic & International Airline Offices	4	0.010	=	0.050	0.050
9	Spare			=	0.000	0.000
10	Spare			=	0.000	0.000
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					1.376	1.376 kVA
					5.41 x 1.732 = 9.37 A	
					9.37 * 230V * 1.732 =	3.733 kVA

Panel : PCFNE (BMS Control)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	Ceiling Fan	3	0.300	=	1.125	1.125
2	Ceiling Fan	4	0.300	=	1.500	1.500
3	Ceiling Fan	3	0.300	=	1.125	1.125
4	Ceiling Fan	4	0.300	=	1.500	1.500
5	Ceiling Fan	6	0.300	=	2.250	2.250
6	Ceiling Fan	6	0.300	=	2.250	2.250
7	Spare			=	0.000	0.000
8	Spare			=	0.000	0.000
9	Spare			=	0.000	0.000
					9.750	9.750 kVA
					16.3 x 1.732 = 28.23 A	
					28.23 * 230V * 1.732 =	11.246 kVA

Panel : PNE1

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	6-Duplex Outlet For Check-in Counter	1	2.070	=	2.070	2.070
2	5-Duplex Outlet For Check-in Counter	1	1.725	=	1.725	1.725
3	5-Duplex Outlet For Check-in Counter	1	1.725	=	1.725	1.725
4	1-Outlet For Main X-Lay System	1	2.000	=	2.000	2.000
5	BHS In-Line Screening	1	2.000	=	2.000	2.000
6	8-Outlet (Floor Mounted) For Domestic Gate	1	2.760	=	2.760	2.760
7	4-Duplex Outlet For Airline Offices	1	1.380	=	1.380	1.380
8	2-Outlet For Main X-Lay System (Security Check)	1	2.000	=	2.000	2.000
9	2-Outlet For Main X-Lay System (Security Check)	1	2.000	=	2.000	2.000
10	BHS Conveyer	1	19.918	=	19.918	19.918
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
13	Spare			=	0.000	0.000
14	Spare			=	0.000	0.000
					37.578	37.578 kVA
					34.19 X 1.732 + 60 + 25%(50) = 131.72 A	
					131.72 * 230V * 1.732 =	52.472 kVA

Panel : PNE2

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	4-Duplex Outlet (Floor Mounted) For Passport Control	1	1.380	=	1.380	1.380
2	1-Outlet For X-Lay System (Saff, Goods)	1	2.000	=	2.000	2.000
3	5-Duplex Outlet For Immigration and Security Office	1	1.725	=	1.725	1.725
4	4-Duplex Outlet For Command Control Office	1	1.380	=	1.380	1.380
5	3-Duplex Outlet For Ticket, Bank, Car Rental Car Office	1	1.035	=	1.035	1.035
6	3-Duplex Outlet (Floor Mounted) For Passport Control Arrival	1	1.035	=	1.035	1.035
7	2-Duplex Outlet (Floor Mounted) For Custom	1	0.690	=	0.690	0.690
8	Baggage Claim Conveyer1	1	9.959	=	9.959	9.959
9	Baggage Claim Conveyer2	1	9.959	=	9.959	9.959
10	4-Duplex Outlet For Chasher	1	1.380	=	1.380	1.380
11	3-Duplex Outlet For Quarantine	1	1.035	=	1.035	1.035
12	5-Duplex Outlet For Office, Copy Room	1	1.725	=	1.725	1.725
13	Spare			=	0.000	0.000
14	Spare			=	0.000	0.000
15	Spare			=	0.000	0.000
					33.303	33.303 kVA
27.5 x 1.732 + 50 + 25%(25) = 103.88 A						
103.88 * 230V * 1.732 =					41.382	kVA

Panel : PACNE

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	VRF5	1	50.000	=	50.000	50.000
2	VRF6	1	50.000	=	50.000	50.000
3	VRF7	1	50.000	=	50.000	50.000
4	VRF8	1	50.000	=	50.000	50.000
5	VRF9 (Stand-By)	1		=	0.000	0.000
6	7-FCU For Quarantine, Custom Office, Chasher	1	0.490	=	0.490	0.490
7	3-FCU For Corridor, Concession 125	1	1.425	=	1.425	1.425
8	4-FCU For Command Control Office	1	0.280	=	0.280	0.280
9	6-FCU For International Gate, Concession 125	1	2.180	=	2.180	2.180
10	5-FCU For Staff & Goods, Toilet, Electrical Room	1	1.240	=	1.240	1.240
11	3-FCU For Domestic Gate Lounge	1	2.850	=	2.850	2.850
12	5-FCU For Security, Concession 170	1	0.755	=	0.755	0.755
13	5-FCU For Airline Offices, Check-In	1	0.430	=	0.430	0.430
14	4-FCU For Check-In	1	0.600	=	0.600	0.600
15	5-FCU For Domestic Gate Lounge, Concession 172, BHS In-Line	1	2.515	=	2.515	2.515
16	Spare	1		=	0.000	0.000
17	Spare	1		=	0.000	0.000
					212.765	212.765 kVA
17.98 x 1.732 + 500 + 125(25%) = 562.39 A						
562.39 * 230V * 1.732 =					224.034	kVA

2) Power House

TR-PWH = 100KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSGNE-PWH

I FL = 100 KVA ÷ (0.230 x 1.732) =
 USE: 1SETS [3-95mm² XLPE +1- 30mm² TW]
 100AT, 100AF, 3P ACB

Panel : VACNE

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	2.5KW ACCU-3 + FCU @ OFFICE	1	2.500	=	3.125	3.125
2	2.5KW ACCU-4B + FCU @ CONTROL ROOM (STANDBY)	1	2.500	=	3.125	3.125
3	2.5KW ACCU-4A + FCU @ CONTROL ROOM	1	2.500	=	3.125	3.125
4	2.608KW WACU @ CCR	1	2.608	=	3.260	3.260
5	2.608KW WACU @ CCR	1	2.608	=	3.260	3.260
6	1500W FAF @ TRANSFORMER RM	1	1.500	=	1.875	1.875
7	1500W EF @ TRANSFORMER RM	1	1.500	=	1.875	1.875
8	187W EF @ MAIN FUEL TANK	1	0.187	=	0.234	0.234
9	47W EF @ DAILY FUEL TANK	1	0.047	=	0.059	0.059
10	1/4HP FUEL TRANSFER PUMP (ASSUMED)	1	1.064	=	1.330	1.330
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					21.268	21.268
					kVA	
					36.93 x 1.732 = 63.96 A	
					63.96* 230V * 1.732 = 25.479 kVA	

Panel : LPPNE

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	10-4x20W FLUO. @ CCR & OFFICE	40	0.020	=	1.000	1.000
2	6-18WPLC @ HALLWAY, TOILET 1&2, LOCKER, NAP RM & DINING	6	0.018	=	0.135	0.135
3	2-4x20W FLUO. @ HALLWAY, TOILET 1&2, LOCKER, NAP RM & DI	4	0.020	=	0.100	0.100
4	8-2x40W FLUO. @ X'MER RM, WORKSHOP & STORAGE	16	0.040	=	0.800	0.800
5	3-CONV. RECEP. @ CONTROL RM & OFFICE	3	0.288	=	1.080	1.080
6	3-CONV. RECEP. @ GENSET & WORKSHOP	3	0.288	=	1.080	1.080
7	3-CONV. RECEP. @ X'MER RM & CCR	3	0.288	=	1.080	1.080
8	SUPPLY FOR BATTERY CHARGER @ X'MER RM	1	0.400	=	0.500	0.500
9	SUPPLY FOR BATTERY CHARGER @ GENSET RM	1	0.400	=	0.500	0.500
10	3-CONV. RECEP. @ X'MER	3	0.288	=	1.080	1.080
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					7.355	7.355
					kVA	
					15.26 x 1.732 = 26 A	
					26 * 230V * 1.732 = 10.357 kVA	

Panel : UPSE

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	2-4x20W FLUO. @ CONTROL ROOM	8	0.020	=	0.200	0.200
2	3-2x40W FLUO. @ X'MER RM	6	0.040	=	0.300	0.300
3	7-2x40W FLUO. @ GENSET RM	14	0.040	=	0.700	0.700
4	4-COMPUTER OUTLET @ CONTROL RM & OFFICE	4	0.240	=	1.200	1.200
5	SUPPLY FOR IDF-PWH	1	0.080	=	0.100	0.100
6	Spare			=	0.000	0.000
7	Spare			=	0.000	0.000
8	Spare			=	0.000	0.000
					2.500	2.500
					kVA	
					24 A	
					24 * 230V = 5.520 kVA	

Panel : VACN

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	2.65KW ACCU-1 + FCU @ NAP RM	1	2.650	=	3.313	-
2	4.1KW ACCU-2 + FCU @ DINING	1	4.100	=	5.125	-
3	187W EF @ TOILET-2	1	0.187	=	0.234	-
4	187W EF @ TOILET-1	1	0.150	=	0.187	-
5	370W EF @ WORKSHOP	1	0.370	=	0.463	-
6	370W EF @ KITCHEN	1	0.370	=	0.463	-
7	3.5KW WATER HEATER @ TOILET-1	1	3.500	=	4.375	-
8	6.5KW WATER HEATER @ TOILET-2 LAVATORY	1	6.500	=	8.125	-
9	4.5KW WATER HEATER @ TOILET-2 SHOWER-1	1	4.500	=	5.625	-
10	4.5KW WATER HEATER @ TOILET-2 SHOWER-2	1	4.500	=	5.625	-
11	Spare			=	0.000	-
12	Spare			=	0.000	-
					33.533	-
					kVA	
					45.69 x 1.732 = 79.13 A	
					79.13* 230V * 1.732 = 31.522 kVA	

Panel : LPPN

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	12 - 4x20W FLUO. @ CCR & OFFICE	48	0.020	=	1.200	-
2	10 - 2x40W FLUO. @ X'MER RM	20	0.040	=	1.000	-
3	14 - 2x40W FLUO. @ GENSET RM	28	0.040	=	1.400	-
4	15 - 18W PLC @ HALLWAY, TOILET1&2 & LOCKER RM	15	0.018	=	0.338	-
5	6 - 4x20W FLUO. @ DINING & NAP RM	24	0.020	=	0.600	-
6	6 - 2x40W FLUO. @ WORKSHOP, MAIN & DAILY FUEL T	12	0.020	=	0.300	-
7	18 - 18W WALL LAMP @ PERIMETER	18	0.018	=	0.405	-
8	S2 - 1000VA HAND DRYER	2	0.800	=	2.000	-
9	CB @ GH1-PWH (2 - 18W PLC + 2-CONV. RECEP. + 47W TF)	1	0.440	=	0.550	-
10	CB @ GH2-PWH-1 (2 - 18W PLC + 2-CONV. RECEP. +65W TEF + 47W	1	0.504	=	0.630	-
11	CB @ GH2-PWH-2 (2 - 18W PLC + 2-CONV. RECEP. +65W TEF + 47W	1	0.504	=	0.630	-
12	2 - CONV. RECEP. @ WORKSHOP & STORAGE	2	0.288	=	0.720	-
13	5 - CONV. RECEP. @ HALLWAY, LOCKER, DINING & NAP ROOM	5	0.288	=	1.800	-
14	Spare			=	0.000	-
15	Spare			=	0.000	-
					11.573	kVA
					27.26 x 1.732 = 47 A	
					47* 230V * 1.732 =	18.723 kVA

Panel : DRLN

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	12 - 18W PLC @ DRIVER'S LOUNGE	12	0.018	=	0.270	-
2	6 - 18W PLC (WEATHERPROOF) @ DRIVER'S LOUNGE	6	0.018	=	0.135	-
3	9 - 18W PLC @ CARPAR TOILET	9	0.018	=	0.203	-
4	1 - FIDS OUTLET @ DRIVER'S LOUNGE	1	0.200	=	0.250	-
5	4 - WEATHERPROOF CONV. RECEP. @ DRIVER'S LOUNGE	4	0.288	=	1.440	-
6	2 - 1000VA HANDDRYER @ CARPARK TOILET	2	1.000	=	2.500	-
7	2 - 65W 1 - 85W EF @ CARPARK TOILETs	1	0.085	=	0.163	-
8	CB @ TLB-1 & 2 (4 - 40W FLUO. + 2 - CONV. RECEP. + 2 - 100VA ELECTRONIC CAR BARRIER + 2 - 47W FAF)	1	1.088	=	0.106	-
9	CB @ TLB-3 & 4 (4 - 40W FLUO. + 2 - CONV. RECEP. + 2 - 100VA ELECTRONIC CAR BARRIER + 2 - 47W FAF)	1	1.088	=	1.360	-
10	Spare			=	1.360	-
11	Spare			=	0.000	-
12	Spare			=	0.000	-
					7.786	kVA
					13.86 x 1.732 = 24 A	
					24* 230V * 1.732 =	9.561 kVA

Panel : RCPN

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	5 - 120W LED LAMP ROAD	5	0.120	=	0.750	-
2	5 - 120W LED LAMP ROAD	5	0.120	=	0.750	-
3	5 - 120W LED LAMP ROAD	5	0.120	=	0.750	-
4	8 - 120W LED LAMP CAR PARK 1	8	0.120	=	1.200	-
5	7 - 120 LED LAMP ROAD	7	0.120	=	1.050	-
6	5 - 120 LED LAMP ROAD	5	0.120	=	0.750	-
7	4 - 120W LED LAMP CARPARK 2 (PLOH AND CTO)	4	0.120	=	0.600	-
8	SPARE			=	0.000	-
9	SPARE			=	0.000	-
10	SPARE			=	0.000	-
					5.850	kVA
					14.12 x 1.732 = 24.45 A	
					24.45* 230V * 1.732 =	9.740 kVA

Panel : RCPNE

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	8 - 120W LED LAMP ROAD	8	0.120	=	1.200	-
2	8 - 120W LED LAMP ROAD	8	0.120	=	1.200	-
3	8 - 120W LED LAMP ROAD	8	0.120	=	1.200	-
4	SPARE			=	0.000	-
5	SPARE			=	0.000	-
6	SPARE			=	0.000	-
					3.600	kVA
					10.22 x 1.732 = 17.7 A	
					17.7* 230V * 1.732 =	7.051 kVA

3) Aeronautical Ground Lights

TR-AGL = 200KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSGNE-AGL

I FL = 200 KVA ÷ (0.230 x 1.732) =

USE: 2 SETS [3-95mm² XLPE +1- 30mm² TW]

500AT, 500AF, 3P ACB

Panel : PDB-AGL-1 under UPS 100kVA

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	CCR 30kVA For PALS1	1	30.000	=	30.000	30.000
2	CCR 15kVA For SALS	1	15.000	=	15.000	15.000
3	CCR 5kVA For PAPI 21	1	5.000	=	5.000	5.000
4	CCR 5kVA For PAPI 03	1	5.000	=	5.000	5.000
5	CCR 20kVA For REDL-1	1	20.000	=	20.000	20.000
6	CCR 20kVA For REDL-2	1	20.000	=	20.000	20.000
7	CCR 30kVA For Stand-by	1		=	0.000	0.000
8	CCR 20kVA For Stand-by	1		=	0.000	0.000
9	CCR 5kVA For Stand-by	1		=	0.000	0.000
10	AGL Interface Panel	1	0.450	=	0.563	0.450
11	Spare			=	0.000	0.000
					95.563	95.450 kVA

Panel : APR N/E

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	Apron Floodlight No.1 (NH)	2	0.660	=	1.650	1.650
2	Apron Floodlight No.2 (NH)	1	0.660	=	0.825	0.825
3	Apron Floodlight No.3 (NH)	1	0.660	=	0.825	0.825
4	Apron Floodlight No.4 (NH)	1	0.660	=	0.825	0.825
5	Apron Floodlight No.5 (NH)	3	0.660	=	2.475	2.475
6	Spare			=	0.000	0.000
7	Spare			=	0.000	0.000
8	Spare			=	0.000	0.000
9	Spare			=	0.000	0.000
					6.600	6.600 kVA

Panel : APR N

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	Apron Floodlight No.1 (M)	4	1.000	=	5.000	-
2	Apron Floodlight No.2 (M)	3	1.000	=	3.750	-
3	Apron Floodlight No.3 (M)	3	1.000	=	3.750	-
4	Apron Floodlight No.4 (M)	3	1.000	=	3.750	-
5	Apron Floodlight No.5 (M)	3	1.000	=	3.750	-
6	Spare			=	0.000	-
7	Spare			=	0.000	-
8	Spare			=	0.000	-
					20.000	kVA

Panel : PDB-AGL-2

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	CCR 30kVA For PALS2	1	30.000	=	30.000	30.000
2	CCR 10kVA For TEDL & TXGS	1	10.000	=	10.000	10.000
3	AGL Interface Panel	1	0.450	=	0.450	0.450
4	Aerodrome Beacon	1	2.513	=	2.513	2.513
5	Wind Direction Indicator Lights 21	1	0.313	=	0.313	0.313
6	Wind Direction Indicator Lights 03	1	0.313	=	0.313	0.313
7	Spare			=	0.000	0.000
8	Spare			=	0.000	0.000
9	Spare			=	0.000	0.000
10	Spare			=	0.000	0.000
					43.588	43.588 kVA

4) Air Navigation System

TR-ANS = 50KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO TR-ANS 50kVA

I FL = 50 KVA ÷ (0.230 x 1.732) =

USE: 1SETS [3-25mm² XLPE +1- 8mm² TW]

75AT, 150AF, 3P MCCB

Panel : PDB-Equipment Room under UPS20kVA

CKT.	Load Description	QTY.	Load (kVA)		NORMAL	GENSET
1	To PDB at VFR room	1	8.680	=	8.680	8.680
2	VCCS	1	1.300	=	1.300	1.300
3	VRS	1	1.000	=	1.000	1.000
4	TX	2	1.000	=	2.000	2.000
5	RX	2	0.050	=	0.100	0.100
6	HF signal converter	1	0.020	=	0.020	0.020
7	HF	1	0.900	=	0.900	0.900
8	AMHS PC (Future)	1	0.500	=	0.500	0.500
9	RCSU for ILS	1	0.150	=	0.150	0.150
10	Modem for RCSU	5	0.100	=	0.500	0.500
11	RMMS for ILS	1	0.400	=	0.400	0.400
12	RMMS for VOR	1	0.400	=	0.400	0.400
13	RMMS for DME	1	0.400	=	0.400	0.400
14	RCSE for VOR	1	0.300	=	0.300	0.300
15	Modem for RMMS	5	0.100	=	0.500	0.500
16	Data logger	1	0.220	=	0.220	0.220
17	Printer	1	0.030	=	0.030	0.030
18	Weather data display	1	0.220	=	0.220	0.220
19	Modem for MET	2	0.100	=	0.200	0.200
20	PABX	1	0.030	=	0.030	0.030
21	To PDB at FOBS room (Future)	1	2.020	=	2.020	2.020
22	Spare			=	0.000	0.000
23	Spare			=	0.000	0.000
24	Spare			=	0.000	0.000
					19.870	19.870 kVA
26.81 + 15.3 x 1.732 = 53.3 A						
53.3* 230V * 1.732 =					21.233	kVA

5) Control Tower & Fire Station

TR-CTO = 500KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSGNE-CTO

I FL = 500 KVA ÷ (0.230 x 1.732) =
 USE: 3SETS [3-150mm² XLPE +1- 30mm² TW]
 1200AT, 1200AF, 3P ACB

Panel : PACNE1

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	VRF-1	1	23.000	=	23.000	23.000
2	VRF-2	1	23.000	=	23.000	23.000
3	Fan 1A, 1D, 2, 3	1	0.280	=	0.280	0.280
4	Fan 4A, 4B, Fan 5 to 9	1	0.490	=	0.490	0.490
5	Fan 13A, 13B, 10B, 14A, 11A, 11B, 14B, 14C	1	0.560	=	0.560	0.560
6	Fan 10A, 12, 15A, 15B, 16A, 16B, 17, 18	1	0.945	=	0.945	0.945
7	Fan Unit	1	4.625	=	4.625	4.625
9	Spare			=	0.000	0.000
					52.900	52.900 kVA
5.31 X 1.732 + 127.01 + 25%(57.7) = 150.62 A						
150.62 * 230V * 1.732 =					60.001	kVA

Panel : PACNE2

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	VRF-3	1	28.312	=	28.312	28.312
2	VRF-4	1	28.312	=	28.312	28.312
3	Fan 19A, 19B, 20A, 20B, 20C, 19C, 23A, 23B	1	0.560	=	0.560	0.560
4	Fan 21A, 21B, 22A, 22B, 24, 25	1	0.825	=	0.825	0.825
5	Fan 26B, 29A, 29B, 30A, 30B, 31A, 31B	1	0.490	=	0.490	0.490
6	Fan 27A, 27B, 26A, 28A, 28B, 33, 34, 32A, 32B	1	1.035	=	1.035	1.035
7	Spare			=	0.000	0.000
8	Spare			=	0.000	0.000
					59.534	59.534 kVA
6.77 x 1.732 + 142 + 71(25%) = 171.48 A						
171.48 * 230V * 1.732 =					68.311	kVA

Panel : PACNE3

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	VRF-5	1	23.000	=	23.000	23.000
2	VRF-6	1	21.875	=	21.875	21.875
3	VRF-7	1	19.687	=	19.687	19.687
4	Fan 35A, 35B, 36A, 36B, 37A, 37B	1	0.420	=	0.420	0.420
5	Fan 38, 39A, 39B, 40, 41	1	0.350	=	0.350	0.350
6	Fan 43A, 43B, 42A, 42B, 42C, 44, 45	1	0.490	=	0.490	0.490
7	Fan 46A, 46B, 47A, 47B, 48A, 48B, 49	1	0.490	=	0.490	0.490
8	Spare			=	0.000	0.000
					66.312	66.312 kVA
3.99 x 1.732 + 162.07 + 57.7(25%) = 183.36 A						
183.36 * 230V * 1.732 =					73.043	kVA

Panel : PACNE4

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	10.65KW VRF SERVING 9TH FLR	1	10.650	=	13.313	13.313
2	10.65KW VRF SERVING 9TH FLR (STANDBY)	1	10.650	=	13.313	13.313
3	550W FAF SERVING CONTROL TOWER	1	0.550	=	0.688	0.688
4	Spare			=	0.000	0.000
5	2 - 108W FCU SERVING 9TH FLR	2	0.108	=	0.270	0.270
6	2 - 108W FCU SERVING 9TH FLR (STANDBY)	2	0.108	=	0.270	0.270
7	750W FAF SERVING STAIRWELL	1	0.750	=	0.938	0.938
8	570W EF SERVING EPS (GRD FLR-6TH FLR)	1	0.570	=	0.713	0.713
9	370W EF SERVING 8TH FLR (MECH RM & STORAGE)	1	0.370	=	0.463	0.463
10	2 - 30W EF SERVING TOILET (8TH FLR)	2	0.030	=	0.075	0.075
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					30.040	30.040 kVA
4.27 X 1.732 + 68.56 + 33.42(25%) = 84.3 A						
84.3 * 230V * 1.732 =					33.582	kVA

Panel : PVNE (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	EF-2 for EE Room at Ground Floor	1	0.875	=	0.875	0.875
2	EF-3 for Storage, EF-10 for Clenic, EF-13 for Toilet M at Ground Floor	1	0.300	=	0.300	0.300
3	EF-16 for NAP Room, EF-17 for NAPRoom and EF18 for EPS	1	0.169	=	0.169	0.169
4	EF-1, EF-9, SF for Mechanical Room, Handicap	1	0.563	=	0.563	0.563
5	EF-4, 5, 6, 7, 8	1	0.938	=	0.938	0.938
6	SF-2 for EE Room at Ground Floor	1	0.875	=	0.875	0.875
7	EF-11, Ef-12 for at 2nd Floor	1	0.375	=	0.375	0.375
8	EF-14, EF-15 for Toilet at 2nd Floor	1	0.375	=	0.375	0.375
9	Spare			=	0.000	0.000
10	Spare			=	0.000	0.000
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					4.470	4.470 kVA
4.34 x 1.732 + 10.02 + 2.35(25%) = 18.12 A						
18.12 * 230V * 1.732 =					7.218	kVA

Panel : PPWHN (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	1.8 KW BOOSTER PUMP (1-STANDBY) @ ME RM (GRD FLR)	1	1.800	=	2.250	-
2	SPARE			=	0.000	-
3	6.5KW WATER HEATER @ MT-1 LAVATORY (GRD FLR)	1	6.500	=	8.125	-
4	6.5KW WATER HEATER @ FT-1 LAVATORY (GRD FLR)	1	6.500	=	8.125	-
5	4.5KW WATER HEATER @ MT-1 SHOWER (GRD FLR)	1	4.500	=	5.625	-
6	4.5KW WATER HEATER @ FT-1 SHOWER (GRD FLR)	1	4.500	=	5.625	-
7	6.5KW WATER HEATER @ FT-2 LAVATORY (GRD FLR)	1	6.500	=	8.125	-
8	6.5KW WATER HEATER @ MT-2 LAVATORY (GRD FLR)	1	6.500	=	8.125	-
9	4.5KW WATER HEATER @ FT-2 SHOWER (GRD FLR)	1	4.500	=	5.625	-
10	4.5KW WATER HEATER @ MT-2 SHOWER (GRD FLR)	1	4.500	=	5.625	-
11	6.5KW WATER HEATER @ MT-1 LAVATORY (2ND FLR)	1	6.500	=	8.125	-
12	4.5KW WATER HEATER @ MT-1 SHOWER (2ND FLR)	1	4.500	=	5.625	-
13	6.5KW WATER HEATER @ FT-1 LAVATORY (2ND FLR)	1	6.500	=	8.125	-
14	6.5KW WATER HEATER @ MT-2 LAVATORY (2ND FLR)	1	6.500	=	8.125	-
15	4.5KW WATER HEATER @ FT-1 SHOWER (2ND FLR)	1	4.500	=	5.625	-
16	4.5KW WATER HEATER @ MT-2 SHOWER (2ND FLR)	1	4.500	=	5.625	-
17	SPARE			=	0.000	-
18	SPARE			=	0.000	-
					98.500	0.000 kVA
154.86 x 1.732 + 5.65 + 5.65(25%) = 275.28 A						
275.28 * 230V * 1.732 =					109.661	kVA

Panel : MDUPSE (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	PANEL "UPSE" (8TH FLR)	1	2.784	=	3.480	3.480
2	SPARE			=	0.000	0.000
3	SUPPLY FOR CCTV EQUIPMENT @ SECURITY OFFICE (GRD FLR)	2	1.200	=	3.000	3.000
4	2 - COMPUTER OUTLET @ SECURITY OFFICE (GRD FLR)	2	0.320	=	0.800	0.800
5	6 - COMPUTER OUTLET @ RECORS & H.R. (GRD FLR)	6	0.320	=	2.400	2.400
6	3 - COMPUTER OUTLET @ CLINIC & FINANCIAL SECTION (GRD FL)	3	0.320	=	1.200	1.200
7	4 - COMPUTER OUTLET @ ATC, FTC/FIC OFFICES (2ND FLR)	4	0.320	=	1.600	1.600
8	6 - COMPUTER OUTLET @ CONF. MANAGERS & OFFICE (2ND FLR)	6	0.320	=	2.400	2.400
9	SUPPLY FOR CLOCK SYSTEM @ EQUIP. RM (2ND FLR)	1	0.800	=	1.000	1.000
10	SUPPLY FOR MDF-CTO @ EQUIP. RM (2ND FLR)	1	0.400	=	0.500	0.500
11	3 - 10W SIGNAGE + 3 - 18W PLC @ HALLWAY (GRD FLR)	3	0.028	=	0.105	0.105
12	3 - 4x20W FLUO. @ FOBS, SECURITY & H.R. (GRD FLR)	12	0.020	=	0.300	0.300
13	3 - 10W SIGNAGE + 3 - 18W PLC @ HALLWAY (2ND FLR)	3	0.028	=	0.105	0.105
14	5 - 4x20W FLUO. @ EQUIP. RM, CONFERENCE & DEPT. MANAGERS	20	0.020	=	0.500	0.500
15	Spare			=	0.000	0.000
16	Spare			=	0.000	0.000
					17.390	17.390 kVA
27.31 x 1.732 = 47.3 A						
47.3 * 230V * 1.732 =					18.842	kVA

Panel : UPSE (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	7 - 4x20W FLUO. @ VFR RM	28	0.040	=	1.400	1.400
2	16 - 20W FLUO @ STAIRS	16	0.020	=	0.400	0.400
	8 - 10W EXIT SIGNAGE @ STAIRS	8	0.010	=	0.100	0.100
3	SUPPLY FOR ELECTRONIC KEY CARD (8TH FLR)	1	0.080	=	0.100	0.100
4	Spare			=	0.000	0.000
5	Spare			=	0.000	0.000
6	Spare			=	0.000	0.000
					2.000	2.000 kVA
					8.68 A	
					8.68 * 230V * 1.732 =	3.458 kVA

Panel : LPNE1 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	2 - CONV. RECEP. @ EE RM-1	2	0.288	=	0.720	0.720
2	4 - CONV. RECEP. @ FOBS, FSS RADIO, FSS RM @ SECURITY RM	4	0.288	=	1.440	1.440
3	3 - CONV. RECEP. @ CLINIC, H.R. & FINANCIAL SECTION	3	0.288	=	1.080	1.080
4	SUPPLY FOR FACP-2	1	1.600	=	2.000	2.000
5	4 - 2x40W FLUO. @ EE RM-1	8	0.040	=	0.400	0.400
6	7 - 4x20W FLUO. @ FOBS	28	0.020	=	0.700	0.700
7	5 - 4x20W FLUO. @ FSS RMs & SECURITY OFFICE	20	0.020	=	0.500	0.500
8	5 - 4x20W FLUO. + 2 - 18W PLC @ DINING, LOCKERS @ TOILETS	20	0.020	=	0.500	0.500
9	5 - 4x20W FLUO. + 2 - 18W PLC @ SEC. RM, CLINIC, TOILETS & FIN.	20	0.020	=	0.500	0.500
10	6 - 4x20W FLUO. + 1 - 18W PLC @ RECORDS, H.R. @ HANDICAP	24	0.020	=	0.600	0.600
11	3 - 18W PLC @ HALLWAY & LOBBY	3	0.018	=	0.068	0.068
12	Elevator	1	10.000	=	12.500	12.500
13	Spare			=	0.000	0.000
14	Spare			=	0.000	0.000
15	Spare			=	0.000	0.000
16	Spare			=	0.000	0.000
					21.008	21.008 kVA
					13.47 X 1.732 + 31.38 + 25%(31.38) = 62.55 A	
					62.55* 230V * 1.732 =	24.917 kVA

Panel : LPNE2 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	6 - CONV. RECEP. @ EQUIP., WORKSHOP, CONF., MNGRS & OFFICE	6	0.288	=	2.160	2.160
2	3 - CONV. RECEP. @ ANS, FIC & ATC OFFICE	3	0.288	=	1.080	1.080
3	9 - 4x20W FLUO.	36	0.020	=	0.900	0.900
	1 - 40W FLUO. @ EPS, ANS, EQUIP. RM & WORKSHOP	1	0.040	=	0.050	0.050
4	8 - 4x20W FLUO.	32	0.020	=	0.800	0.800
	3 - 18W PLC @ ATC/FIC, TOILETS, NAP RMS & OFFICE	3	0.018	=	0.068	0.068
5	9 - 4x20W FLUO. @ CONFERENCE & DEPT. MANAGERS	36	0.020	=	0.900	0.900
6	4 - 18W PLC @ HALLWAY & LOBBY	4	0.018	=	0.090	0.090
7	Spare			=	0.000	0.000
8	Spare			=	0.000	0.000
9	Spare			=	0.000	0.000
10	Spare			=	0.000	0.000
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					6.048	6.048 kVA
					9.39 x 1.732 = 16.26 A	
					16.26* 230V * 1.732 =	6.477 kVA

Panel : LPNE3 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	3 - CONV. RECEP. RISER @ ELEVATOR LOBBY	3	0.288	=	1.080	1.080
2	8 - 40W FLUO.	8	0.040	=	0.400	0.400
	1 - 18W PLC @ EPS 1-8 @ READY RM	1	0.018	=	0.023	0.023
3	8 - 18W WALL LAMP @ F.E. LADDER 1-8	8	0.018	=	0.180	0.180
4	8 - 18W PLC @ ELEVATOR LOBBY 1-8	8	0.018	=	0.180	0.180
5	Spare			=	0.000	0.000
6	Spare			=	0.000	0.000
					1.863	1.863 kVA
					4.70 x 1.732 = 8 A	
					8 * 230V * 1.732 =	3.187 kVA

Panel : PPN1 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	4 - CONV. RECEP. @ HALLWAY	4	0.288	=	1.440	-
2	5 - CONV. RECEP. @ STORAGE, FOBS, RECORDS & H.R.	5	0.288	=	1.800	-
3	8 - CONV. RECEP. @ DINING & KITCHEN	8	0.288	=	2.880	-
4	5 - CONV. RECEP. @ LOCKER M&F, CLINIC & FINANCIAL SECTION	5	0.288	=	1.800	-
5	1 - CONV. RECEP. @ ME RM	1	0.288	=	0.360	-
6	2 - 1000VA HAND DRYER OUTLET @ TOILET M1&F1	2	0.800	=	2.000	-
7	2 - 1000VA HAND DRYER OUTLET @ TOILET M2&F2	2	0.800	=	2.000	-
8	1 - 1000VA HAND DRYER OUTLET @ HANDICAP	1	0.800	=	1.000	-
9	8 - SENSOR SUPPLY @ TOILET M-1	1	0.080	=	0.100	-
10	5 - SENSOR SUPPLY @ TOILET F-1	1	0.080	=	0.100	-
11	5 - SENSOR SUPPLY @ TOILET F-2	1	0.080	=	0.100	-
12	8 - SENSOR SUPPLY @ TOILET M-2	1	0.080	=	0.100	-
13	2 - SENSOR SUPPLY @ HANDICAP	1	0.080	=	0.100	-
14	1/4HP ELEVATOR SUMP PUMP (ASSUMED)	1	0.696	=	0.870	-
15	1 - MAINTENANCE OUTLET @ ELEVATOR SHAFT	1	0.144	=	0.180	-
16	187W EF @ STORAGE (FOBS)	1	0.187	=	0.234	-
17	187W EF JANITOR RM & HANDICAP	1	0.187	=	0.234	-
18	141W EF @ KITCHEN	1	0.141	=	0.176	-
19	Spare			=	0.000	-
20	Spare			=	0.000	-
21	Spare			=	0.000	-
					15.064	0.000 kVA
23.20 x 1.732 = 40.18 A						
40.18* 230V * 1.732 =					16.006	kVA

Panel : PPN2 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	8 - CONV. RECEP. @ ANS&FIC, EQUIP. RM, WORKSHOP & STORAG	8	0.288	=	2.880	-
2	4 - CONV. RECEP. @ HALLWAY	4	0.288	=	1.440	-
3	6 - CONV. RECEP. @ ATC/FIC, STO., ATC OFFICE & NAP RM (M)	6	0.288	=	2.160	-
4	7 - CONV. RECEP. @ NAP RM (F). CONF., DEPT. MNGRS & OFFICE	7	0.288	=	2.520	-
5	2 - CONV. RECEP. @ ROOF DECK (ADMIN. BLDG.)	2	0.288	=	0.720	-
6	1 - 1000VA HAND DRYER OUTLET @ TOILET-M2	1	0.800	=	1.000	-
7	2 - 1000VA HAND DRYER OUTLET @ TOILET-M1&F1	2	0.800	=	2.000	-
8	8 - SENSOR SUPPLY @ TOILET-M2	1	0.080	=	0.100	-
9	4 - SENSOR SUPPLY @ TOILET-F1	1	0.080	=	0.100	-
10	6 - SENSOR SUPPLY @ TOILET-M1	1	0.080	=	0.100	-
11	187W EF @ STORAGE (ATC/FIC)	1	0.187	=	0.234	-
12	370W EF @ WORKSHOP & STORE	1	0.370	=	0.463	-
13	Spare			=	0.000	-
14	Spare			=	0.000	-
15	Spare			=	0.000	-
16	Spare			=	0.000	-
17	Spare			=	0.000	-
18	Spare			=	0.000	-
					13.716	kVA
21.80 x 1.732 = 37.75 A						
37.75 * 230V * 1.732 =					15.038	kVA

Panel : LPN1 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	14 - 18W PLC @ HALLWAY & LOBBY	14	0.018	=	0.315	-
2	8 - 4x20W FLUO. @ FOBS	32	0.020	=	0.800	-
	1 - 2x40W @ STO.	2	0.040	=	0.100	-
3	4 - 4x20W FLUO. @ FSS RMs & SECURITY OFFICE	16	0.020	=	0.400	-
4	7 - 4x20W FLUO.	28	0.020	=	0.700	-
	10 - 18W PLC @ DINING, KITCHEN, TOILETs & NAP RM	10	0.018	=	0.225	-
5	6 - 4x20W FLUO. +	24	0.020	=	0.600	-
	6 - 18W PLC @ CLINIC, TOILETs & OFFIC	6	0.018	=	0.135	-
6	9 - 4x20W FLUO. @ RECORDS & H.R.	36	0.020	=	0.900	-
7	6 - 40W FLUO.	6	0.040	=	0.300	-
	1 - 18W PLC @ ME RM, JANITOR & HANDICAP	1	0.018	=	0.023	-
8	CB FOR ELEVATOR SHAFT LIGHTS RISER	1	0.416	=	0.520	-
9	18 - 18W WALL LAMP @ PERIMETER	18	0.018	=	0.405	-
10	Spare			=	0.000	-
11	Spare			=	0.000	-
12	Spare			=	0.000	-
					5.423	kVA
9.08 x 1.732 = 15.72 A						
15.72* 230V * 1.732 =					6.262	kVA

Panel : LPN2 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	21 - 18W PLC	21	0.018	=	0.473	-
	6 - 70W METAL HALIDE @ HALLWAY & LOBBY	6	0.070	=	0.525	-
2	13 - 4x20W FLUO. @ EQUIP. RM & FSS RMs	52	0.020	=	1.300	-
3	5 - 4x20W FLUO. @ ANS & FIC OFFICE	20	0.020	=	0.500	-
4	8 - 4x20W FLUO.	32	0.020	=	0.800	-
	2 - 40W FLUO. @ ATC OFFICES & STORAGEES	2	0.040	=	0.100	-
5	3 - 4x20W FLUO.	12	0.020	=	0.300	-
	3 - 18W PLC @ NAP RM & TOILET	3	0.018	=	0.068	-
6	7 - 4x20W FLUO.	28	0.020	=	0.700	-
	6 - 18W PLC @ NAP RM, TOILETS @ OFFICE	6	0.018	=	0.135	-
7	8 - 4x20W FLUO. @ CONFERENCE RM	32	0.020	=	0.800	-
8	8 - 4x20W FLUO. @ DEPT. MANAGERS	32	0.020	=	0.800	-
9	2 - 18W WALL LAMP @ ROOF DECK-ADMIN.	2	0.018	=	0.045	-
10	Spare			=	0.000	-
11	Spare			=	0.000	-
12	Spare			=	0.000	-
					6.545	kVA
					24.30 x 1.732 = 42 A	
					42 * 230V * 1.732 =	16.731 kVA

Panel : LPN3 (CTO)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	8 - CONV. RECEP. RISER @ ELEVATOR LOBBY	8	0.288	=	2.880	-
2	2 - 56W FCU @ READY RM (8TH FLR)	2	0.056	=	0.140	-
3	2 - CONV. RECEP. @ READY RM	2	0.288	=	0.720	-
4	3.5KW WATER HEATER @ MT (8TH FLR)	1	3.500	=	4.375	-
5	3.5KW WATER HEATER @ FT (8TH FLR)	1	3.500	=	4.375	-
6	1 - CONV. RECEP. @ ROOF TOP	1	0.288	=	0.360	-
7	4 - 18W PLC	4	0.018	=	0.090	-
	5 - 40W FLUO. @ READY RRM, MT, FT & M.E. RM (8TH FLR)	5	0.040	=	0.250	-
8	8 - 18W PLC @ ELEVATOR LOBBY 1-8	8	0.018	=	0.180	-
9	8 - 40W FLUO. @ 7TH FLR LOUVER	8	0.040	=	0.400	-
10	Spare			=	0.000	-
11	Spare			=	0.000	-
12	Spare			=	0.000	-
					13.770	kVA
					20.49 x 1.732 = 35.48 A	
					35.48 * 230V * 1.732 =	14.134 kVA

LVSGNE-CTO 3Φ3W (230V)

SECONDARY FEEDER AND PROTECTION: TO MDPNE-FSM

I FL = 40 KVA ÷ (0.230 x 1.732) =

USE: 1SETS [3-95mm² XLPE +1- 30mm² TW]

100AT, 100AF, 3P MCCB

Panel : LPPNE (FSM)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	4.1KW ACCU-6B + FCU @ OFFICE-1	1	4.100	=	5.125	5.125
2	2.24KW ACCU-3 + FCU @ OFFICE	1	2.240	=	2.800	2.800
3	2.65KW ACCU-4 + FCU @ OBSERVATION RM	1	2.650	=	3.313	3.313
4	180W EF @ EE RM	1	0.180	=	0.225	0.225
5	6 - CONV. RECEP. @ ELECTRICAL RM, OFFICE-1, WORKSHOP1&2, I	6	0.320	=	2.400	2.400
6	10 - 4x20W FLUO. @ OFFICE-1	40	0.020	=	1.000	1.000
7	1 - 40W FLUO.	1	0.040	=	0.050	0.050
	7 - 4x20W FLUO.	28	0.020	=	0.700	0.700
	2 - 18W PLC @ MAINTENANCE BLDG.	2	0.018	=	0.045	0.045
8	7 - 2x40W FLUO.	14	0.040	=	0.700	0.700
	3 - 18W PLC	3	0.018	=	0.068	0.068
	6 - 4x20W FLUO. @ GARAGE & FRS	24	0.020	=	0.600	0.600
9	1 - CONV. RECEP. @ OBSERVATION RM (SUPPLY FOR ANS EQUIP.	1	0.288	=	0.360	0.360
10	Spare			=	0.000	0.000
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
				=	0.000	0.000
					17.385	17.385
						kVA
					28.54 x 1.732 = 49.43	A
					49.43 * 230V * 1.732 =	19.691
						kVA

Panel : FTCNE (FSM)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	FIRE TRUCK CHARGER	1	0.800	=	1.000	1.000
2	FIRE TRUCK CHARGER	1	0.800	=	1.000	1.000
3	FIRE TRUCK CHARGER	1	0.800	=	1.000	1.000
4	Spare			=	0.000	0.000
5	Spare			=	0.000	0.000
6	Spare			=	0.000	0.000
					3.000	3.000
						kVA
					4.35 x 1.732 = 8	A
					8 * 230V * 1.732 =	3.187
						kVA

SECONDARY FEEDER AND PROTECTION: TO MDPN-FSM

I FL = 90 KVA ÷ (0.230 x 1.732) =

USE: 1SETS [3-240mm² XLPE +1- 30mm² TW]

225AT, 225AF, 3P MCCB

Panel : LPPN (FSM)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	7 - CONV. RECEP. @ KITCHEN, DINING & OFFICE-1	7	0.288	=	2.520	-
2	5 - CONV. RECEP. @ WORKSHOP1&2 AND GARAGE	5	0.288	=	1.800	-
3	8 - CONV. RECEP. @ FRS	8	0.288	=	2.880	-
4	1000VA HANDDRYER @ TOILET-1	1	0.800	=	1.000	-
5	1000VA HANDDRYER @ TOILET & SHOWER	1	0.800	=	1.000	-
6	11 - 4x20W FLUO. @ OFFICE-1	44	0.020	=	1.100	-
7	8 - 18W PLC	8	0.018	=	0.180	-
	4 - 40W FLUO.	4	0.040	=	0.200	-
	7 - 4x20W FLUO. @ MAINTENANCE BLDG.	28	0.020	=	0.700	-
8	14 - 18W PLC @ PERIMETER	14	0.018	=	0.315	-
9	8 - 2x40W FLUO.	16	0.040	=	0.800	-
	3 - 40W FLUO.	3	0.040	=	0.150	-
	2 - 18W PLC @ GARRAGE & FRS	2	0.018	=	0.045	-
10	10 - 4x20W FLUO.	40	0.020	=	1.000	-
	4 - 18W PLC @ FRS	4	0.018	=	0.090	-
11	CB @ GH2-PWH-3 (2 - 18W PLC + 2-CONV. RECEP. +65W TEF + 47W	1	0.504	=	0.630	-
12	Spare			=	0.000	-
13	Spare			=	0.000	-
14	Spare			=	0.000	-
15	Spare			=	0.000	-
					14.410	0.000
						kVA
					21.62 x 1.732 = 37.45	A
					37.45 * 230V * 1.732 =	14.919
						kVA

Panel : VACN (FSM)

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	4.1KW ACCU-6A + FCU @ OFFICE-1	1	4.100	=	5.125	-
2	5.07KW ACCU-5 + FCU @ DINING	1	5.070	=	6.338	-
3	4.63KW ACCU-2 + FCU @ NAP RM	1	4.630	=	5.788	-
4	1.21KW ACCU-1 + FCU @ LOCKER RM	1	1.210	=	1.513	-
5	370W EF @ KITCHEN	1	0.370	=	0.463	-
6	180W EF @ TOILET-1	1	0.180	=	0.225	-
7	180W EF @ TOILET-2	1	0.180	=	0.225	-
8	180W EF @ STORAGE 1&2	1	0.180	=	0.225	-
9	370W EF @ STORAGE 3&4	1	0.370	=	0.463	-
10	370W EF @ WORKSHOP-1	1	0.370	=	0.463	-
11	370W EF @ WORKSHOP-2	1	0.370	=	0.463	-
12	180W EF @ TOILET & SHOWER	1	0.180	=	0.225	-
13	370W EF @ EXT. AGENT & STORAGE	1	0.370	=	0.463	-
14	4.5KW WATER HEATER @ SHOWER (TOILET-1)	1	4.500	=	5.625	-
15	6.5KW WATER HEATER @ LAVATORY (TOILET-1)	1	6.500	=	8.125	-
16	3.5KW WATER HEATER @ TOILET-2	1	3.500	=	4.375	-
17	6.5KW WATER HEATER @ LAVATORY (TOILET & SHOWER)	1	6.500	=	8.125	-
18	4.5KW WATER HEATER @ SHOWER (TOILET & SHOWER)	1	4.500	=	5.625	-
19	4.5KW WATER HEATER @ SHOWER (TOILET & SHOWER)	1	4.500	=	5.625	-
20	Spare			=	0.000	-
21	Spare			=	0.000	-
22	SPACE FOR 100AF 2P CB			=	0.000	-
23	SPACE FOR 100AF 2P CB			=	0.000	-
24	SPACE FOR 100AF 2P CB			=	0.000	-
					59.475	0.000 kVA
88.99 x 1.732 = 154.13 A						
154.13 * 230V * 1.732 =					61.399	kVA

6) Water Pump House

TR-WPH = 175KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSGN-WPH

I FL = 175 KVA ÷ (0.230 x 1.732) =

USE: 1SETS [3-120mm² XLPE +1- 30mm² TW]

600AT, 600AF, 3P MCCB

Panel : LPPNE

CKT.	Load Description	QTY.	Load (kW)		NORMAL	GENSET
1	5 - 2x40W FLUO. @ EE RM	10	0.040	=	0.500	0.500
2	12 - 40W FLUO. @ PUMP RM	12	0.040	=	0.600	0.600
3	2 - CONV. RECEP. @ EE RM	2	0.288	=	0.720	0.720
4	1100W FAF @ PUMP RM	1	1.100	=	1.375	1.375
5	550W EF @ PUMP RM	1	0.550	=	0.688	0.688
6	1100W FAF @ EE RM	1	1.100	=	1.375	1.375
7	550W EF @ EE RM	1	0.550	=	0.688	0.688
8	5 - 2x40W FLUO. @ EE RM	10	0.040	=	0.500	0.500
9	6 - 18W PLC	6	0.018	=	0.135	0.135
	10 - 18 W WALL LAMP @ PERIMETER	10	0.018	=	0.225	0.225
10	3 - CONV. RECEP. @ EE RM, PUMP RM & WATER TANK RM	3	0.288	=	1.080	1.080
11	WATER SUPPLY PUMP 1	1	5.600	=	7.000	7.000
12	WATER SUPPLY PUMP 2	1	5.600	=	7.000	7.000
13	WATER SUPPLY PUMP (STAND-BY)			=	0.000	0.000
14	FIRE PUMP	1	120.000	=	150.000	150.000
15	JOCKEY PUMP	1	5.600	=	7.000	7.000
16	JOCKEY PUMP (STAND-BY)			=	0.000	0.000
17	SPARE			=	0.000	0.000
18	SPARE			=	0.000	0.000
					178.885	178.885 kVA
13.78 x 1.732 + 429.25 + 376.54(25%) = 547.25 A						
547.25 * 230V * 1.732=					218.003	kVA

NOTE:

1. ONLY DOMESTIC WATER PUMP AND BOOSTER PUMP ARE OPERATING DURING NORMAL OPERATION.

2. FIRE PROTECTION PUMPS WILL OPERATE ONLY IF THERE'S FIRE, POWERED BY THEIR OWN INDEPENDENT GENERATOR POWER SUPPLY .IT IS ALSO POSSIBLE TO OPERATE THE FIRE PROTECTION PUMPS THRU THE NORMAL POWER AND BY THE EMERGENCY STAND-BY GENERATOR.

7) Sewerage Treatment Plant

TR-STP = 100KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSG-STP

I FL = 100 KVA ÷ (0.230 x 1.732) =
 USE: 1SETS [3-95mm² XLPE +1- 30mm² TW]
 300AT, 300AF, 3P ACB

Panel : LPPN-STP

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	6 - 4x20W FLUO.	24	0.020	=	0.600	-
	2 - 2x40W FLUO.	4	0.040	=	0.200	-
	13 - 18W PLC	13	0.018	=	0.293	-
	4 - 26W CFL	4	0.026	=	0.130	-
	3 - 30W EF	3	0.030	=	0.113	-
2	7 - CONV. RECEP. @ STP BLDG.	7	0.288	=	2.520	-
3	1 - CONV. RECEP. @ SUBSTATION	1	0.288	=	0.360	-
4	CB @ GH1-STP-1 (2 - 18W PLC + 2-CONV. RECEP. + 47W TF)	1	0.824	=	0.824	-
5	CB @ GH1-STP-2 (2 - 18W PLC + 2-CONV. RECEP. + 47W TF)	1	0.824	=	0.824	-
6	150W ROOF VENTILLATOR @ MRF	1	0.150	=	0.188	-
7	1.21kW ACCU-1 + FCU @ LABORATORY	1	1.210	=	1.513	-
8	2.5kW ACCU-2 + FCU @CONTROL RM	1	2.500	=	3.125	-
9	85W EF @ BLOWER RM & STORAGE	1	0.085	=	0.106	-
10	30W EF @ BLOWER RM & STORAGE	1	0.030	=	0.038	-
11	4 - 250W HPS @ STP COMPOUND (SWICH-BY PHOTOCELL)	4	0.250	=	1.250	-
12	Spare			=	0.000	-
13	Spare			=	0.000	-
14	Spare			=	0.000	-
15	Spare			=	0.000	-
16	Spare			=	0.000	-
					12.081	kVA
					[20.83 + 13.59(25%)] x 1.732 = 42 A	
					42 * 230V * 1.732=	16.731 kVA

Panel : GRIT CHAMBER/EQUALIZATION TANK

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	FINE SCREEN	1	0.025	=	0.031	-
2	NO.1 MIXER FOR EQUALIZATION TANK	1	1.500	=	1.875	-
3	NO.2 MIXER FOR EQUALIZATION TANK	1	1.500	=	1.875	-
4	NO.1 RAW WATER PUMP	1	1.500	=	1.875	-
5	NO.2 RAW WATER PUMP	1	1.500	=	1.875	-
6	SCREEN REMOVAL SYSTEM	1	2.200	=	2.750	-
7	LOCAL SWITCH BOX (FINE SCREEN)	1		=	0.000	-
8	LOCAL SWITCH BOX (MIXER)	1		=	0.000	-
9	LOCAL SWITCH BOX (RAW WATER PUMP)	1		=	0.000	-
10	INLET FLOW	1		=	0.000	-
11	NO.1 EQUALIZATION TANK LEVEL 1.25-2mm2 CVV-S 22mm DIA,	1		=	0.000	-
12	NO.2 EQUALIZATION TANK LEVEL	1		=	0.000	-
13	Spare			=	0.000	-
14	Spare			=	0.000	-
15	Spare			=	0.000	-
16	Spare			=	0.000	-
					10.281	kVA

Panel : DISINFECTION TANK

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	UTILITY WATER SUPPLY UNIT	1	3.700	=	4.625	-
2	NO.1 CHLORINE SOLUTION PUMP	1	0.200	=	0.250	-
3	NO.2 CHLORINE SOLUTION PUMP	1	0.200	=	0.250	-
4	NO.1 CHLORINE SOLUTION TANK MIXER	1	0.090	=	0.113	-
5	NO.2 CHLORINE SOLUTION TANK MIXER	1	0.090	=	0.113	-
6	LOCAL SWITCH BOX (CHLORINE SOLUTION PUMP, MIXER)	1		=	0.000	-
7	EFFLUENT FLOW	1		=	0.000	-
8	LEVEL SWICTH (NO.1 SOLUTION TANK)	1		=	0.000	-
9	LEVEL SWICTH (NO.2 SOLUTION TANK)	1		=	0.000	-
10	LEVEL SWICTH (TREATED WATER TANK)	1		=	0.000	-
11	Spare	1		=	0.000	-
					5.350	kVA

Panel : ARERATION TANK/SECONDARY SEDIMENTATION TANK

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	NO.1-1 AERATOR	1	3.700	=	4.625	-
2	NO.1-2 AERATOR	1	3.700	=	4.625	-
3	NO.2-1 AERATOR	1	3.700	=	4.625	-
4	NO.2-2 AERATOR	1	3.700	=	4.625	-
5	NO.1 CLARIFIER	1	0.400	=	0.500	-
6	NO.2 CLARIFIER	1	0.400	=	0.500	-
7	NO.1 RETURN SLUDGE PUMP	1	1.500	=	1.875	-
8	NO.2 RETURN SLUDGE PUMP	1	1.500	=	1.875	-
9	NO.1 WASTE SLADGE PUMP	1	1.500	=	1.875	-
10	NO.2 WASTE SLADGE PUMP	1	1.500	=	1.875	-
11	LOCAL SWITCH BOX (AERATOR)	1		=	0.000	-
12	LOCAL SWITCH BOX (CLARIFIER)	1		=	0.000	-
13	LOCAL SWITCH BOX (RETURN SLUDGE PUMP)	1		=	0.000	-
14	LOCAL SWITCH BOX (WASTE SLADGE PUMP)	1		=	0.000	-
15	RETURN SLUDGE FLOW	1		=	0.000	-
16	Spare			=	0.000	-
					27.000	kVA

Panel : SLUDGE THICKENER

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	THICKEND SLUDGE OUTLET VALVE	1	0.400	=	0.500	-
2	NO.1 THICKEND SLUDGE PUMP	1	1.500	=	1.875	-
3	NO.2 THICKEND SLUDGE PUMP	1	1.500	=	1.875	-
4	LOCAL SWITCH BOX (THICKEND SLUDGE PUMP)	1		=	0.000	-
5	THICKENED SLUDGE FLOW	1		=	0.000	-
6	LEVEL SWICTH (SLUDGE THICKENER)	1		=	0.000	-
7	LEVEL SWICTH (THICKENED SLUDGE TANK)	1		=	0.000	-
8	PRESSURE SWICTH (THICKENED SLUDGE)	1		=	0.000	-
9	Spare	1		=	0.000	-
10	Spare	1		=	0.000	-
					4.250	kVA

Panel : CONTROL ROOM

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kW)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	UPS	1	2.400	=	3.000	-
2	Spare	1		=	0.000	-
					3.000	kVA

8) LLZ, GS and VOR Building

TR-LLZ = 4.16KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSGN-LLZ

I FL = 4.16KVA ÷ (0.230 x 1.732) =

USE: 1SETS [2-6mm² XLPE +1- 30mm² TW]

60AT, 100AF, 3P MCCB

Panel : PDB-LLZ

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	LLZ transmitter	1	1.000	=	1.000	1.000
2	OB light	2	0.200	=	0.400	0.400
3	Theodolite pad outlet	1	0.500	=	0.500	0.500
4	BITE	1	0.300	=	0.300	0.300
5	Modem for BITE	2	0.100	=	0.200	0.200
6	MET sensor	1	0.700	=	0.700	0.700
7	Spare			=	0.000	0.000
8	Spare			=	0.000	0.000
					3.100	3.100 kVA
					13.47 A	
					13.47 * 230V =	3.098 kVA

Panel : LPPNE-LLZ

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	1210W ACCU + FCU @ EQUIPMENT RM	1	1.513	=	1.513	1.513
2	1210W ACCU + FCU @ EQUIPMENT RM (STANDBY)			=	0.000	0.000
3	212W EF @ POWER RM	1	0.265	=	0.265	0.265
4	47W EF @ STORAGE	1	0.059	=	0.059	0.059
5	SUPPLY FOR BATTERY CHARGER @ EQUIPMENT RM	1	0.500	=	0.500	0.500
6	2 - CONV. RECEP. @ POWER RM	2	0.360	=	0.720	0.720
7	5 - CONV. RECEP. @ EQUIPMENT RM, FOYER & STORAGE	5	0.360	=	1.800	1.800
8	1 - COMPUTER OUTLET @ EQUIPMENT RM	1	0.300	=	0.300	0.300
9	3 - 40W FLUO.	3	0.050	=	0.150	0.150
	5 - 4x20W FLUO.	20	0.025	=	0.500	0.500
	2 - 18W PLC	2	0.023	=	0.045	0.045
10	Spare			=	0.000	0.000
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					5.851	5.851 kVA
					25.44 A	
					25.44 * 230V=	5.851 kVA

TR-GS = 4.16KVA 3Φ3W (4.16kV/230V LVSG)

SECONDARY FEEDER AND PROTECTION: TO LVSGN-GS

I FL = 4.16 KVA ÷ (0.230 x 1.732) =

USE: 1SETS [2-6mm² XLPE +1- 30mm² TW]

60AT, 100AF, 3P MCCB

Panel : PDB-GS

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	GS transmitter	1	0.950	=	0.950	0.950
2	TDME transmitter	2	0.500	=	1.000	1.000
3	BITE for GS	1	0.300	=	0.300	0.300
4	BITE for TDME	1	0.300	=	0.300	0.300
5	OB light	2	0.200	=	0.400	0.400
6	Theodolite pad outlet	1	0.500	=	0.500	0.500
7	Modem for BITE	1	0.100	=	0.100	0.100
8	MET sensor	1	0.787	=	0.787	0.787
9	Ceilometer	1	0.310	=	0.310	0.310
10	Spare			=	0.000	0.000
					4.647	4.647 kVA
					20.19A	
					20.19 * 230V =	4.644 kVA

Panel : LPPNE-GS

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	1210W ACCU + FCU @ EQUIPMENT RM	1	1.513	=	1.513	1.513
2	1210W ACCU + FCU @ EQUIPMENT RM (STANDBY)			=	0.000	0.000
3	212W EF @ POWER RM	1	0.265	=	0.265	0.265
4	47W EF @ STORAGE	1	0.059	=	0.059	0.059
5	SUPPLY FOR BATTERY CHARGER @ EQUIPMENT RM	1	0.500	=	0.500	0.500
6	2 - CONV. RECEPT. @ POWER RM	2	0.360	=	0.720	0.720
7	4 - CONV. RECEPT. @ EQUIPMENT RM, FOYER & STORAGE	4	0.360	=	1.440	1.440
8	2 - COMPUTER OUTLET @ EQUIPMENT RM	2	0.300	=	0.600	0.600
9	3 - 40W FLUO.	3	0.050	=	0.150	0.150
	5 - 4x20W FLUO.	20	0.025	=	0.500	0.500
	2 - 18W PLC	2	0.023	=	0.045	0.045
10	Spare			=	0.000	0.000
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					5.791	5.791 kVA
					25.18 A	
					25.18 * 230V =	5.791 kVA

TR-VOR = 4.16KVA 3Φ3W (4.16kV/230V LVSG)**SECONDARY FEEDER AND PROTECTION: TO LVSGN-VOR**

$$I_{FL} = 4.16 \text{ KVA} \div (0.230 \times 1.732) =$$

USE: 1SETS [2-6mm² XLPE +1- 30mm² TW]

60AT, 100AF, 3P MCCB

Panel : PDB-VOR

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	VOR transmitter	1	3.800	=	3.800	3.800
2	BITE for VOR	1	0.300	=	0.300	0.300
3	Modem for BITE	1	0.400	=	0.400	0.400
4	OB light	1	0.200	=	0.200	0.200
5	Theodolite pad outlet	1	0.500	=	0.500	0.500
6	DME transmitter	1	0.500	=	0.500	0.500
7	BITE for DME	1	0.300	=	0.300	0.300
8	Spare				0.000	0.000
9	Spare				0.000	0.000
10	Spare				0.000	0.000
					6.000	6.000 kVA
					26 A	
					26 * 230V=	5.980 kVA

Panel : LPPNE-VOR

<u>CKT.</u>	<u>Load Description</u>	<u>QTY.</u>	<u>Load (kVA)</u>		<u>NORMAL</u>	<u>GENSET</u>
1	2.65kW ACCU + FCU @ EQUIPMENT RM	1	3.313	=	3.313	3.313
2	2.65kW ACCU + FCU @ EQUIPMENT RM (STANDBY)			=	0.000	0.000
3	212W EF @ POWER RM	1	0.265	=	0.265	0.265
4	47W EF @ STORAGE	1	0.059	=	0.059	0.059
5	SUPPLY FOR BATTERY CHARGER @ EQUIPMENT RM	1	0.500	=	0.500	0.500
6	2 - CONV. RECEPT. @ POWER RM	2	0.360	=	0.720	0.720
7	4 - CONV. RECEPT. @ EQUIPMENT RM, FOYER & STORAGE	4	0.360	=	1.440	1.440
8	2 - COMPUTER OUTLET @ EQUIPMENT RM	2	0.300	=	0.600	0.600
9	3 - 40W FLUO.	3	0.050	=	0.150	0.150
	6 - 4x20W FLUO.	24	0.025	=	0.600	0.600
	2 - 18W PLC	2	0.023	=	0.045	0.045
10	SUPPLY FOR FACP-3	1	0.300	=	0.300	0.300
11	Spare			=	0.000	0.000
12	Spare			=	0.000	0.000
					7.991	7.991 kVA
					34.73 A	
					34.73 * 230V =	7.988 kVA

9) Summary Load

TOTAL DESIGN LOAD = **2000** kVA
(SUM OF TRANSFORMER RATING EXCLUDING ACCESS ROAD)

SUMMARY FOR NORMAL LOADS:

<u>LOAD DESCRIPTION</u>	<u>Load (kVA)</u>
Passenger Terminal Building	= 656.89
Power House	= 99.08
Aeronautical Ground Lights	= 165.75
Radio Nav aids System	= 21.23
Control Tower, Opearation & Admi Building and Fire station	= 483.89
Water Pump House	= 152.60
Sewage Treatment Plant	= 55.95
LLZ Building	= 8.95
GS Building	= 10.44
VOR Building	= 13.97

TOTAL NORMAL CONNECTED LOAD = **1668.75** KVA

FUTURE LOADS (TDL - TNCL) = 2000 - 1664.72 = **331.25** KVA

PRIMARY FEEDER AND PROTECTION FOR NORMAL SOURCE:

I FL = 2000 KVA ÷ (13.2 x 1.732) =

USE: **3-50mm² 15kV XLPE**

800A 3P VCB

SUMMARY FOR GENSET LOADS:

<u>LOAD DESCRIPTION</u>	=	<u>Load (kVA)</u>	<u>% GENSET TO NORMAL</u>
Passenger Terminal Building	=	219.48	33.4 %
Power House	=	24.81	25.0 %
Aeronautical Ground Lights	=	145.64	87.9 %
Radio Nav aids System	=	21.23	100.0 %
Control Tower, Opearation & Admi Building and Fire station	=	193.15	39.9 %
Water Pump House	=	130.80	85.7 %
Sewage Treatment Plant	=	0.00	0.0 %
LLZ Building	=	8.95	100.0 %
GS Building	=	10.44	100.0 %
VOR Building	=	13.97	100.0 %
 <i>TOTAL EMERGENCY CONNECTED LOAD (MAXIMUM)</i>	 =	 768.47	 46.1 %

PRIMARY FEEDER AND PROTECTION FOR GENSET SOURCE:

I FL = $800 \text{ KVA} \div (4.16 \times 1.732)$

USE: **3-95mm² 5kV XLPE**

800A 3P VCB

USE 2 x 400kVA, 4.16kV, 3Φ-3W 60Hz GENSET

USE 2 x 400kVA, 4.16kV, 3Φ-3W 60Hz GENSET

PRIMARY FEEDER AND PROTECTION FOR EACH GENSET:

I FL = $400 \text{ KVA} \div (4.16 \times 1.732) = 55.52 \text{ A}$

USE: **3-35mm² 5KV XLPE**

630A 3P VCB

PRIMARY FEEDER AND PROTECTION FOR EACH GENSET:

I FL = $400 \text{ KVA} \div (4.16 \times 1.732) = 55.52 \text{ A}$

USE: **3-35mm² 5KV XLPE**

630A 3P VCB

(2) VOLTAGE DROP CALCULATION

VOLTAGE DROP FORMULA:

$$\%V.D. = \frac{V_{SLL} - V_{OLL}}{V_{SLL}} \times 100 \quad (\text{in percent})$$

$$V_{OLL} = V_{iLL} - V_{dLL} \quad (\text{in volts})$$

$$V_{dLL} = \frac{I_{FL} \times K \times L \times 3.281}{N \times A \times 1000} \times C \quad (\text{in volts})$$

where:

%V.D. = percent voltage drop

V_{dLL} = voltage drop in *volts (V)*

V_{sLL} = reference voltage in *volts (V)*

V_{iLL} = voltage @ sending end in *volts (V)*

V_{oLL} = voltage @ receiving end in *volts (V)*

I_{FL} = full load current in *amperes (A)*

K = 12 (*for copper*)

L = conductor length in *meters (m)*

N = no. of sets of conductor

A = conductor size in square millimeters (mm^2)

C = for single phase, use 2 ; for three phase, use 1.732

700kVA 3Ø TR1-PTB

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR1-PTB	230V LVSG-PTB	4	240	7	2000	3	230	0.99	229.01	0.43	Passed
230V LVSG-PTB	PACNE	3	240	147	562.39	3	229.01	7.83	221.18	3.84	Passed
230V LVSG-PTB	PNE2	1	150	145	103.88	3	229.01	6.85	222.16	3.41	Passed
230V LVSG-PTB	LPNE1	1	25	143	21.51	3	229.01	8.39	220.62	4.08	Passed
230V LVSG-PTB	LPNE2	1	16	141	10.37	3	229.01	6.23	222.77	3.14	Passed
230V LVSG-PTB	30kVA UPS	1	70	100	60.15	3	229.01	5.86	223.15	2.98	Passed
230V LVSG-PTB	PNE1	1	35	8	131.72	3	229.01	2.05	226.95	1.33	Passed
230V LVSG-PTB	PCFNE	1	4	9	28.23	3	229.01	4.33	224.67	2.32	Passed
230V LVSG-PTB	PACN	1	120	10	562.39	3	229.01	3.20	225.81	1.82	Passed
230V LVSG-PTB	MDPL	1	70	140	55.93	3	229.01	7.63	221.38	3.75	Passed
230V LVSG-PTB	LPN3	1	4	8	26.11	3	229.01	3.56	225.44	1.98	Passed
230V LVSG-PTB	LPN4	1	4	9	36.13	3	229.01	5.54	223.46	2.84	Passed
230V LVSG-PTB	PN2	1	150	144	109.116	3	229.01	7.14	221.86	3.54	Passed
230V LVSG-PTB	PVN	1	50	145	36.92	3	229.01	7.30	221.70	3.61	Passed
230V LVSG-PTB	PNC2	1	95	146	77.94	3	229.01	8.17	220.84	3.98	Passed
230V LVSG-PTB	PNC1	1	16	13	77.94	3	229.01	4.32	224.69	2.31	Passed
230V LVSG-PTB	PN1	1	10	13	62.35	3	229.01	5.53	223.48	2.84	Passed
230V LVSG-PTB	LPN1	1	4	1	22.81	3	221.38	0.39	220.99	3.92	Passed
230V LVSG-PTB	LPN2	1	4	2	19.51	3	221.38	0.67	220.71	4.04	Passed
230V LVSG-PTB	LPN5	1	4	3	13.61	3	221.38	0.70	220.68	4.05	Passed
30kVA UPS	MDUPS	1	70	12	60.15	3	230.00	0.70	229.30	0.31	Passed
MDUPS	UPSE1	1	6	9	50.78	3	229.30	5.19	224.10	2.56	Passed
MDUPS	UPSE2	1	4	7	9.37	3	229.30	1.12	228.18	0.79	Passed

500kVA 3Ø TR-CTO & FSM

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-CTO	230V LVSG-CTO	3	240	50	1200	3	230	5.68	224.32	2.47	Passed
230V LVSG-CTO	20kVA UPS	1	10	15	47.3	3	224.32	4.84	219.48	4.57	Passed
20kVA UPS	MDUPSE	1	10	7	47.3	3	230	2.26	227.74	0.98	Passed
MDUPSE	UPSE	1	10	24	8.68	3	227.74	1.42	226.32	1.60	Passed
230V LVSG-CTO	PACNE1	1	35	8	150.62	3	224.32	2.35	221.97	3.49	Passed
230V LVSG-CTO	PACNE2	1	50	15	171.48	3	224.32	3.51	220.81	4.00	Passed
230V LVSG-CTO	PACNE3	1	50	20	183.36	3	224.32	5.00	219.32	4.65	Passed
230V LVSG-CTO	PACNE4	1	25	24	84.3	3	224.32	5.52	218.80	4.87	Passed
230V LVSG-CTO	LPNE1	1	16	6	62.55	3	224.32	1.60	222.72	3.17	Passed
230V LVSG-CTO	LPNE2	1	6	15	16.26	3	224.32	2.77	221.55	3.68	Passed
230V LVSG-CTO	LPNE3	1	6	24	8	3	224.32	2.18	222.14	3.42	Passed
230V LVSG-CTO	PVNE	1	6	8	18.12	3	224.32	1.65	222.67	3.19	Passed
230V LVSG-CTO	MDPNE-FSM	1	120	160	66.52	3	224.32	6.05	218.27	5.10	Passed
230V LVSG-CTO	PPN1	1	6	8	40.18	3	224.32	3.65	220.66	4.06	Passed
230V LVSG-CTO	PPN2	1	6	15	37.75	3	224.32	6.44	217.88	5.27	Passed
230V LVSG-CTO	LPN1	1	6	8	15.72	3	224.32	1.43	222.89	3.09	Passed
230V LVSG-CTO	LPN2	1	10	15	42	3	224.32	4.30	220.02	4.34	Passed
230V LVSG-CTO	LPN3	1	10	24	35.48	3	224.32	5.81	218.51	5.00	Passed
230V LVSG-CTO	PPWHN1	1	95	8	275.28	3	224.32	1.58	222.74	3.16	Passed
230V LVSG-CTO	MDPN-FSM	2	150	160	188.94	3	224.32	6.87	217.45	5.46	Passed
MDPNE-FSM	LPPNE (FSM)	1	10	5	49.43	3	218.27	1.69	216.58	5.83	Passed
MDPNE-FSM	FTCNE (FSM)	1	4	5	8	3	218.27	0.68	217.59	5.40	Passed
MDPN-FSM	LPPN (FSM)	1	10	5	37.45	3	217.45	1.28	216.17	6.01	Passed
MDPN-FSM	VACN (FSM)	1	35	5	154.13	3	217.45	1.50	215.94	6.11	Passed

100kVA 3 ϕ TR-PWH

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-PWH	230V LVSG-PWH	1	95	15	300	3	230	3.23	226.77	1.40	Passed
230V LVSG-PWH	VACNE	1	10	6	63.96	3	226.77	2.62	224.15	2.54	Passed
230V LVSG-PWH	LPPNE	1	6	6	26	3	226.77	1.77	225.00	2.18	Passed
230V LVSG-PWH	UPSE	1	6	6	24	3	226.77	1.64	225.13	2.12	Passed
230V LVSG-PWH	RCPNE	1	6	6	24.45	3	226.77	1.67	225.10	2.13	Passed
230V LVSG-PWH	VACN	1	10	6	79.13	3	226.77	3.24	223.53	2.81	Passed
230V LVSG-PWH	LPPN	1	10	6	47	3	226.77	1.92	224.85	2.24	Passed
230V LVSG-PWH	RCPN	1	10	6	17.7	3	226.77	0.72	226.05	1.72	Passed
230V LVSG-PWH	CAR PARK	1	95	320	24	3	226.77	5.51	221.26	3.80	Passed

200kVA 3Ø TR-AGL

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-AGL	230V LVSG-AGL	2	95	18	500	3	230	3.23	226.77	1.40	Passed
230V LVSG-AGL	100kVA UPS	1	95	15	250	3	226.77	2.69	224.08	2.57	Passed
100kVA UPS	PDB-AGL1	1	95	10	250	3	230	1.79	228.21	0.78	Passed
230V LVSG-AGL	APRNE	1	16	15	16.6	3	226.77	1.06	225.71	1.87	Passed
230V LVSG-AGL	PDB-AGL2	1	70	10	112	3	226.77	1.09	225.68	1.88	Passed
230V LVSG-AGL	APRN	1	16	15	50	3	226.77	3.20	223.57	2.79	Passed

50kVA 3Ø TR-ANS

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-ANS	20kVA UPS	1	25	50	50	3	230	6.82	223.18	2.96	Passed
20kVA UPS	PDB-EQ	1	25	16	50	3	230	2.18	227.82	0.95	Passed
PDB-EQ	PDB-VFR	1	10	30	24	3	230	4.91	225.09	2.13	Passed
PDB-EQ	PDB-FOBS	1	6	15	8	3	230	1.36	228.64	0.59	Passed

175kVA 3Ø TR-WPH

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-WPH	LPPNE-WPH	1	120	15	547.25	3	230	4.66	225.34	2.03	Passed

100kVA 3Ø TR-STP

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-STP	230V LVSG-STP	1	95	6	300	3	230	1.29	228.71	0.56	Passed
230V LVSG-STP	LPPN-STP	1	6	11	42	3	228.71	5.25	223.46	2.84	Passed

15kVA 3Ø TR-LLZ

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-AGL	230V LVSG-LLZ	1	6	3	47.13	1	230	1.86	228.14	0.81	Passed
230V LVSG-LLZ	PDB-LLZ	1	4	6	13.47	1	228.14	1.59	226.55	1.50	Passed
230V LVSG-LLZ	LPPNE	1	4	6	25.44	1	228.14	3.00	225.14	2.11	Passed

15kVA 3Ø TR-GS

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-AGL	230V LVSG-GS	1	6	3	45.37	1	230	1.79	228.21	0.78	Passed
230V LVSG-GS	PDB-GS	1	4	6	20.19	1	228.21	2.38	225.83	1.81	Passed
230V LVSG-GS	LPPNE	1	4	6	25.18	1	228.21	2.97	225.24	2.07	Passed

15kVA 3Ø TR-VOR

FROM	TO	NO OF SETS	WIRE SIZE (mm ²)	LENGTH (m)	I _{FL} (A)	PHASE	V _{iLL} volts	V _{dLL} volts	V _{oLL} volts	%V.D.	REMARKS
TR-AGL	230V LVSG-VOR	1	6	3	60.82	1	230	2.39	227.61	1.04	Passed
230V LVSG-VOR	PDB-VOR	1	4	6	26.00	1	227.61	3.07	224.53	2.38	Passed
230V LVSG-VOR	LPPNE	1	4	6	34.73	1	227.61	4.10	223.50	2.82	Passed

(3) ILLUMINATION CALCULATION

- 1) Lighting Illumination (Interior Area)
- 2) Lighting Illumination (Exterior Area)

Panglao International Airport

1) Lighting Illumination (Interior Area)

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 27.05.2013
Operator:

Operator
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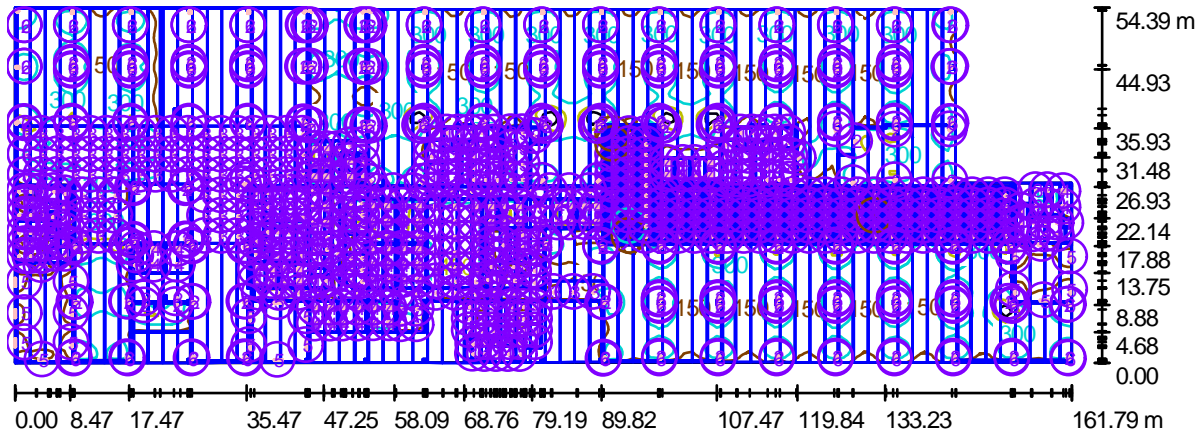
Operator
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Operator
Telephone
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e-Mail

Airport / Summary



Height of Room: 8.720 m, Light loss factor: 0.90

Values in Lux, Scale 1:1157

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0
Workplane	/	276	0.54	717	0.002
Floor	20	251	0.75	537	0.003
Ceiling	80	2.70	1.43	5.72	0.530
Walls (14)	50	34	0.86	6687	/

Workplane:

Height: 0.760 m
Grid: 128 x 128 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.111, Ceiling / Working Plane: 0.010.

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	185	BBS478 1xLED/4000K PG (1.000)	581	581	8.4
2	143	BY501W LED130CW PSD 1xCREE XML LED 56xLEDs Ra72.1/5688K Xita (1.000)	12542	12542	118.6
3	294	GreenSpace Gen2 DN183B 5000K 1x5630 LED package/5108K (1.000)	2340	2340	24.5
4	101	RC600B 31S W60L60 new 1xPP1.3 Xitanium 75W (1.000)	3105	3105	31.0
5	23	PHILIPS TCW097 Pacific II TCW097 2x28W 2xTL5-28W/840 HFP PC (1.000)	4160	5200	62.0
6	125	PHILIPS COLOR KINETI CAST METAL HOUSING WITH DIFFUSI 36xTHIRTY-SIX WHITE LIGHT EMI (1.000)	1969	1969	49.0

Total: 3244361 Total: 3268281 36404.3

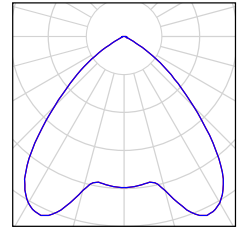
Specific connected load: 4.40 W/m² = 1.59 W/m²/100 lx (Ground area: 8277.63 m²)

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Airport / Luminaire parts list

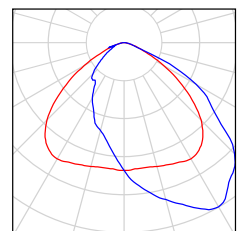
185 Pieces BBS478 1xLED/4000K PG
Article No.:
Luminous flux (Luminaire): 581 lm
Luminous flux (Lamps): 581 lm
Luminaire Wattage: 8.4 W
Luminaire classification according to CIE: 100
CIE flux code: 72 98 99 100 100
Fitting: 1 x LED/4000K (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



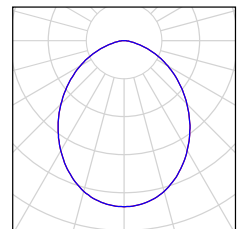
143 Pieces BY501W LED130CW PSD 1xCREE XML LED
56xLEDs Ra72.1/5688K Xita
Article No.:
Luminous flux (Luminaire): 12542 lm
Luminous flux (Lamps): 12542 lm
Luminaire Wattage: 118.6 W
Luminaire classification according to CIE: 100
CIE flux code: 53 88 99 100 100
Fitting: 1 x CREE XML LED 56xLEDs
Ra72.1/5688K (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



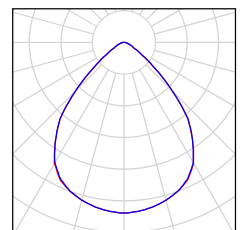
294 Pieces GreenSpace Gen2 DN183B 5000K 1x5630 LED
package/5108K
Article No.:
Luminous flux (Luminaire): 2340 lm
Luminous flux (Lamps): 2340 lm
Luminaire Wattage: 24.5 W
Luminaire classification according to CIE: 100
CIE flux code: 54 85 98 100 100
Fitting: 1 x 5630 LED package/5108K (Correction
Factor 1.000).

See our luminaire catalog for an image of the luminaire.



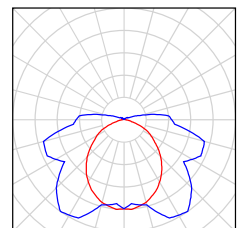
101 Pieces RC600B 31S W60L60 new 1xPP1.3 Xitanium
75W
Article No.:
Luminous flux (Luminaire): 3105 lm
Luminous flux (Lamps): 3105 lm
Luminaire Wattage: 31.0 W
Luminaire classification according to CIE: 100
CIE flux code: 71 96 99 100 100
Fitting: 1 x PP1.3 (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



23 Pieces PHILIPS TCW097 Pacific II TCW097 2x28W
2xTL5-28W/840 HFP PC
Article No.:
Luminous flux (Luminaire): 4160 lm
Luminous flux (Lamps): 5200 lm
Luminaire Wattage: 62.0 W
Luminaire classification according to CIE: 94
CIE flux code: 35 64 86 90 80
Fitting: 2 x TL5-28W/840 (Correction Factor
1.000).

See our luminaire catalog for an image of the luminaire.

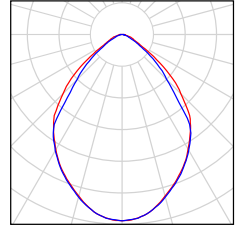


Operator
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Airport / Luminaire parts list

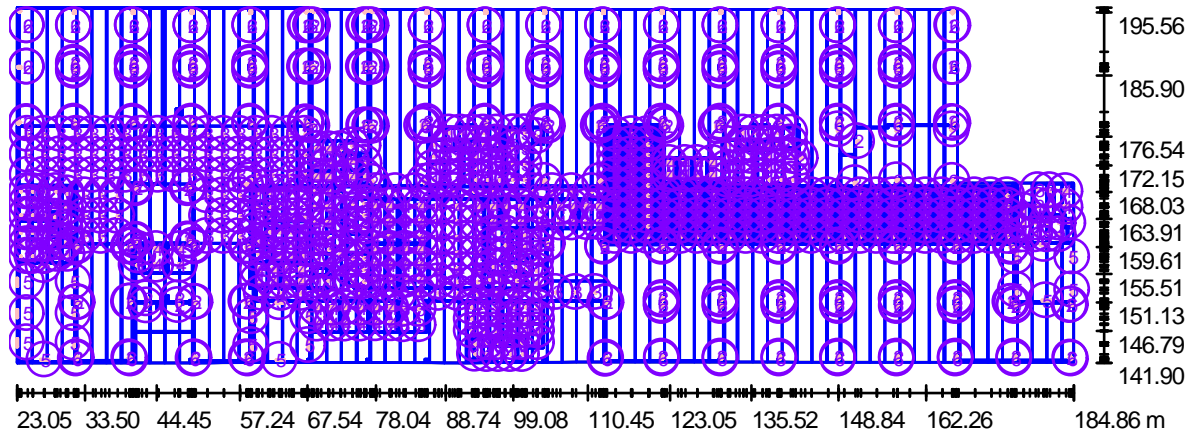
125 Pieces PHILIPS COLOR KINETI CAST METAL HOUSING WITH DIFFUS 36xTHIRTY-SIX WHITE LIGHT EMI
Article No.:
Luminous flux (Luminaire): 1969 lm
Luminous flux (Lamps): 1969 lm
Luminaire Wattage: 49.0 W
Luminaire classification according to CIE: 100
CIE flux code: 69 94 99 100 100
Fitting: 36 x THIRTY-SIX WHITE LIGHT EMITTIN (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



Operator
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Airport / Luminaires (layout plan)



Scale 1 : 1157

Luminaire Parts List

No.	Pieces	Designation
1	185	BBS478 1xLED/4000K PG
2	143	BY501W LED130CW PSD 1xCREE XML LED 56xLEDs Ra72.1/5688K Xita
3	294	GreenSpace Gen2 DN183B 5000K 1x5630 LED package/5108K
4	101	RC600B 31S W60L60 new 1xPP1.3 Xitanium 75W

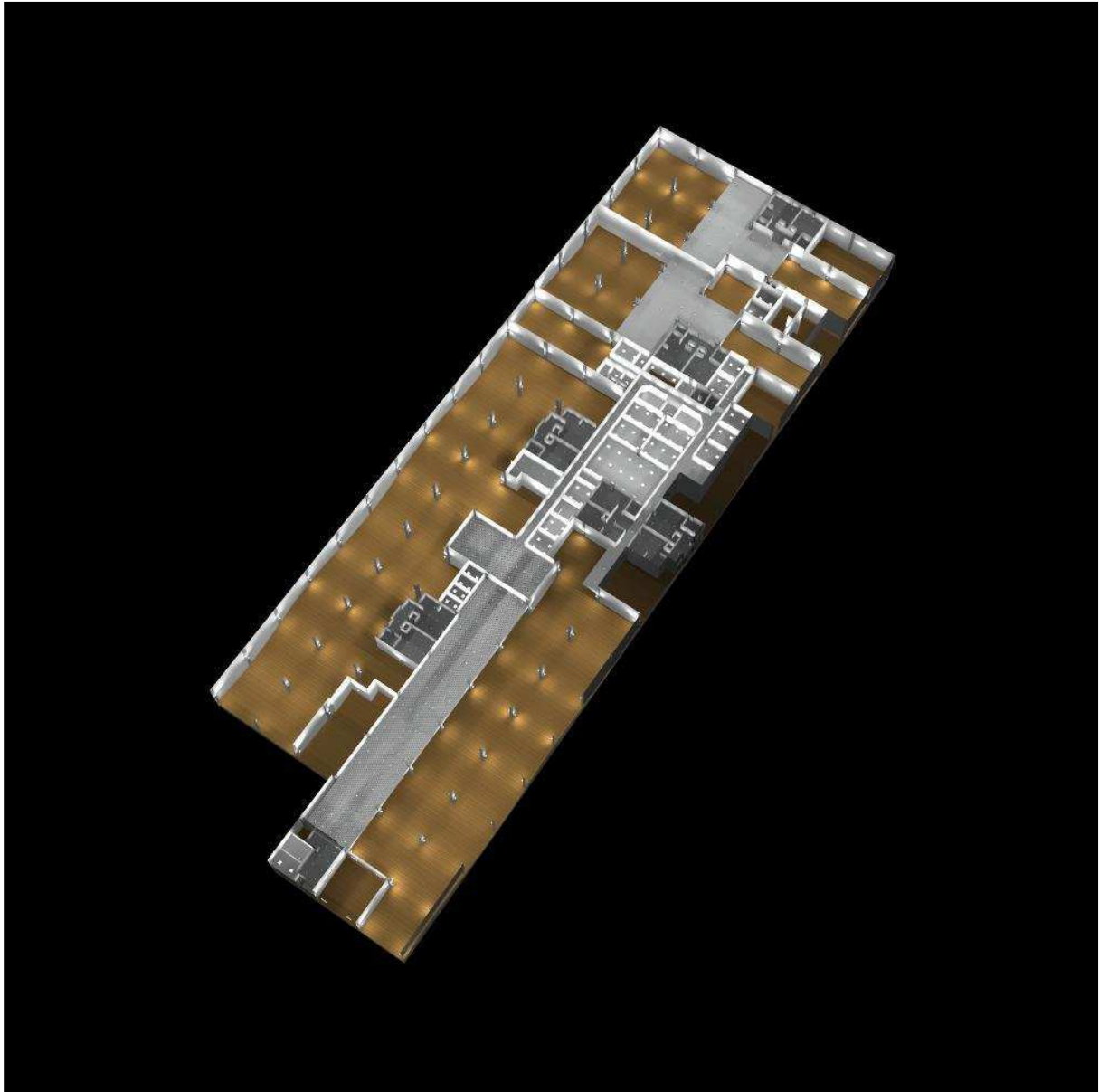
Operator
Telephone
Fax
e-Mail

Airport / Luminaires (layout plan)**Luminaire Parts List**

No.	Pieces	Designation
5	23	PHILIPS TCW097 Pacific II TCW097 2x28W 2xTL5-28W/840 HFP PC
6	125	PHILIPS COLOR KINETI CAST METAL HOUSING WITH DIFFUS 36xTHIRTY-SIX WHITE LIGHT EMI

Operator
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Fax
e-Mail

Airport / 3D Rendering



Operator
Telephone
Fax
e-Mail

Airport / Raytrace preview 5



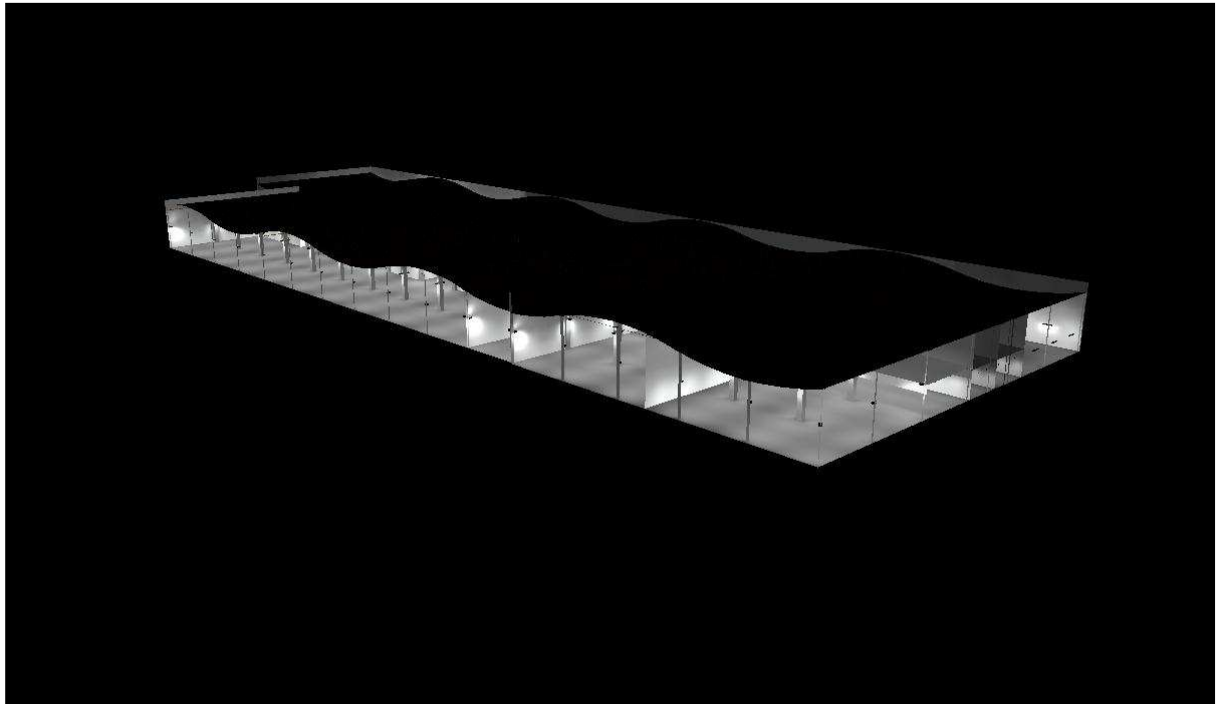
Operator
Telephone
Fax
e-Mail

Airport / Raytrace preview 6



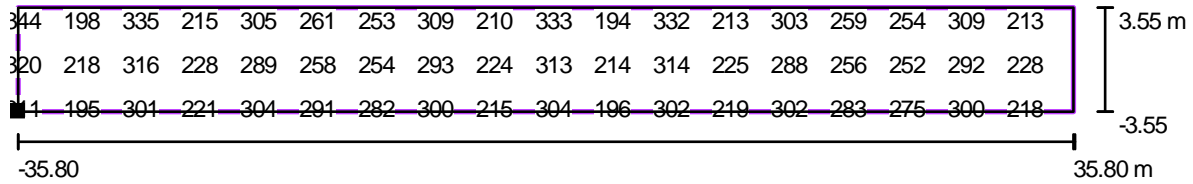
Operator
Telephone
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e-Mail

Airport / Raytrace preview 7



Operator
 Telephone
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 e-Mail

Airport / Gate Lounge / Value Chart (E, Perpendicular)

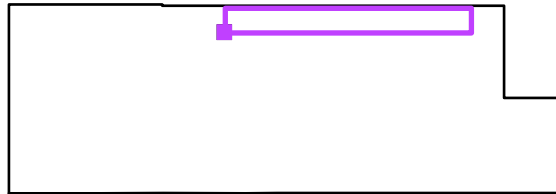


Values in Lux, Scale 1 : 512

Not all calculated values could be displayed.

Position of surface in room:

Marked point: (86.000 m, 188.100 m, 0.000 m)

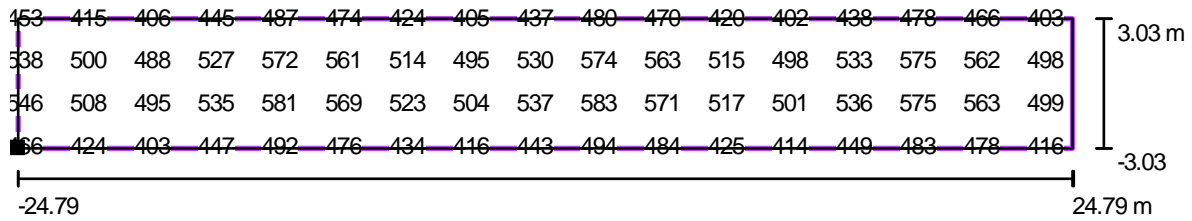


Grid: 72 x 8 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
266	144	355	0.54	0.40

Operator
 Telephone
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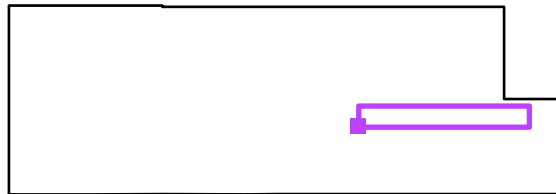
Airport / Check-in / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 355

Not all calculated values could be displayed.

Position of surface in room:
 Marked point: (124.802 m,
 161.313 m, 0.760 m)



Grid: 50 x 7 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
505	389	590	0.77	0.66

Operator
 Telephone
 Fax
 e-Mail

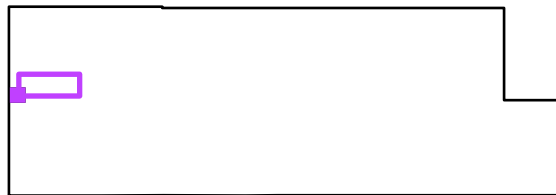
Airport / Domestic Baggage Claim Area / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 127

Position of surface in room:

Marked point: (25.900 m, 170.600 m, 0.000 m)

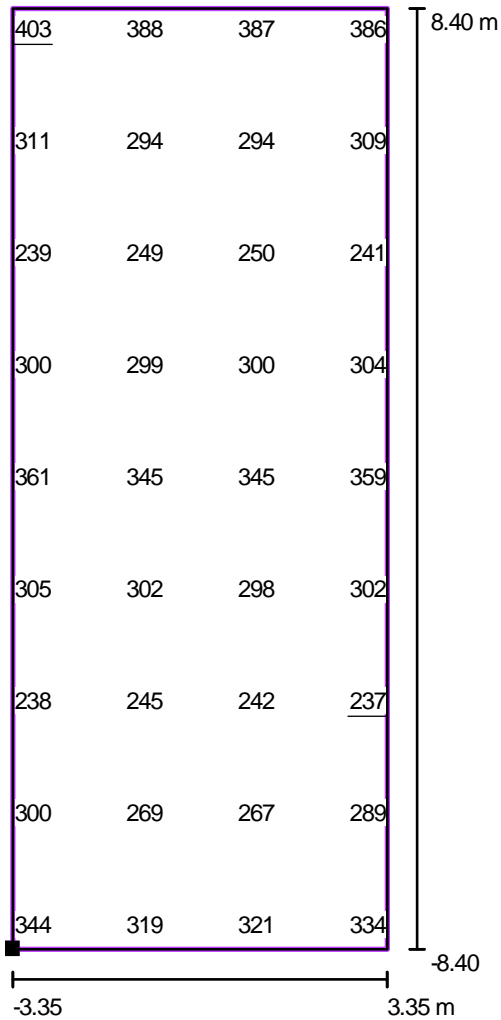


Grid: 9 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
324	283	371	0.87	0.76

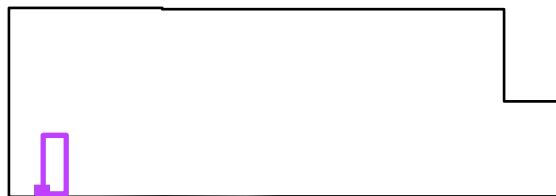
Operator
Telephone
Fax
e-Mail

Airport / Arrival Lobby / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 135

Position of surface in room:
Marked point: (33.000 m, 142.800 m,
0.000 m)

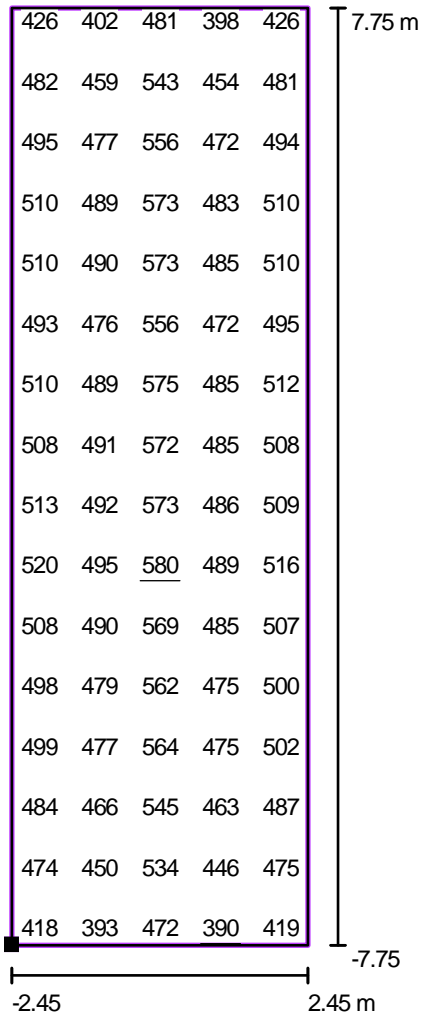


Grid: 4 x 9 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
305	237	403	0.78	0.59

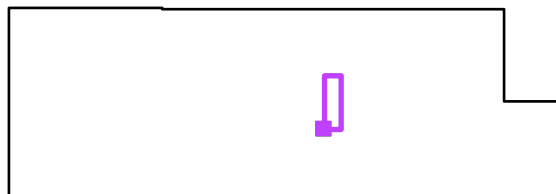
Operator
Telephone
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Airport / Security Check / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 125

Position of surface in room:
Marked point: (114.800 m,
161.300 m, 0.760 m)

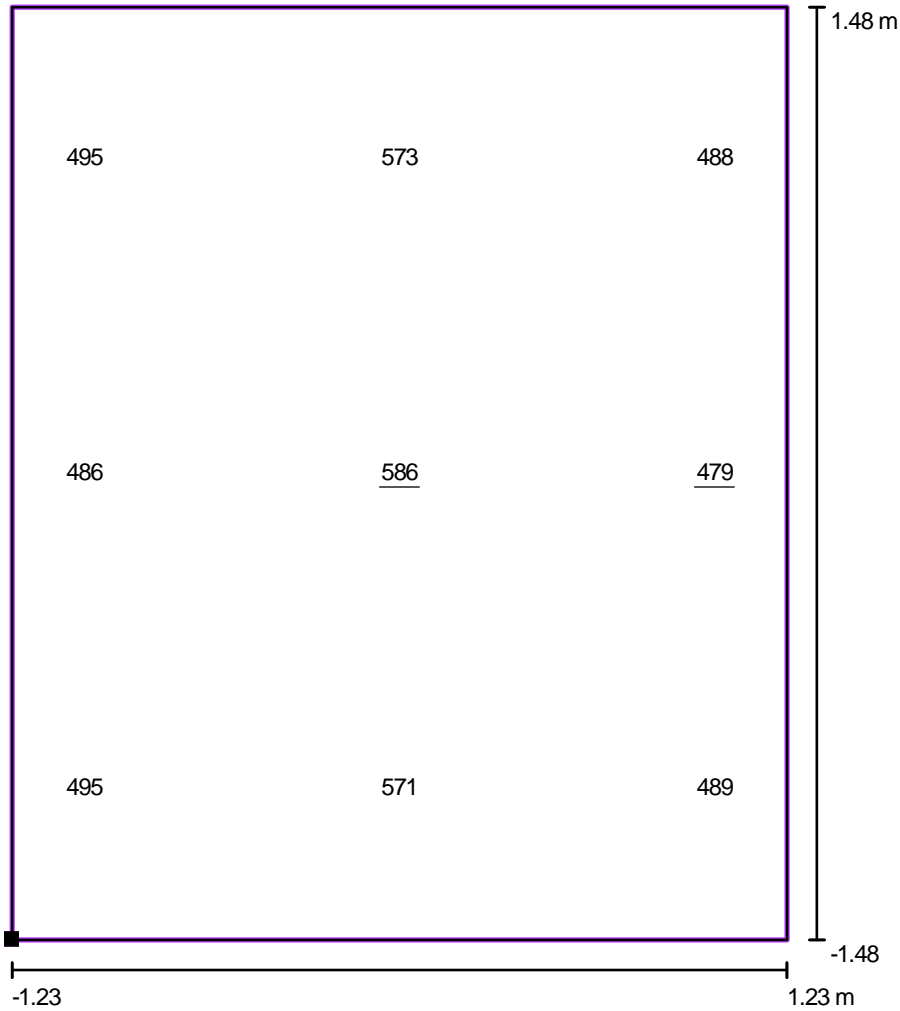


Grid: 5 x 16 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
494	390	580	0.79	0.67

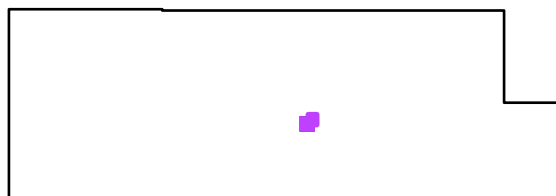
Operator
 Telephone
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 e-Mail

Airport / Security Office 1 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 24

Position of surface in room:
 Marked point: (110.141 m,
 163.038 m, 0.760 m)

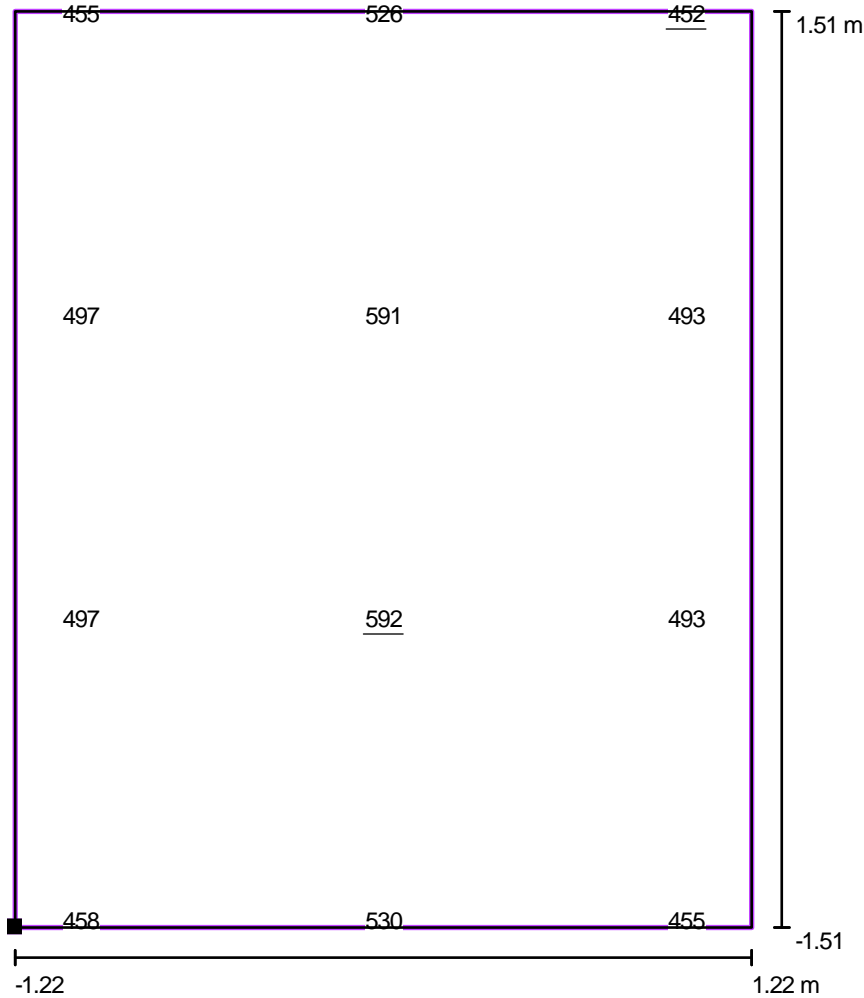


Grid: 3 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
518	479	586	0.92	0.82

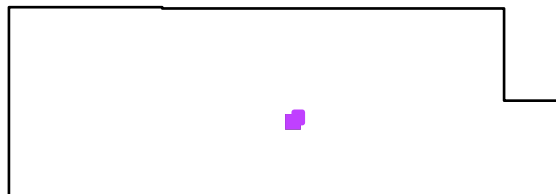
Operator
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e-Mail

Airport / Security Office 2 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 25

Position of surface in room:
Marked point: (105.948 m,
163.027 m, 0.760 m)

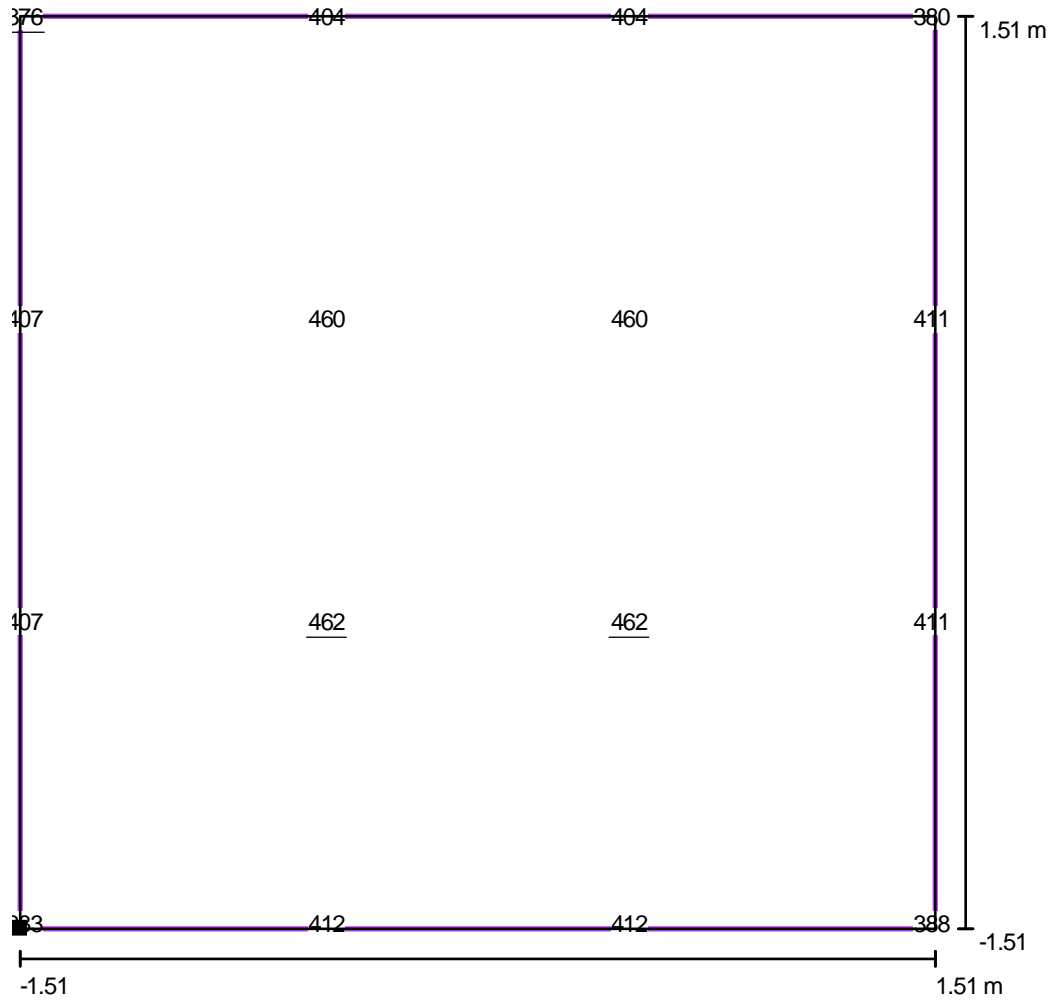


Grid: 3 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
503	452	592	0.90	0.76

Operator
Telephone
Fax
e-Mail

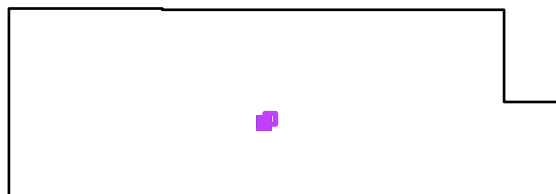
Airport / FOBS / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 25

Position of surface in room:

Marked point: (97.539 m, 163.050 m, 0.760 m)

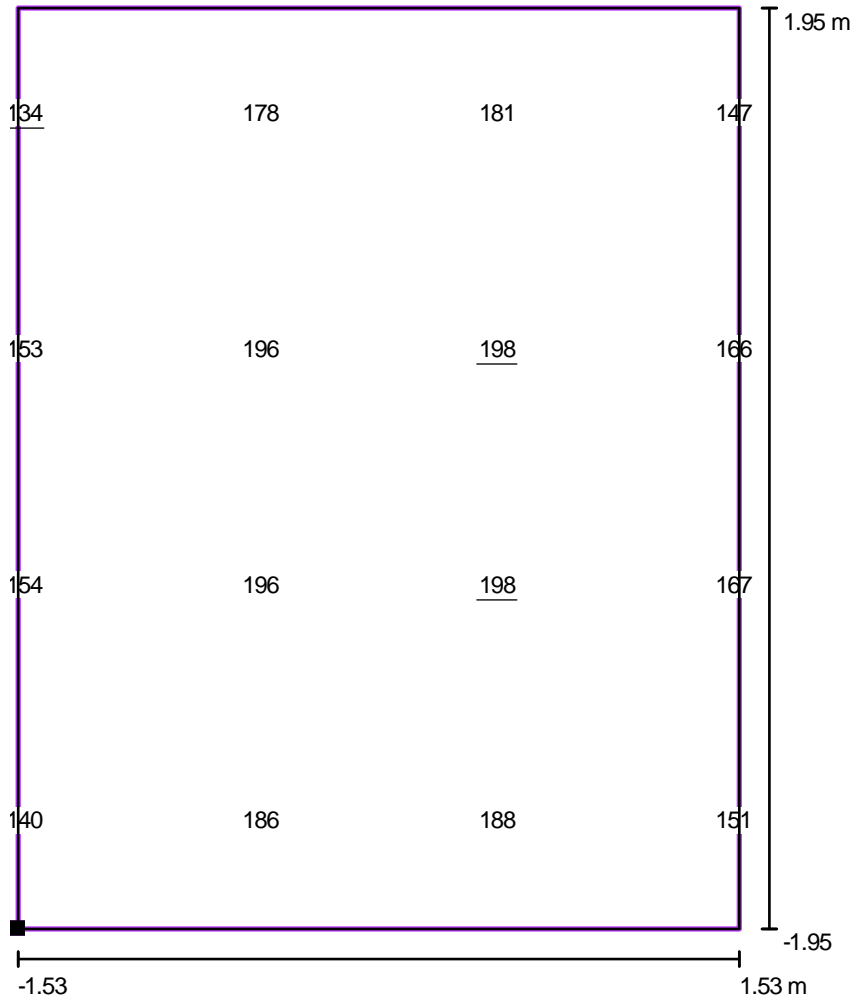


Grid: 4 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
415	376	462	0.91	0.81

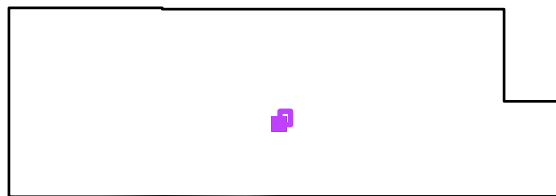
Operator
Telephone
Fax
e-Mail

Airport / Electrical Rm 155 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 32

Position of surface in room:
Marked point: (101.960 m,
162.661 m, 0.760 m)

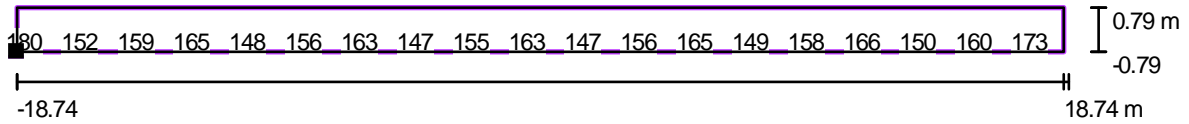


Grid: 4 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
171	134	198	0.78	0.67

Operator
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 e-Mail

Airport / Corridor 126 / Value Chart (E, Perpendicular)

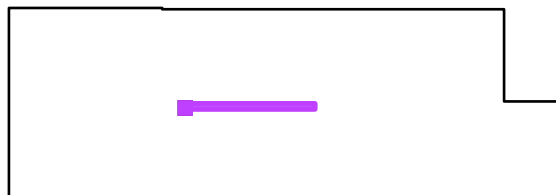


Values in Lux, Scale 1 : 268

Not all calculated values could be displayed.

Position of surface in room:

Marked point: (74.600 m, 167.203 m, 0.000 m)

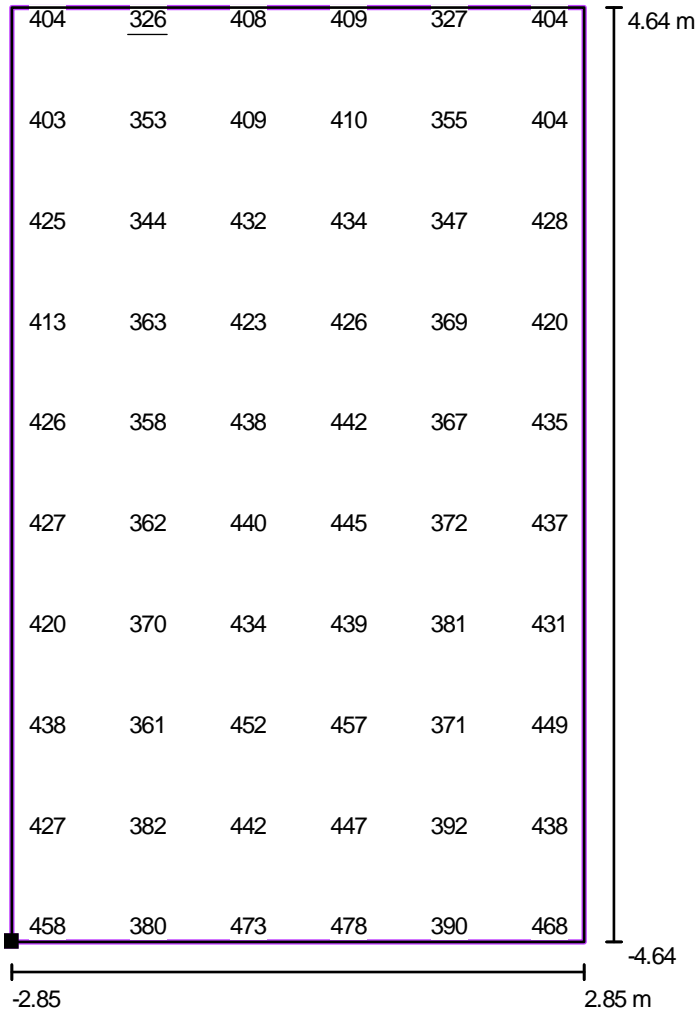


Grid: 38 x 2 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
163	146	190	0.90	0.77

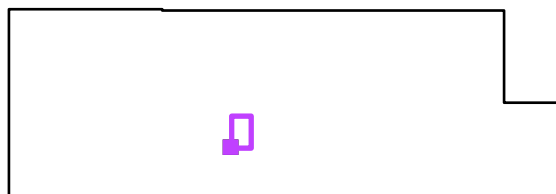
Operator
Telephone
Fax
e-Mail

Airport / Command & Control Office 132 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 75

Position of surface in room:
Marked point: (87.800 m, 156.300 m,
0.760 m)

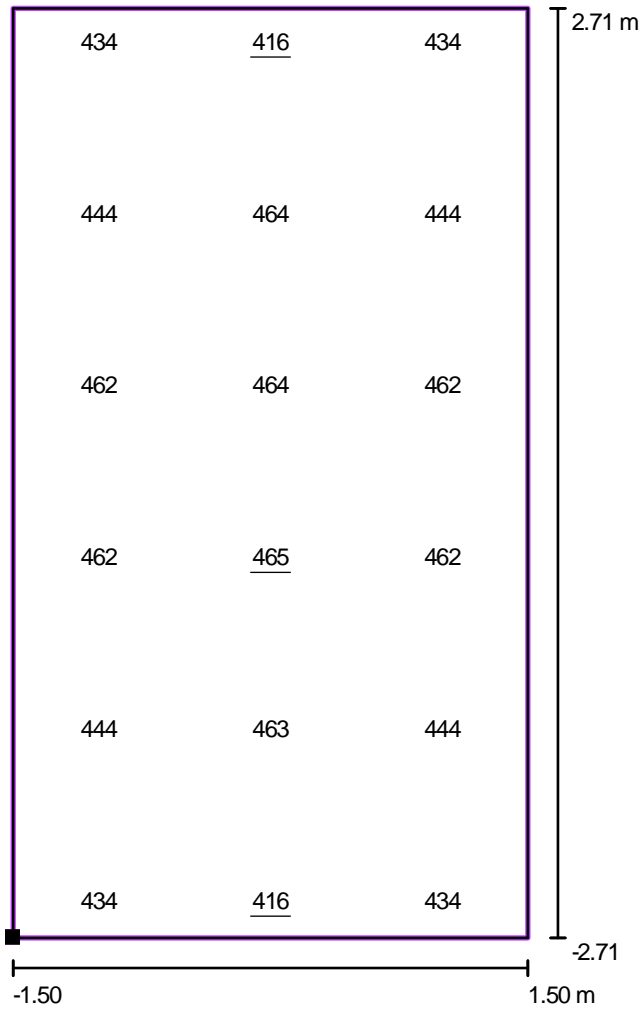


Grid: 6 x 10 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
409	326	478	0.80	0.68

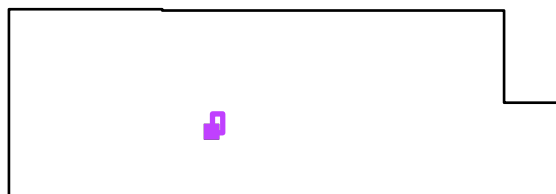
Operator
Telephone
Fax
e-Mail

Airport / Office 131 (Typ.) / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 44

Position of surface in room:
Marked point: (82.258 m, 160.753 m, 0.760 m)

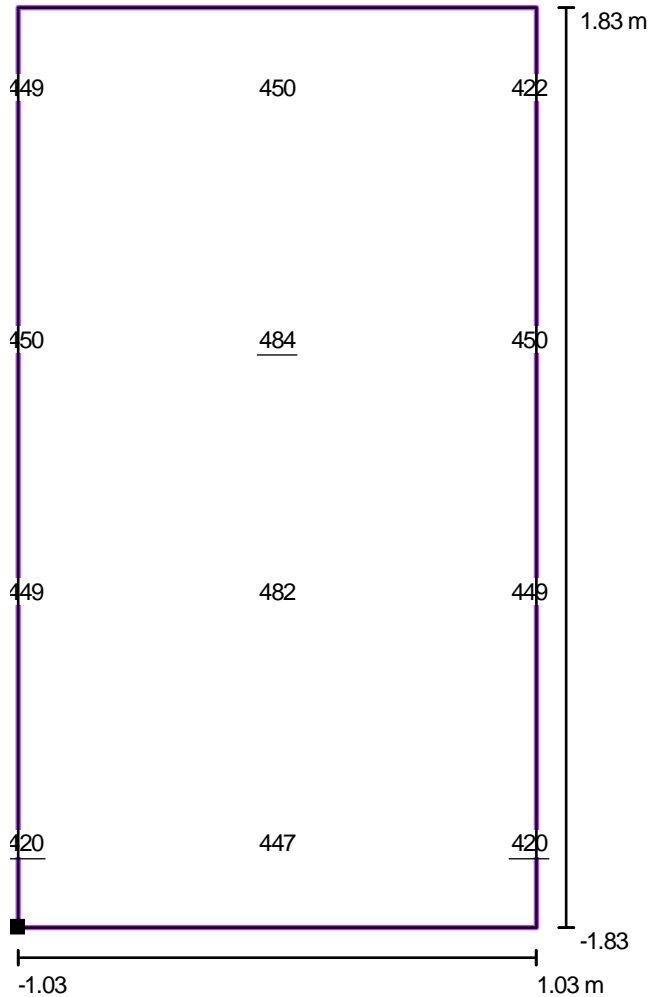


Grid: 3 x 6 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
447	416	465	0.93	0.89

Operator
Telephone
Fax
e-Mail

Airport / Meeting Rm 129 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 30

Position of surface in room:

Marked point: (74.348 m, 162.657 m, 0.760 m)

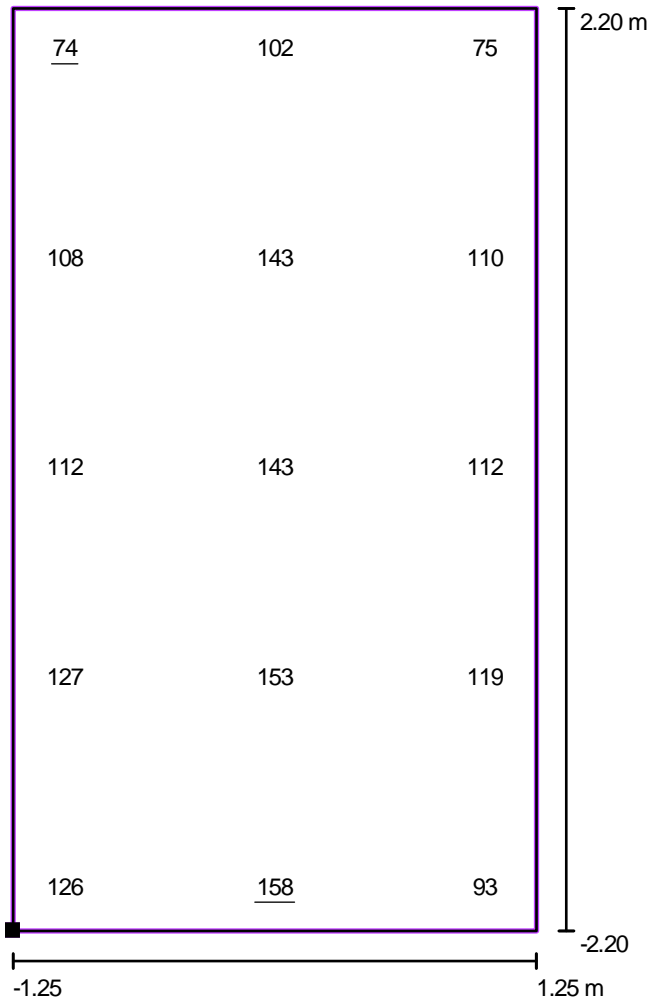


Grid: 3 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
448	420	484	0.94	0.87

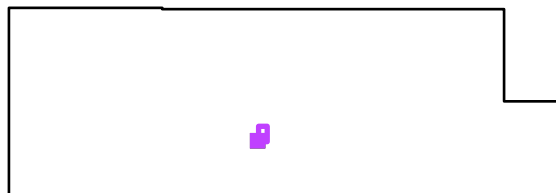
Operator
Telephone
Fax
e-Mail

Airport / Toilet 4 160 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 36

Position of surface in room:
Marked point: (95.707 m, 157.800 m, 0.000 m)

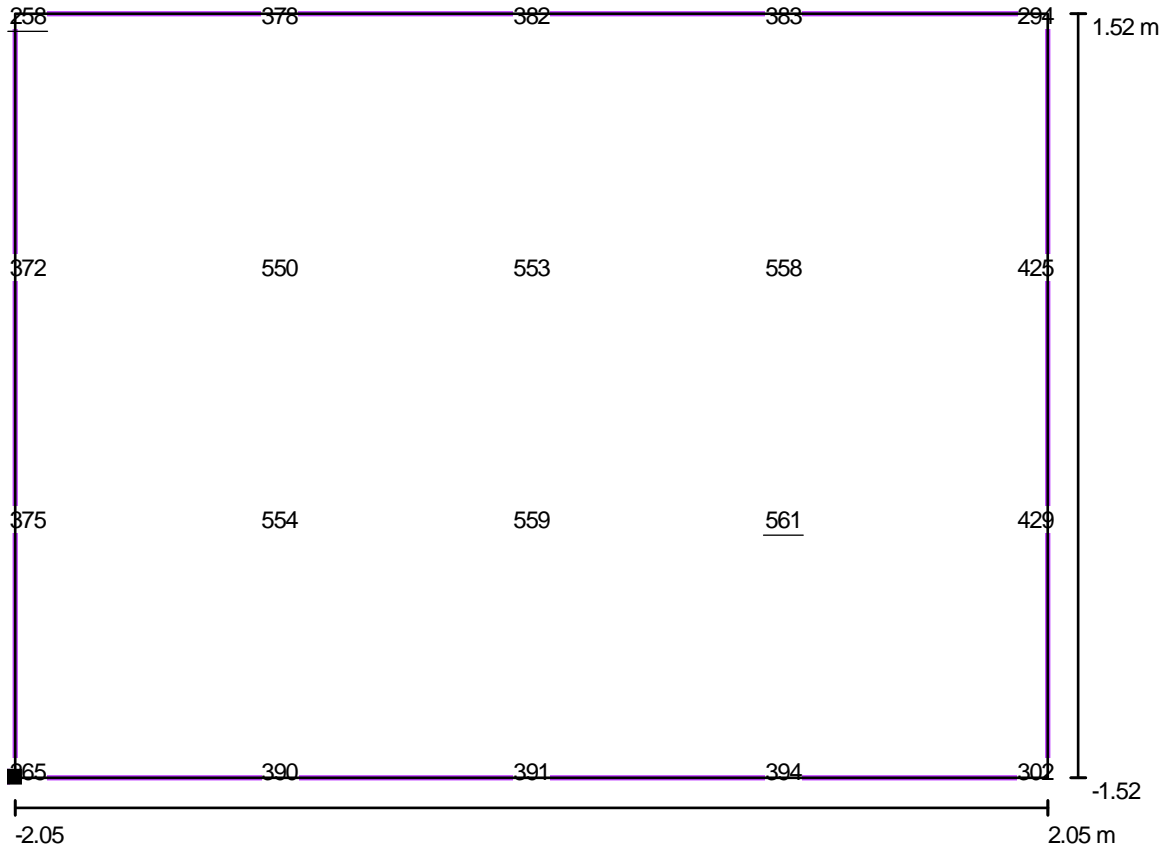


Grid: 3 x 5 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
117	74	158	0.63	0.47

Operator
 Telephone
 Fax
 e-Mail

Airport / Custom Office 142 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 30

Position of surface in room:

Marked point: (59.100 m, 153.768 m, 0.760 m)

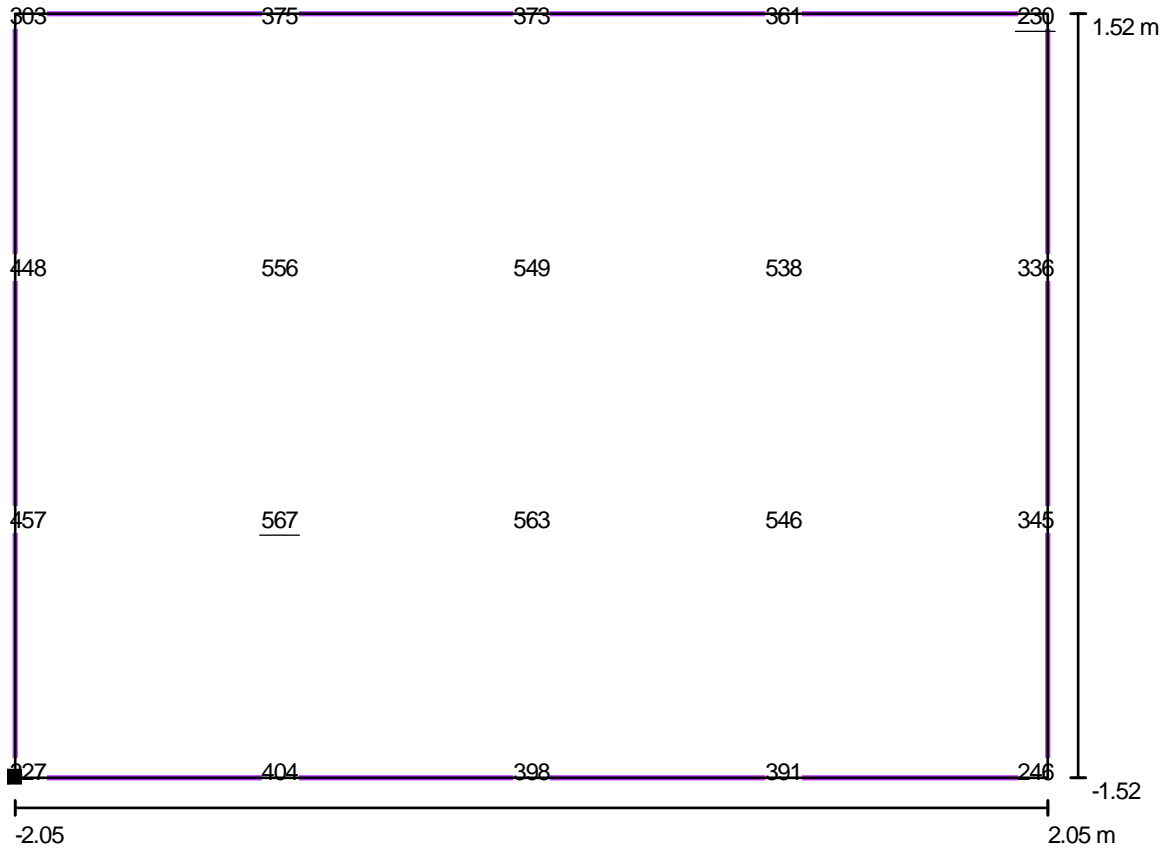


Grid: 5 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
419	258	561	0.62	0.46

Operator
 Telephone
 Fax
 e-Mail

Airport / Bonded Store 141 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 30

Position of surface in room:

Marked point: (63.628 m, 153.789 m, 0.760 m)

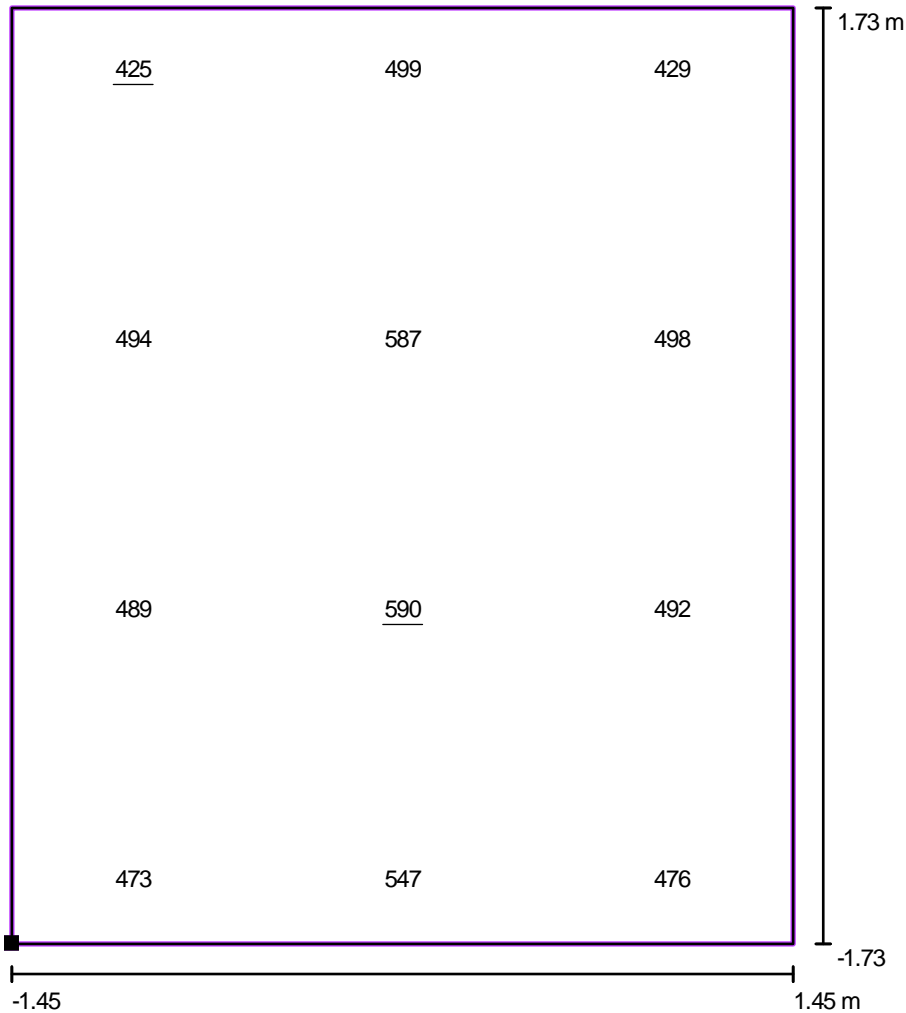


Grid: 5 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
416	230	567	0.55	0.41

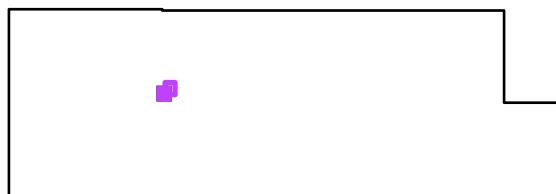
Operator
Telephone
Fax
e-Mail

Airport / Intelligence Rm 119 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 28

Position of surface in room:
Marked point: (68.500 m, 171.755 m,
0.760 m)

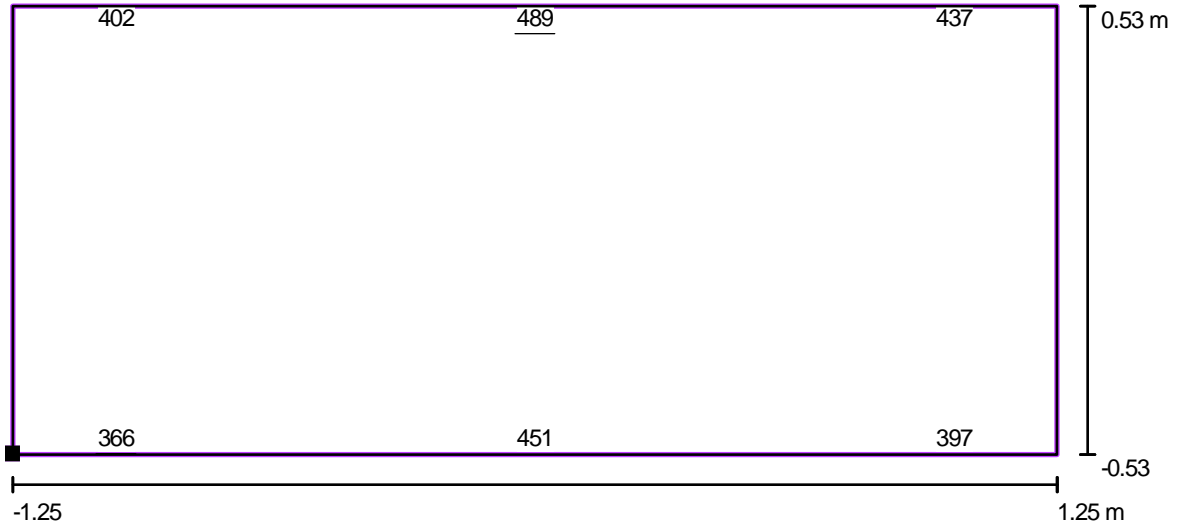


Grid: 3 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
500	425	590	0.85	0.72

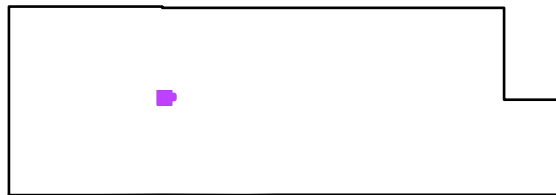
Operator
 Telephone
 Fax
 e-Mail

Airport / ICTS 121 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 18

Position of surface in room:
 Marked point: (68.567 m, 169.700 m,
 0.760 m)

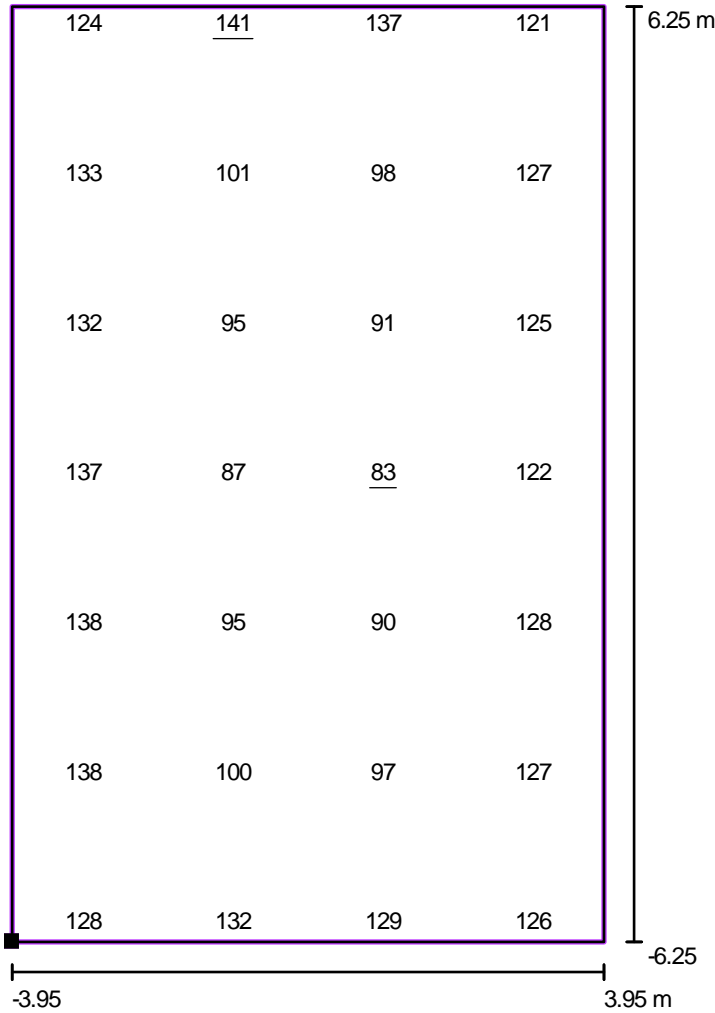


Grid: 3 x 2 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
424	366	489	0.86	0.75

Operator
Telephone
Fax
e-Mail

Airport / Mechanical Room 102 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 101

Position of surface in room:

Marked point: (23.232 m, 143.498 m, 0.000 m)



Grid: 4 x 7 Points

E_{av} [lx]
117

E_{min} [lx]
83

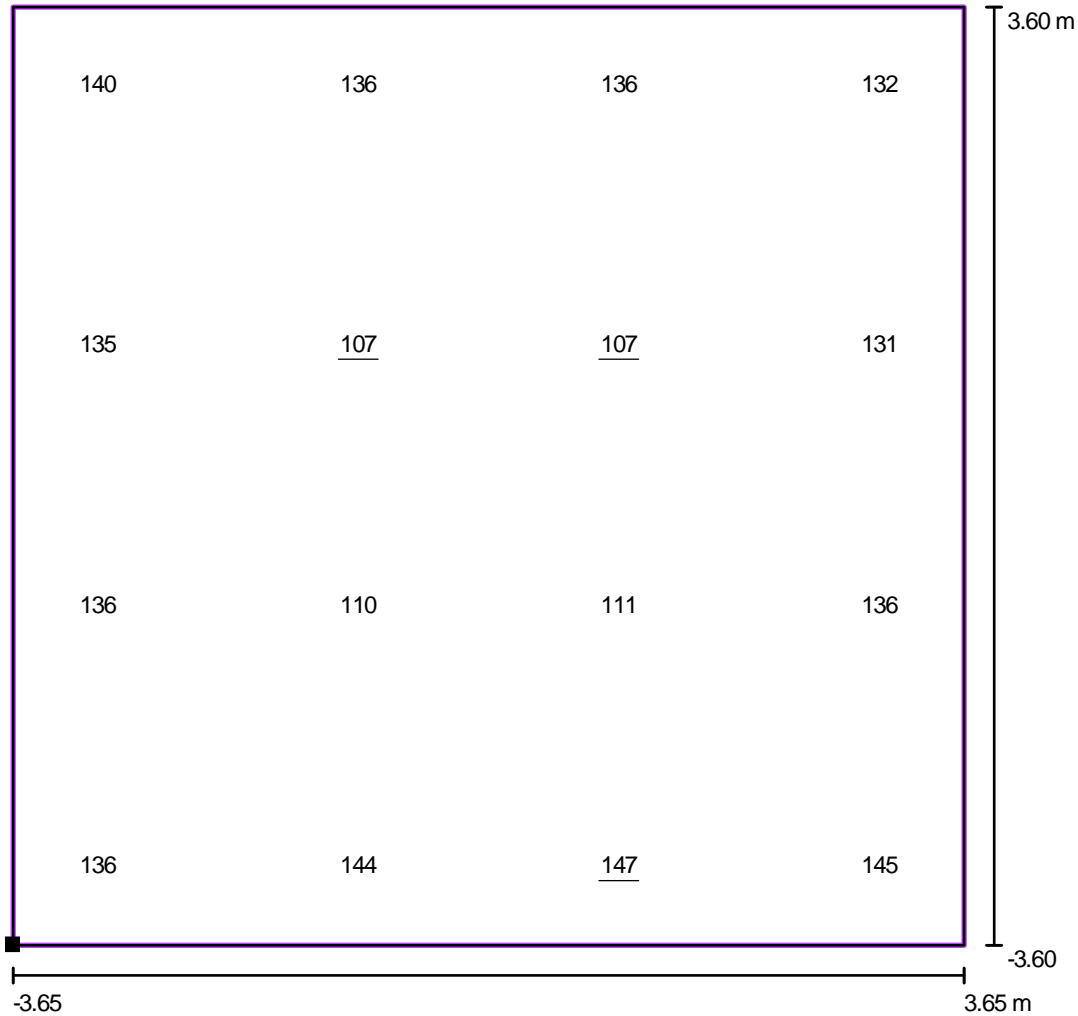
E_{max} [lx]
141

u_0
0.71

E_{min} / E_{max}
0.59

Operator
Telephone
Fax
e-Mail

Airport / Electrical Room 153 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 58

Position of surface in room:
Marked point: (176.800 m,
152.000 m, 0.000 m)

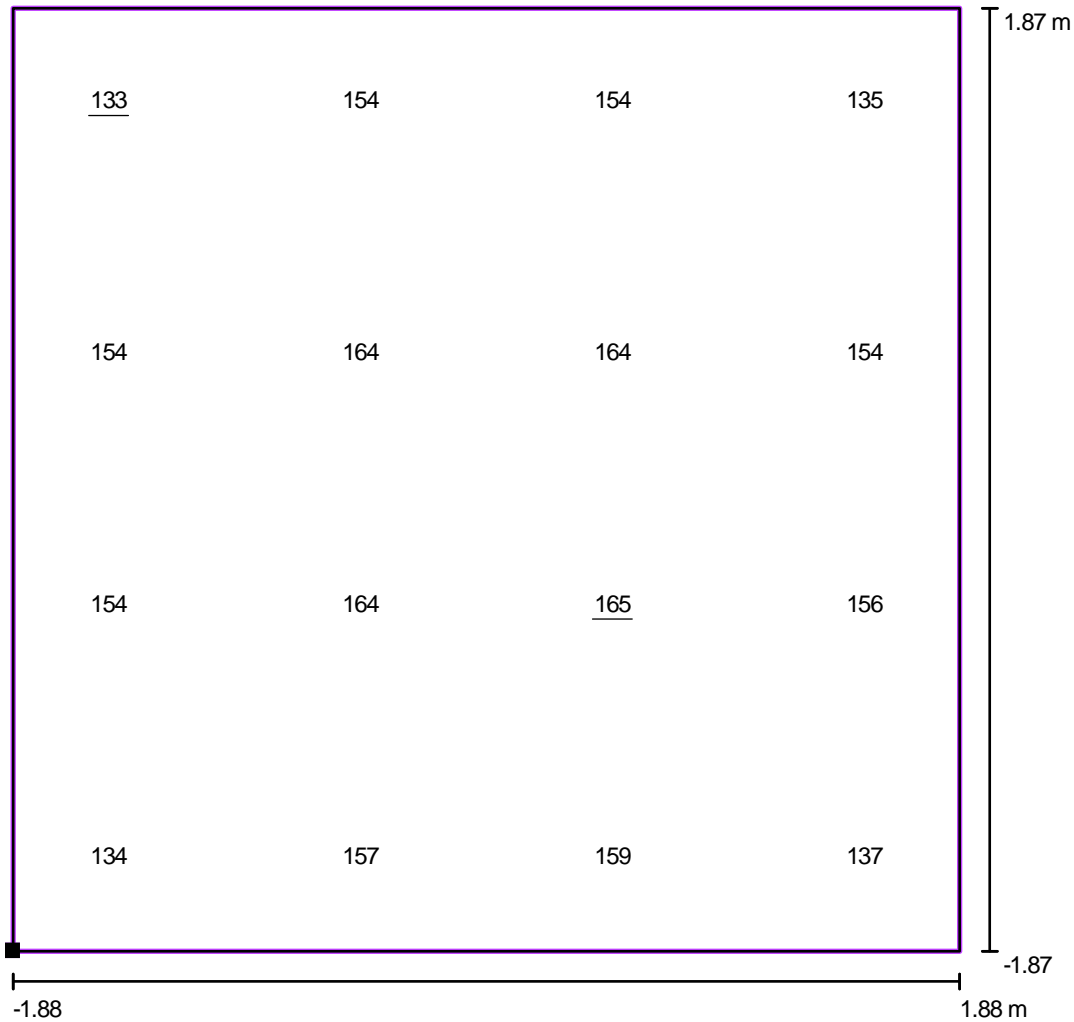


Grid: 4 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
131	107	147	0.82	0.73

Operator
Telephone
Fax
e-Mail

Airport / Restroom 135 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 30

Position of surface in room:
Marked point: (92.673 m, 146.726 m,
0.760 m)

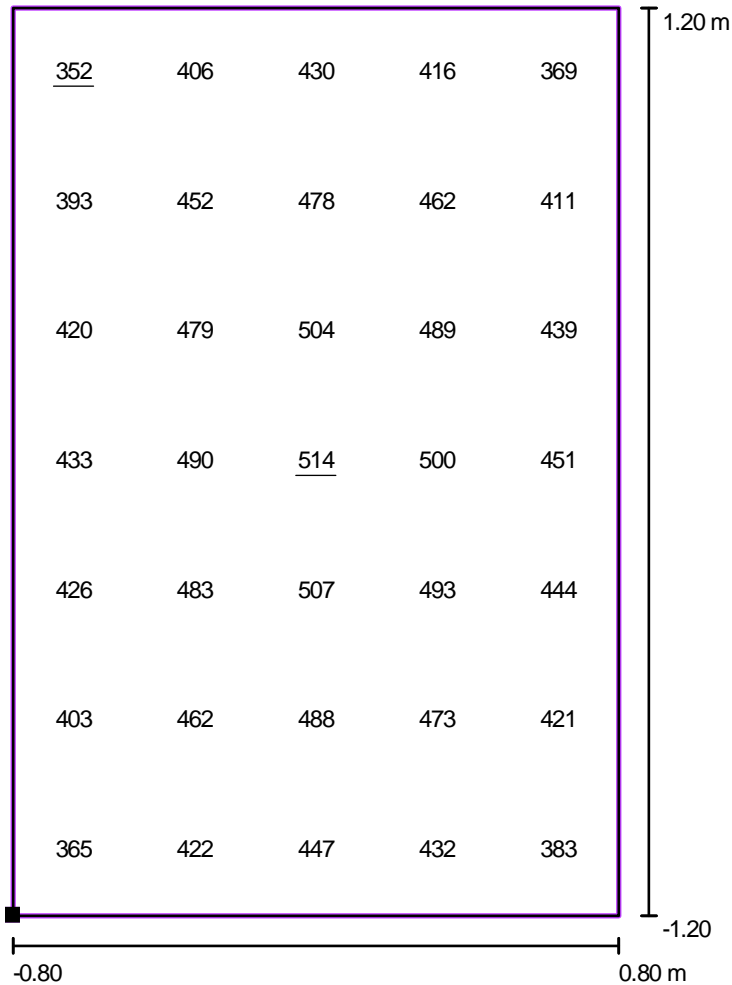


Grid: 4 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
152	133	165	0.87	0.81

Operator
Telephone
Fax
e-Mail

Airport / Airlines (typ) / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 20

Position of surface in room:
Marked point: (124.600 m,
170.400 m, 0.760 m)

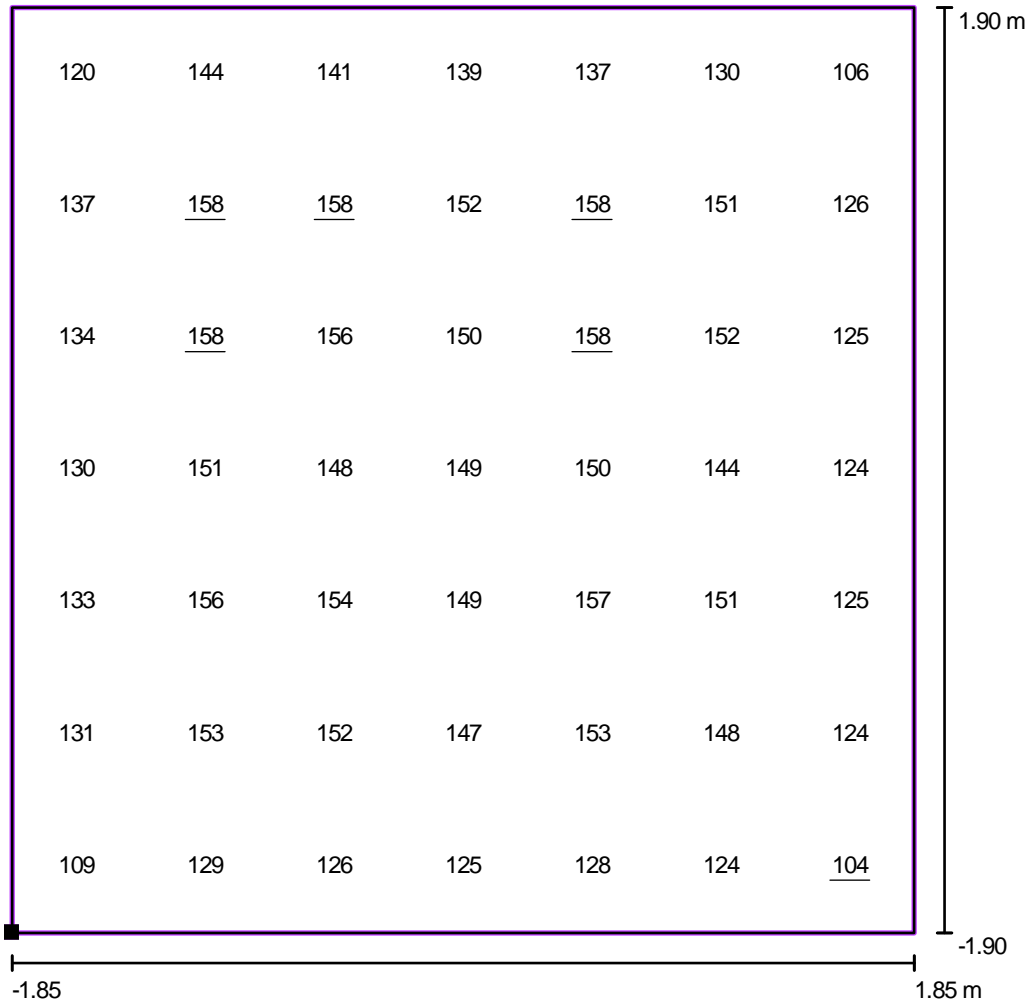


Grid: 5 x 7 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
444	352	514	0.79	0.69

Operator
Telephone
Fax
e-Mail

Airport / Toilet 6 (typ) / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 31

Position of surface in room:
Marked point: (138.300 m,
169.800 m, 0.000 m)

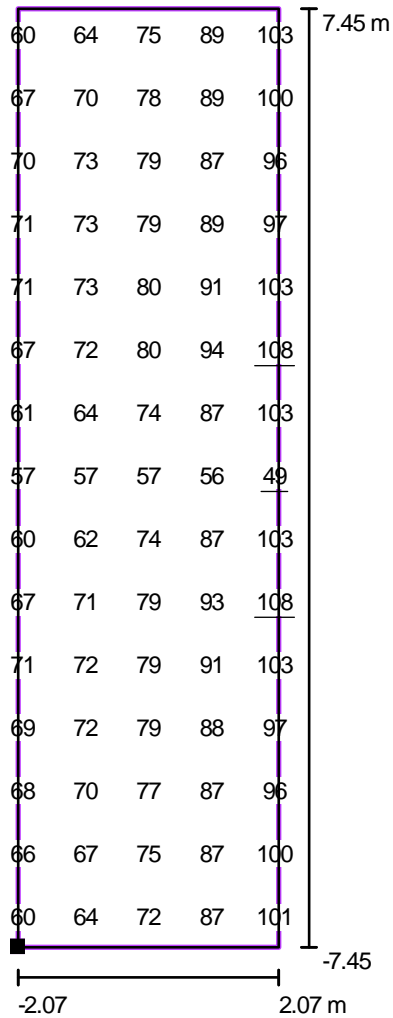


Grid: 7 x 7 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
140	104	158	0.74	0.65

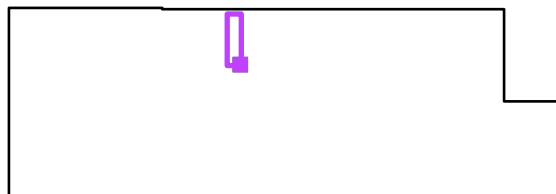
Operator
Telephone
Fax
e-Mail

Airport / Ceiling 1 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 120

Position of surface in room:
Marked point: (90.632 m, 179.700 m,
7.617 m)

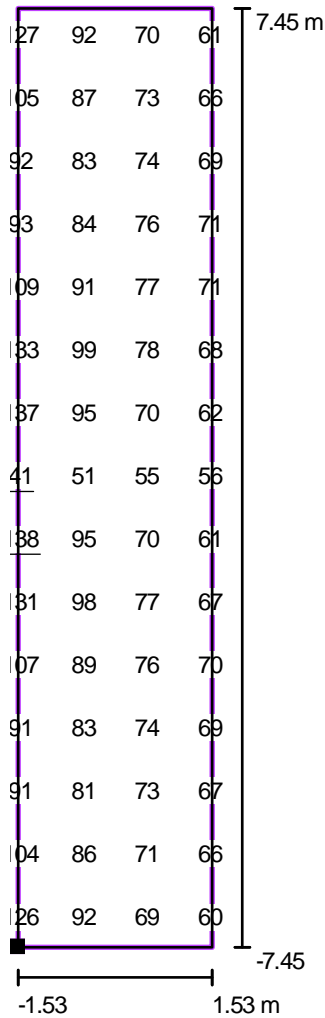


Grid: 5 x 15 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
79	49	108	0.62	0.45

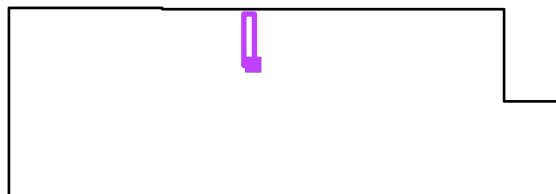
Operator
Telephone
Fax
e-Mail

Airport / Ceiling 2 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 120

Position of surface in room:
Marked point: (94.401 m, 179.700 m,
6.873 m)

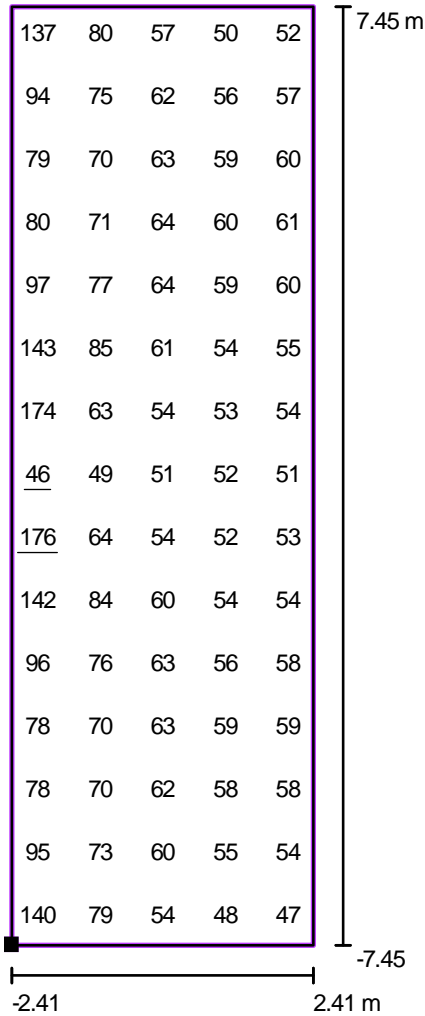


Grid: 4 x 15 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
83	41	138	0.50	0.30

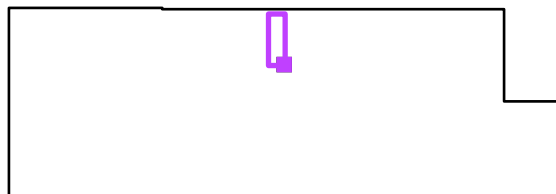
Operator
 Telephone
 Fax
 e-Mail

Airport / Ceiling 3 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 120

Position of surface in room:
 Marked point: (103.400 m,
 179.700 m, 5.576 m)

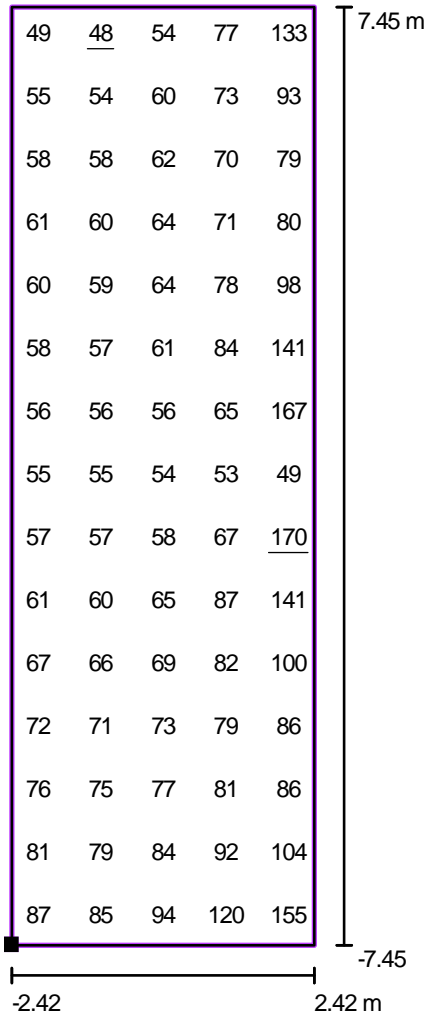


Grid: 5 x 15 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
70	46	176	0.65	0.26

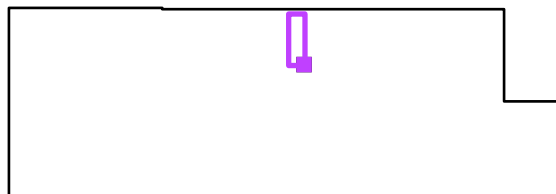
Operator
Telephone
Fax
e-Mail

Airport / Ceiling 4 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 120

Position of surface in room:
Marked point: (109.183 m,
179.700 m, 5.913 m)

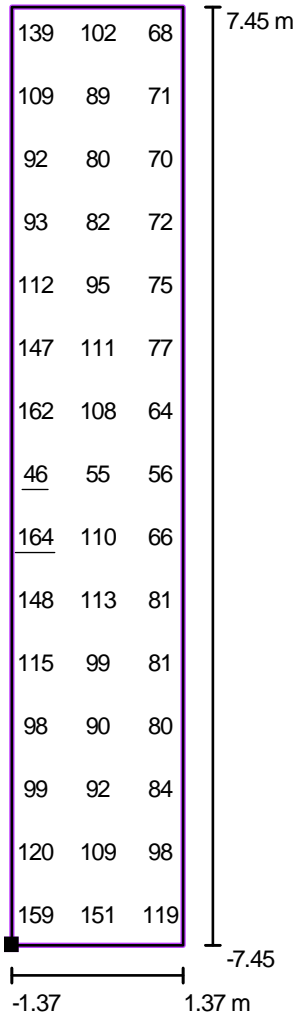


Grid: 5 x 15 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
77	48	170	0.63	0.29

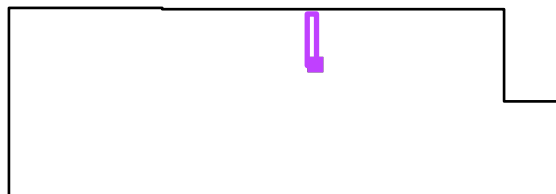
Operator
Telephone
Fax
e-Mail

Airport / Ceiling 5 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 120

Position of surface in room:
Marked point: (112.498 m,
179.700 m, 6.596 m)

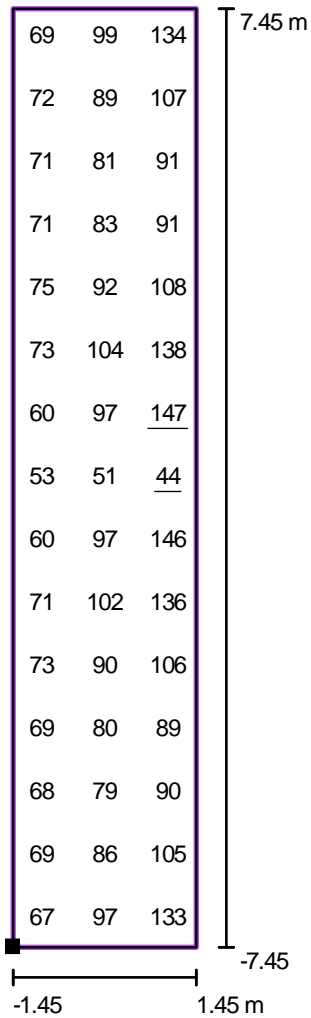


Grid: 3 x 15 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
99	46	164	0.47	0.28

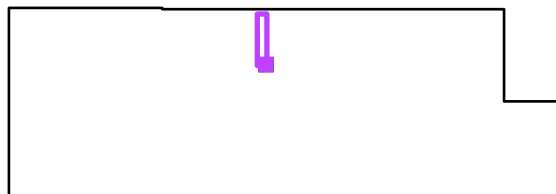
Operator
Telephone
Fax
e-Mail

Airport / Ceiling 6 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 120

Position of surface in room:
Marked point: (98.101 m, 179.700 m,
6.109 m)

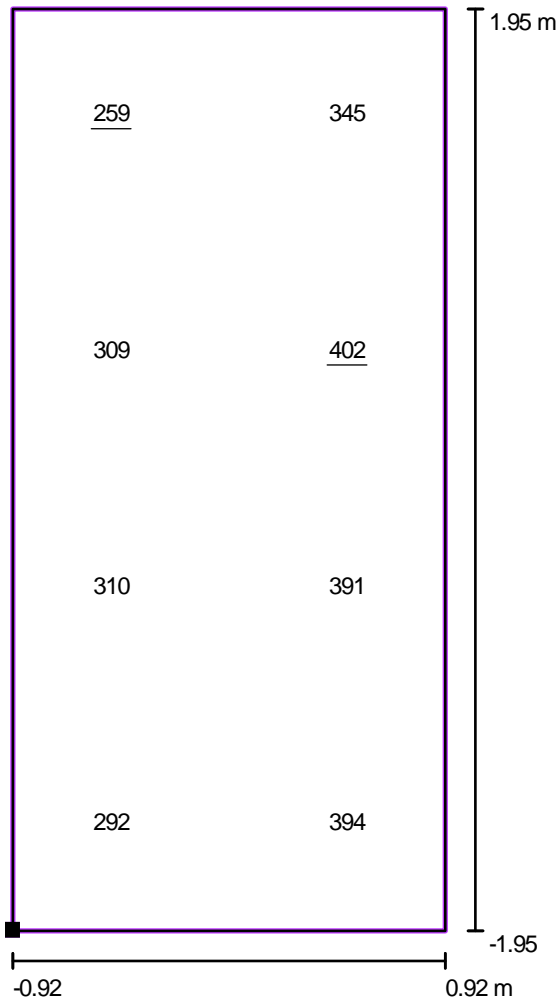


Grid: 3 x 15 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
89	44	147	0.49	0.30

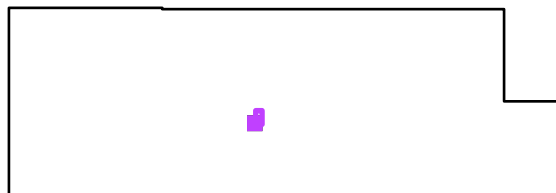
Operator
Telephone
Fax
e-Mail

Airport / FM 200 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 32

Position of surface in room:
Marked point: (94.807 m, 162.785 m, 0.760 m)

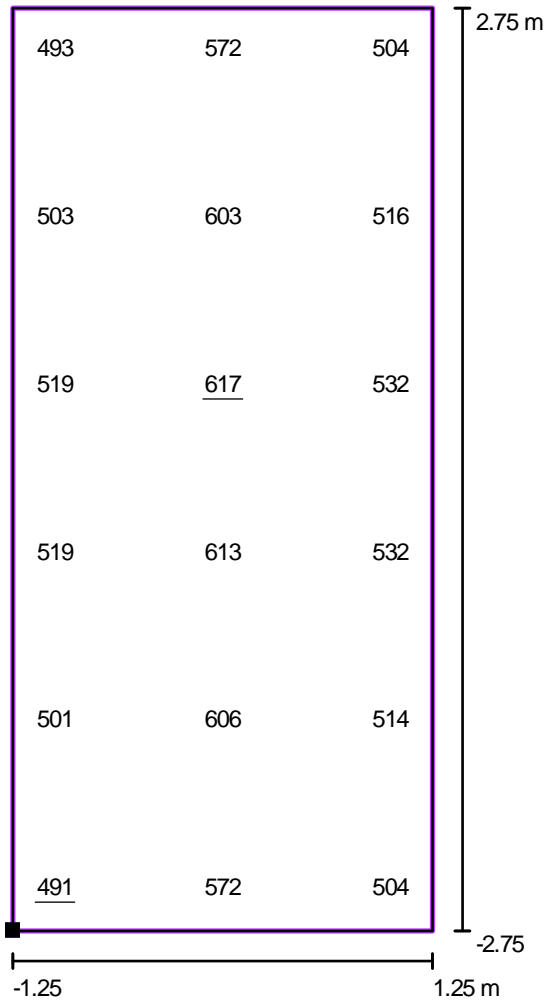


Grid: 2 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
338	259	402	0.77	0.64

Operator
Telephone
Fax
e-Mail

Airport / AOD 127 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 45

Position of surface in room:
Marked point: (68.600 m, 162.900 m, 0.760 m)

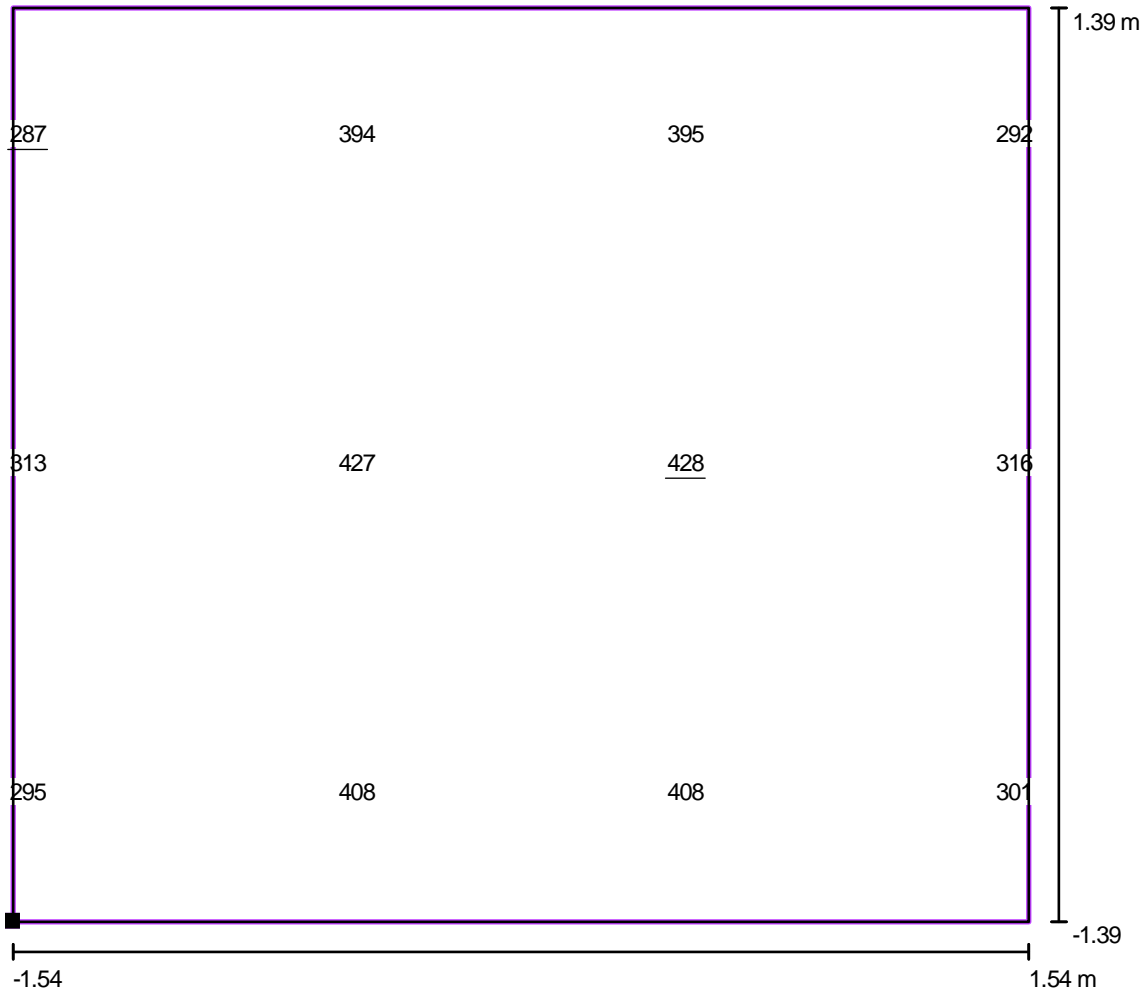


Grid: 3 x 6 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
539	491	617	0.91	0.80

Operator
Telephone
Fax
e-Mail

Airport / Pantry 137 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 23

Position of surface in room:
Marked point: (68.411 m, 158.800 m,
0.760 m)

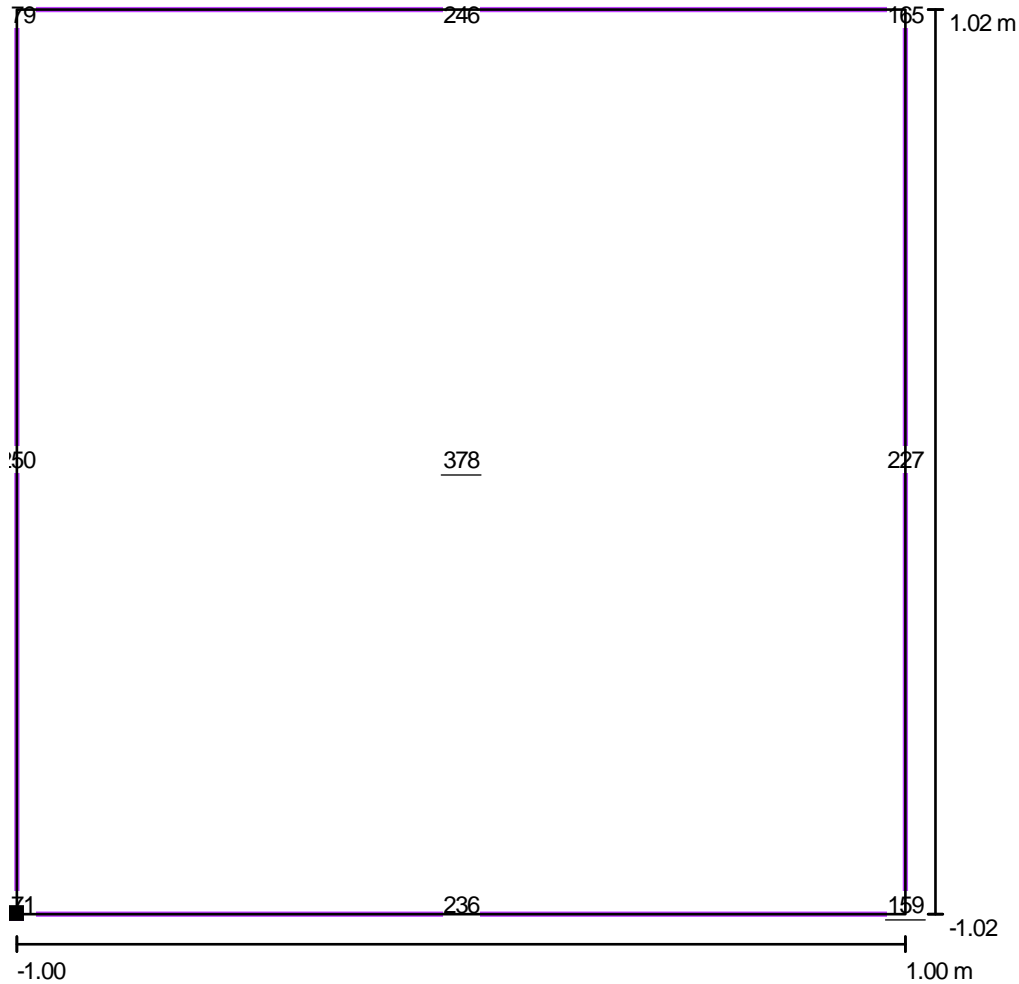


Grid: 4 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
355	287	428	0.81	0.67

Operator
Telephone
Fax
e-Mail

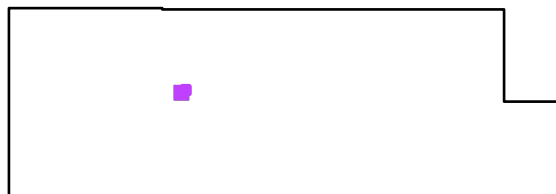
Airport / Holding Rm (typ.) / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 17

Position of surface in room:

Marked point: (73.500 m, 171.700 m, 0.760 m)



Grid: 3 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
223	159	378	0.71	0.42

Operator
Telephone
Fax
e-Mail

Airport / Cashier 120 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 23

Position of surface in room:
Marked point: (73.575 m, 174.599 m, 0.760 m)



Grid: 4 x 2 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
244	181	286	0.74	0.63

Operator
Telephone
Fax
e-Mail

Airport / Custom 108 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 125

Position of surface in room:
Marked point: (51.100 m, 143.500 m,
0.000 m)

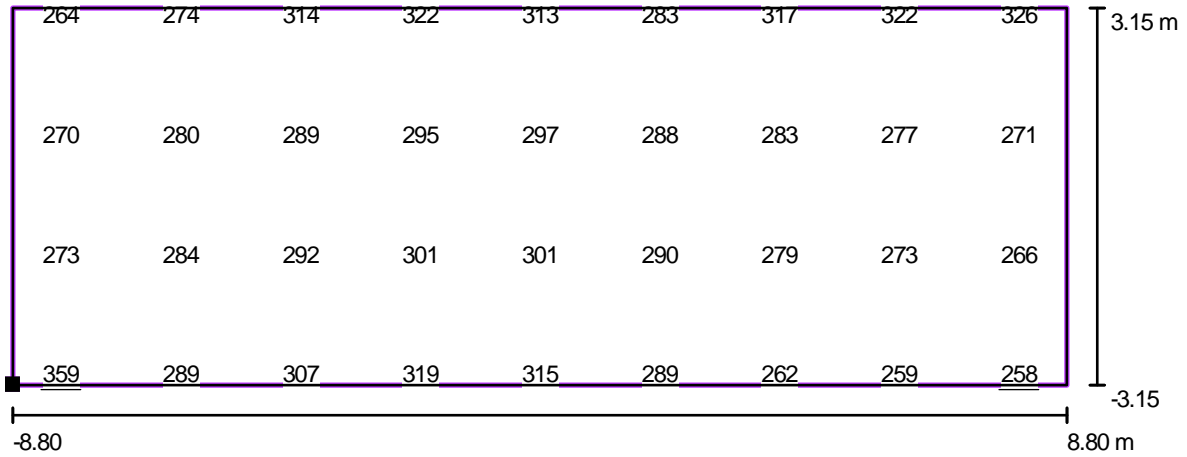


Grid: 4 x 8 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
300	247	374	0.82	0.66

Operator
Telephone
Fax
e-Mail

Airport / International Baggage Claim Area / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 126

Position of surface in room:
Marked point: (48.300 m, 170.600 m,
0.000 m)

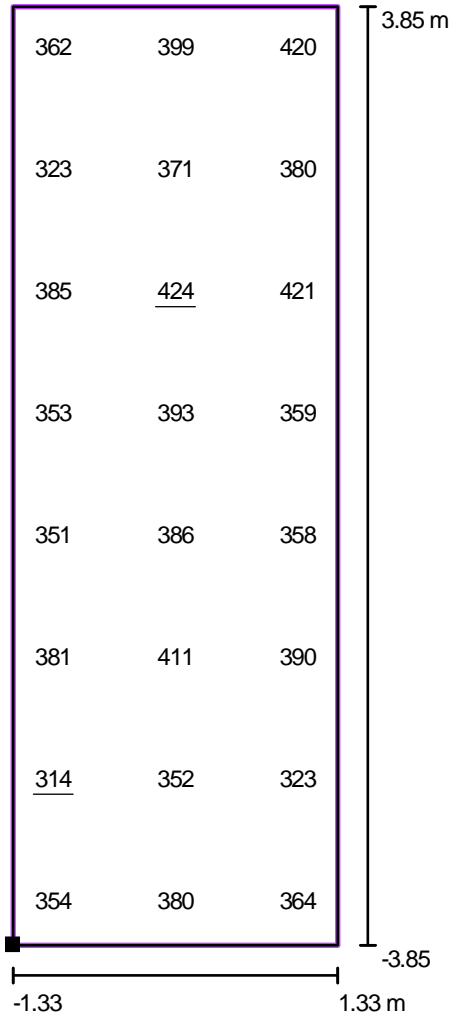


Grid: 9 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
292	258	359	0.88	0.72

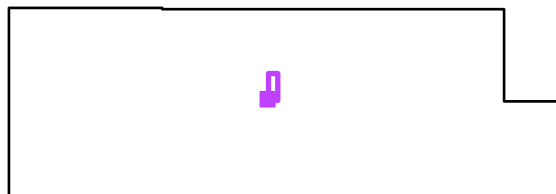
Operator
Telephone
Fax
e-Mail

Airport / Staff & Goods / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 62

Position of surface in room:
Marked point: (98.600 m, 169.700 m, 0.760 m)

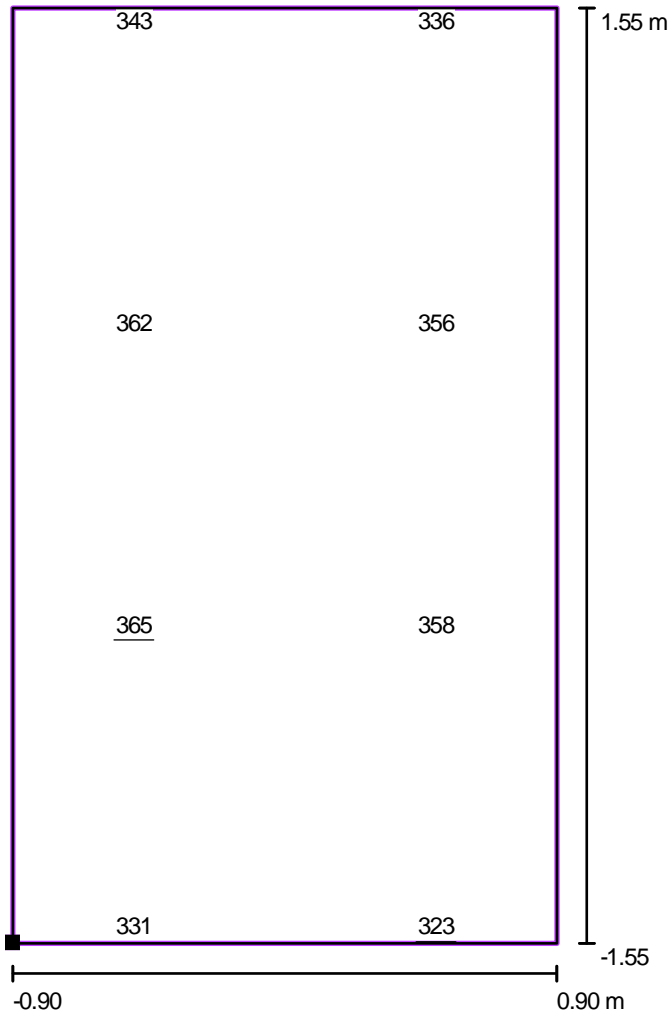


Grid: 3 x 8 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
373	314	424	0.84	0.74

Operator
Telephone
Fax
e-Mail

Airport / Office 159 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 25

Position of surface in room:
Marked point: (182.804 m,
165.313 m, 0.760 m)

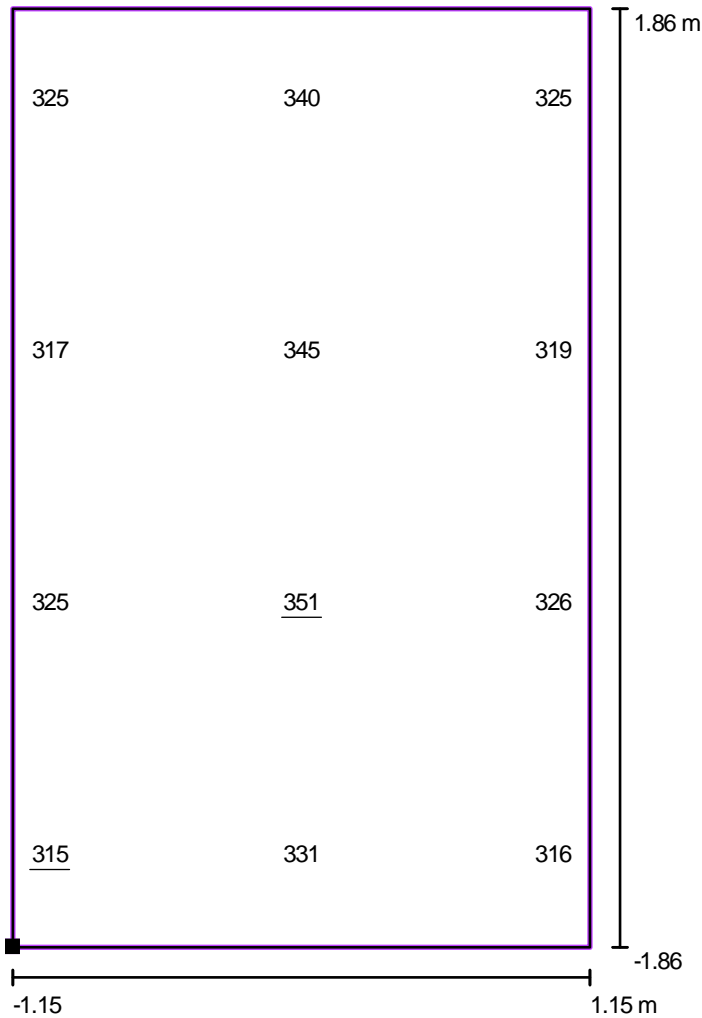


Grid: 2 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
347	323	365	0.93	0.88

Operator
Telephone
Fax
e-Mail

Airport / Pantry 161 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 30

Position of surface in room:
Marked point: (179.222 m,
165.153 m, 0.760 m)

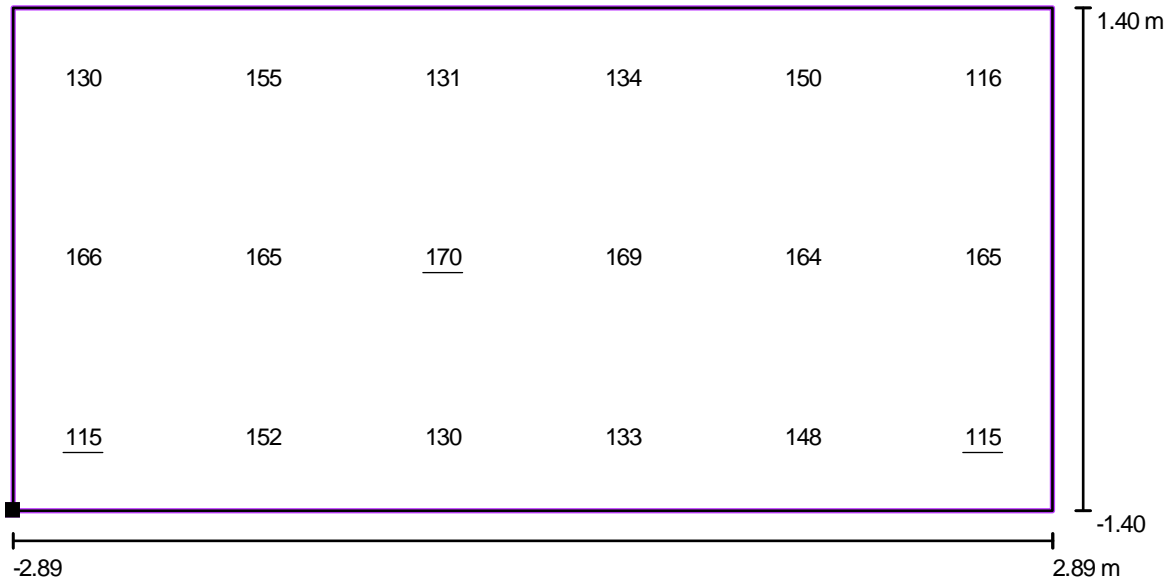


Grid: 3 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
328	315	351	0.96	0.90

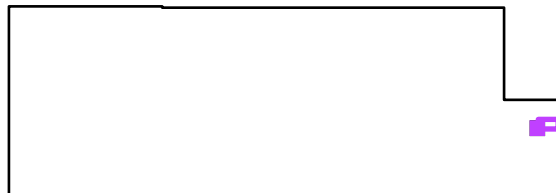
Operator
Telephone
Fax
e-Mail

Airport / Toilet 8 / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 42

Position of surface in room:
Marked point: (177.022 m,
160.988 m, 0.760 m)

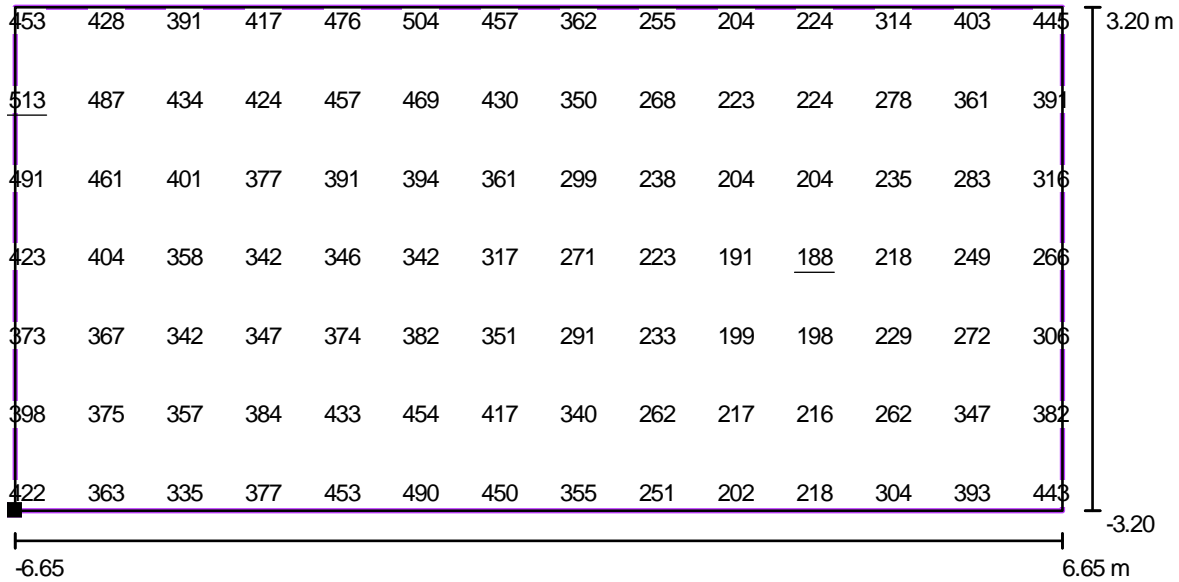


Grid: 6 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
145	115	170	0.79	0.68

Operator
Telephone
Fax
e-Mail

Airport / BHS In-Line Screening / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 96

Position of surface in room:
Marked point: (152.600 m,
170.500 m, 0.760 m)



Grid: 14 x 7 Points

E_{av} [lx]
343

E_{min} [lx]
188

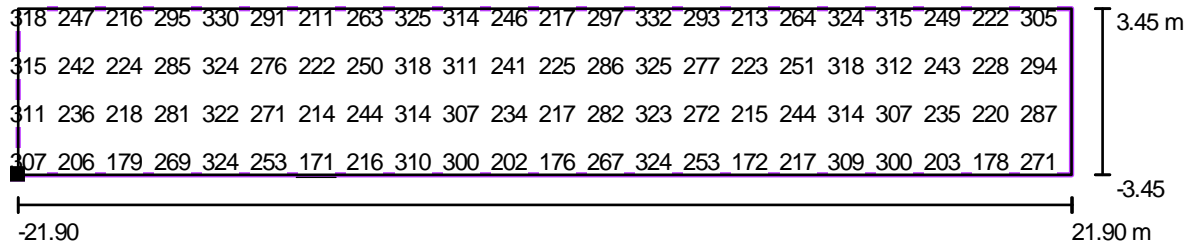
E_{max} [lx]
513

u0
0.55

E_{min} / E_{max}
0.37

Operator
 Telephone
 Fax
 e-Mail

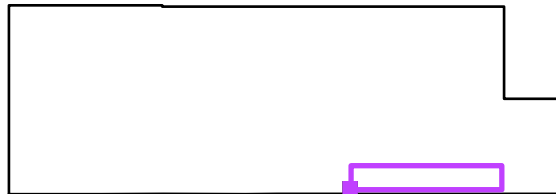
Airport / Deaparture Area / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 314

Not all calculated values could be displayed.

Position of surface in room:
 Marked point: (122.600 m,
 143.200 m, 0.000 m)

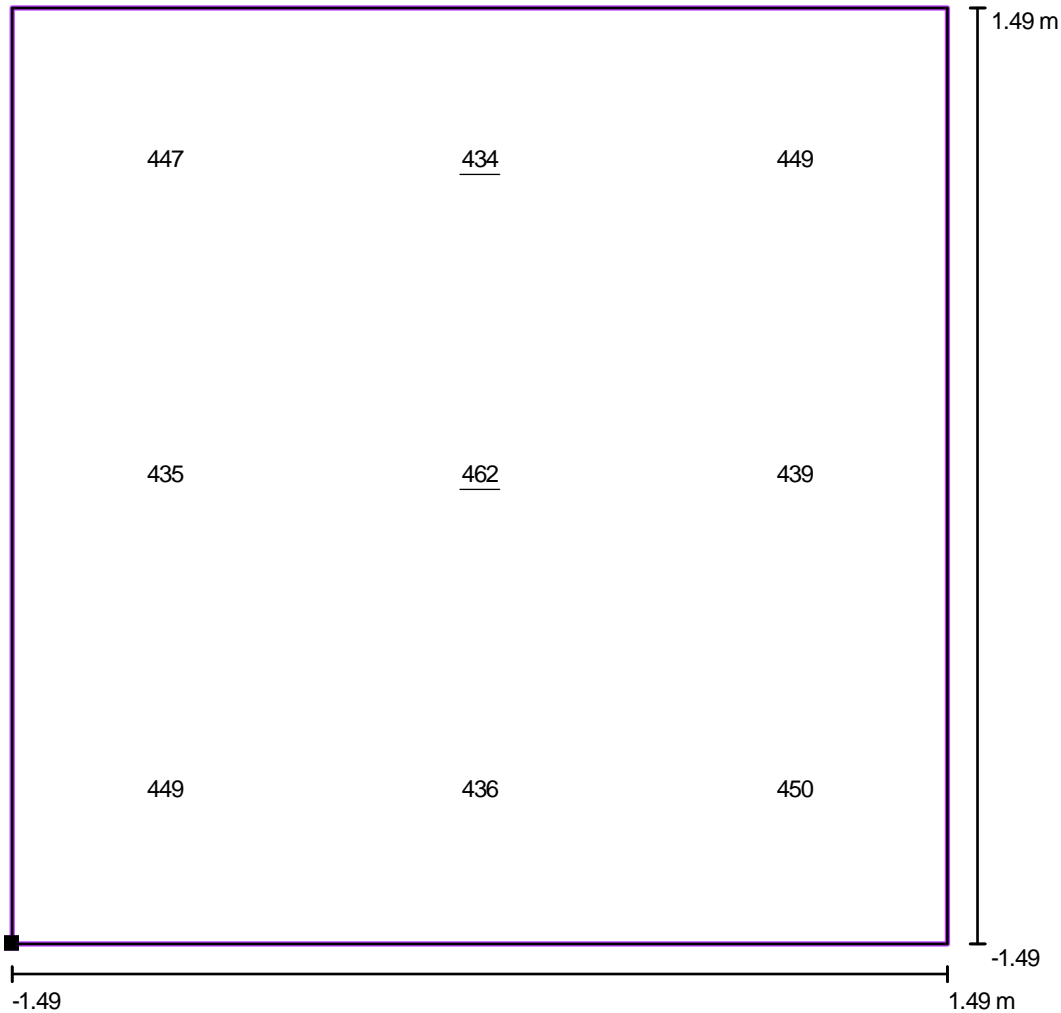


Grid: 44 x 7 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
268	171	345	0.64	0.50

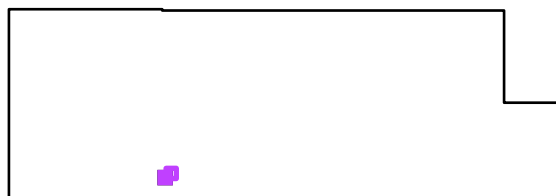
Operator
 Telephone
 Fax
 e-Mail

Airport / Ticketing Office / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 24

Position of surface in room:
 Marked point: (68.746 m, 147.558 m,
 0.760 m)

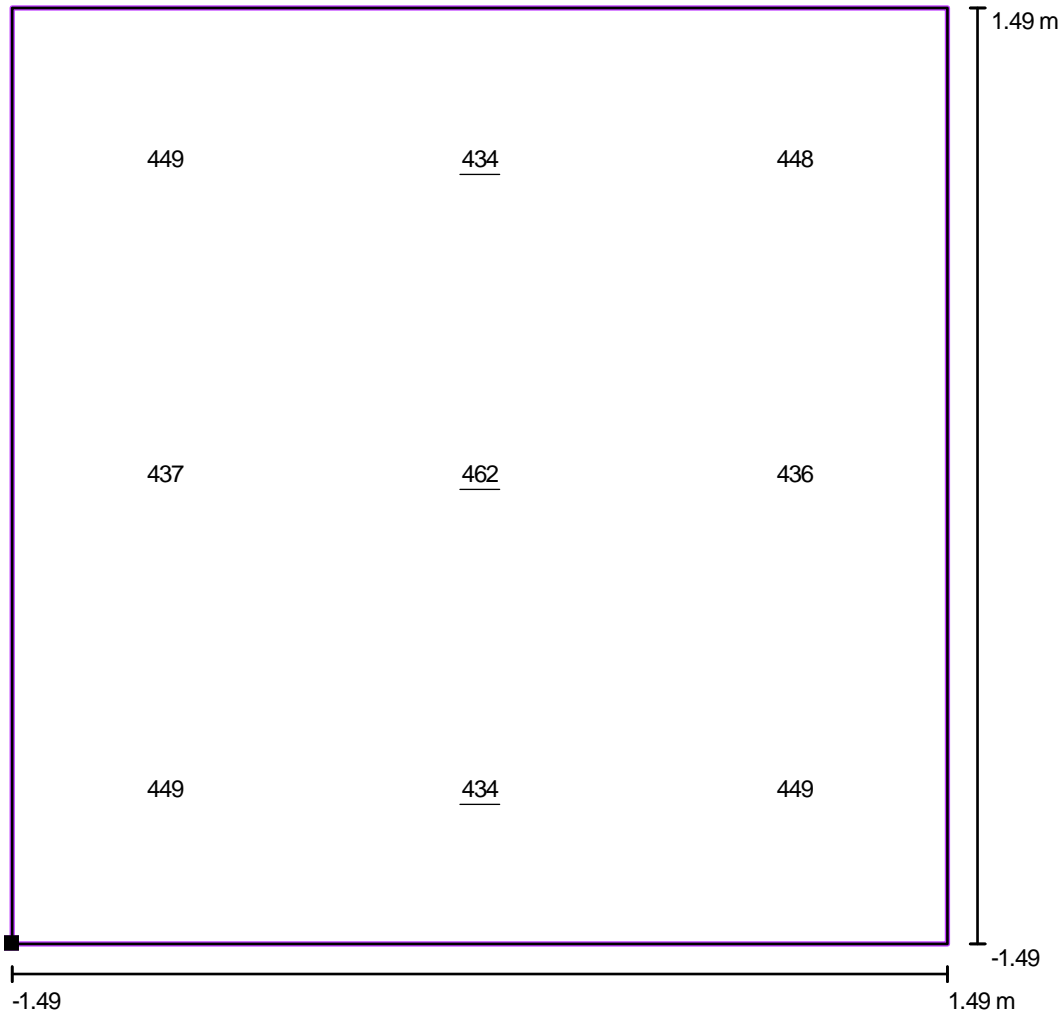


Grid: 3 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
445	434	462	0.98	0.94

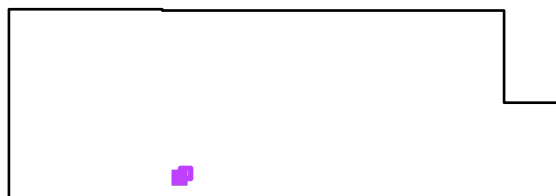
Operator
 Telephone
 Fax
 e-Mail

Airport / Bank / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 24

Position of surface in room:
 Marked point: (72.989 m, 147.558 m,
 0.760 m)

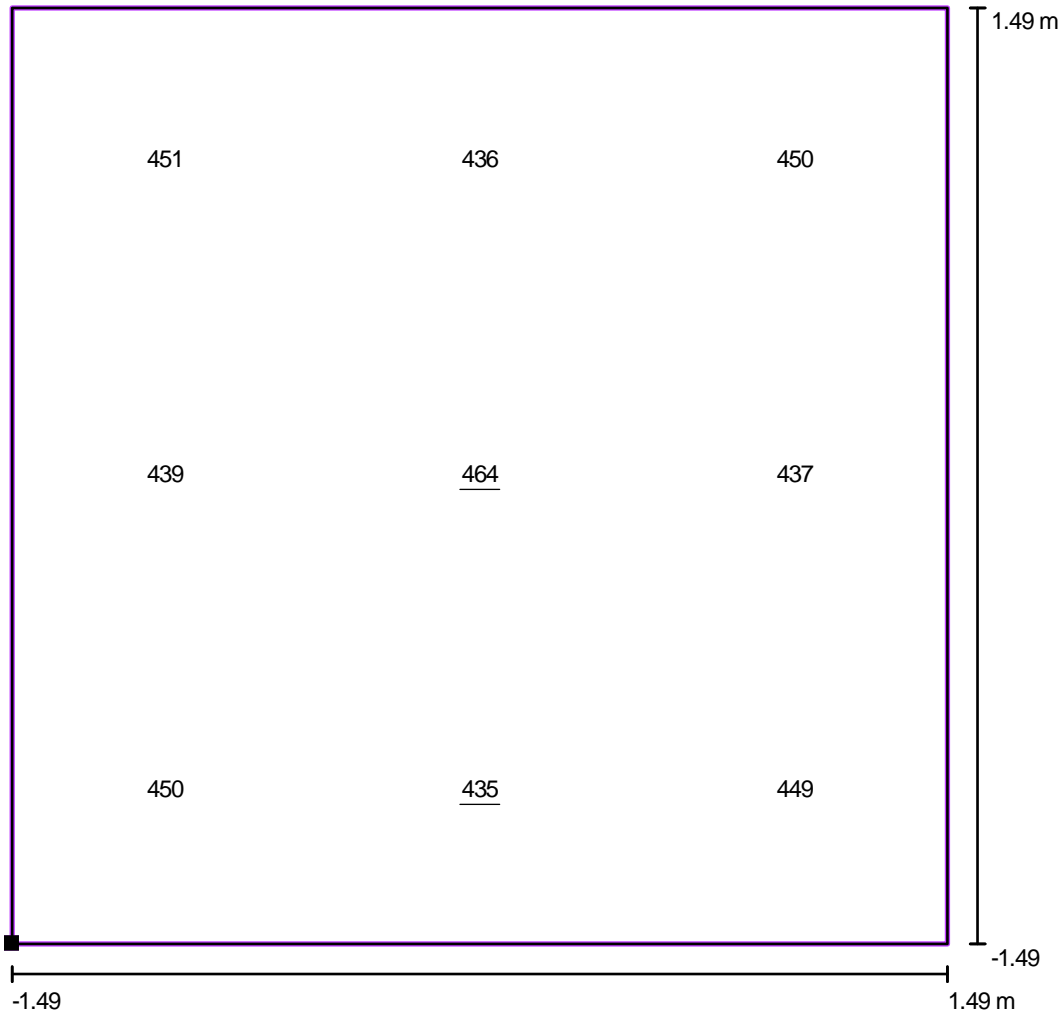


Grid: 3 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
444	434	462	0.98	0.94

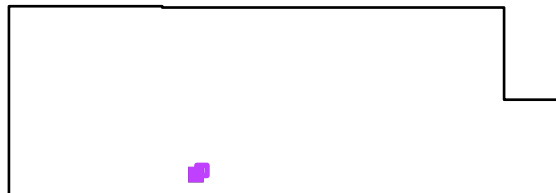
Operator
Telephone
Fax
e-Mail

Airport / Car Rental / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 24

Position of surface in room:
Marked point: (77.754 m, 147.573 m,
0.760 m)

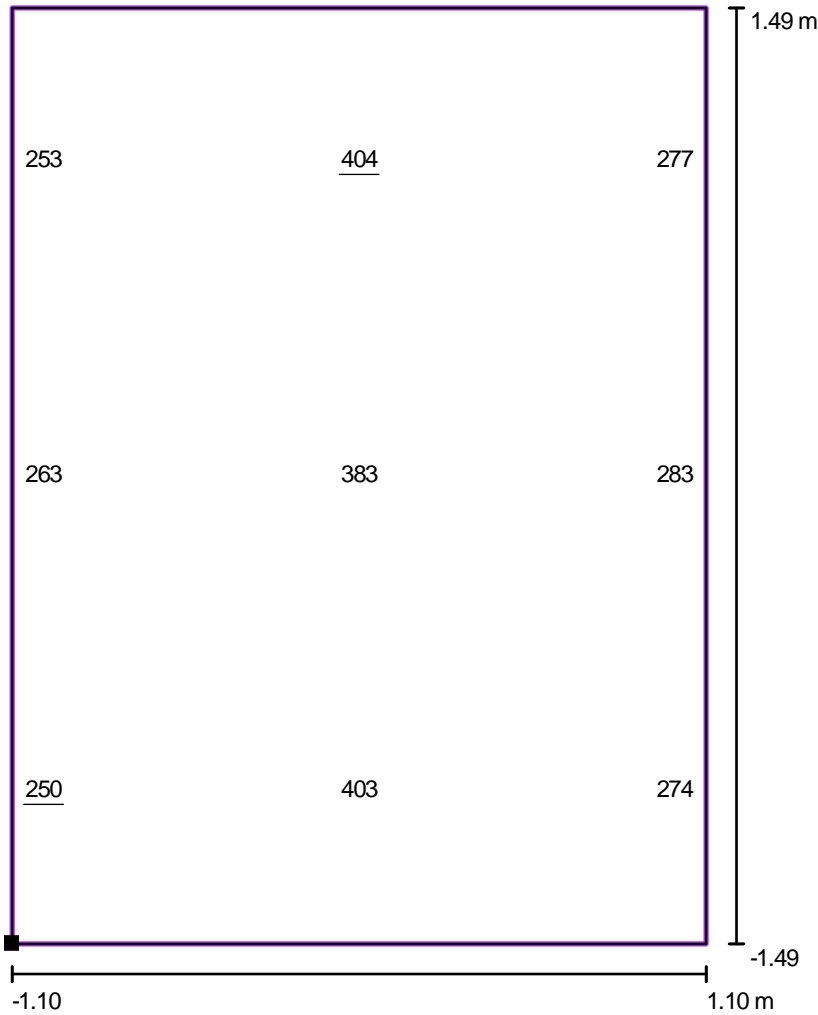


Grid: 3 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
446	435	464	0.98	0.94

Operator
 Telephone
 Fax
 e-Mail

Airport / Nurse / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 24

Position of surface in room:
 Marked point: (46.900 m, 156.498 m,
 0.760 m)

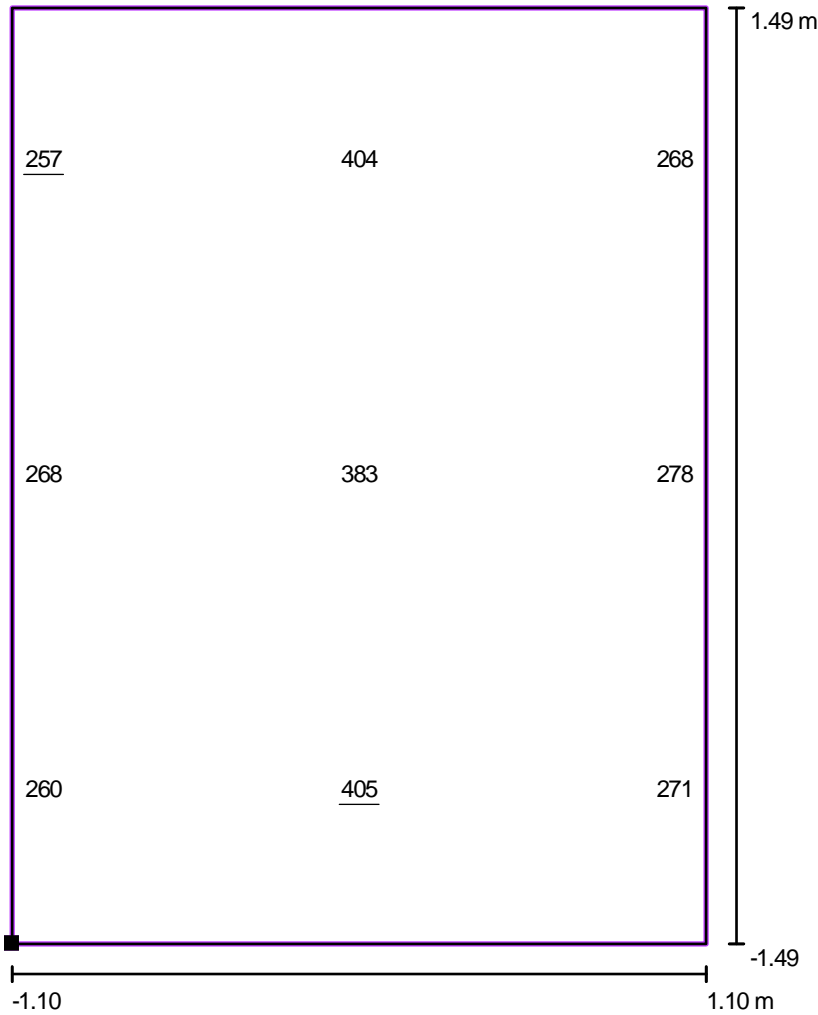


Grid: 3 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
310	250	404	0.81	0.62

Operator
Telephone
Fax
e-Mail

Airport / Doctor / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 24

Position of surface in room:
Marked point: (43.329 m, 156.593 m, 0.760 m)

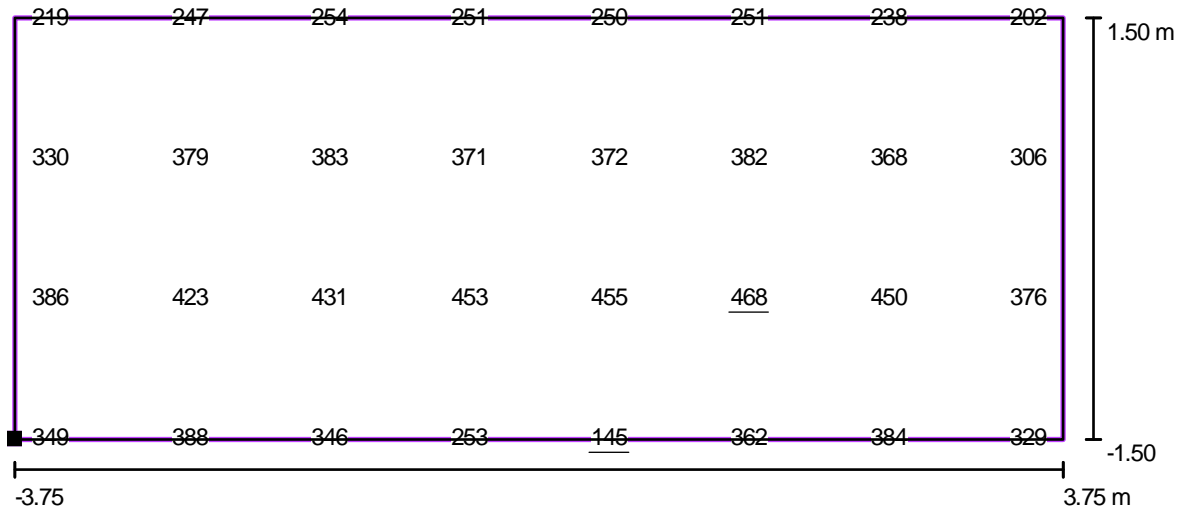


Grid: 3 x 3 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
310	257	405	0.83	0.63

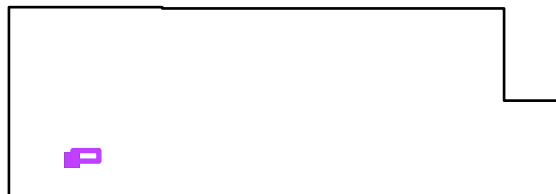
Operator
Telephone
Fax
e-Mail

Airport / Lost & Found Baggage (typ.) / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 54

Position of surface in room:
Marked point: (41.700 m, 152.000 m,
0.760 m)

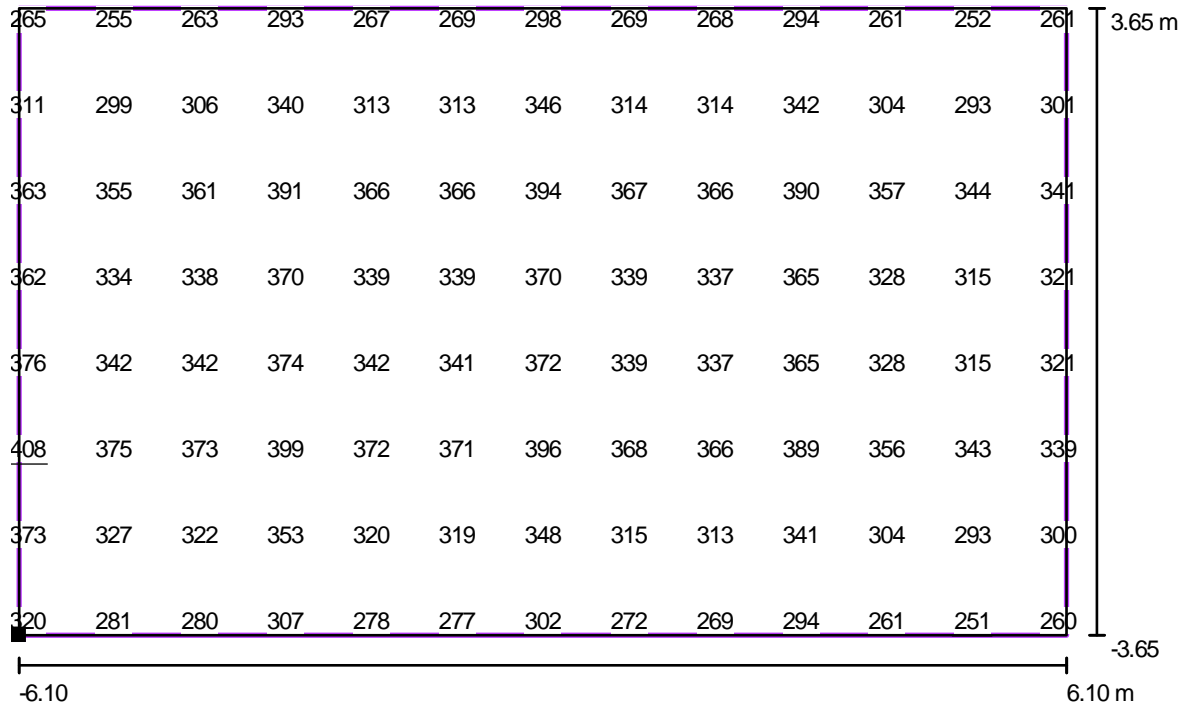


Grid: 8 x 4 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
338	145	468	0.43	0.31

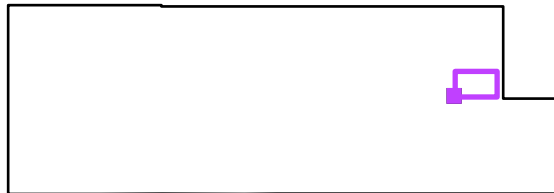
Operator
Telephone
Fax
e-Mail

Airport / BHS In-Line Screening / Value Chart (E, Perpendicular)



Position of surface in room:

Marked point: (153.100 m, 169.900 m, 0.760 m)

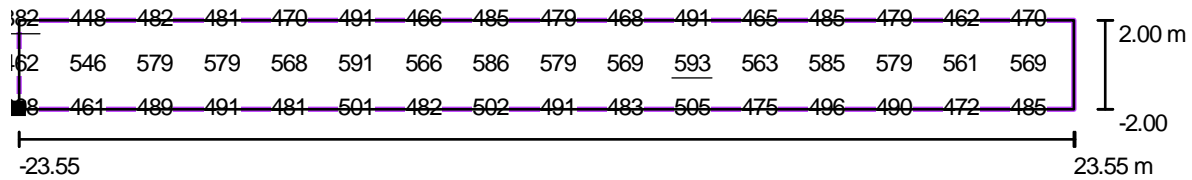


Grid: 13 x 8 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
328	251	408	0.77	0.62

Operator
Telephone
Fax
e-Mail

Airport / Check-in / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 337

Not all calculated values could be displayed.

Position of surface in room:
Marked point: (124.900 m, 162.400 m,
0.760 m)



Grid: 48 x 5 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
515	382	593	0.74	0.64

Panglao International Airport

2) Lighting Illumination (Exterior Area)

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 03.06.2013
Operator:

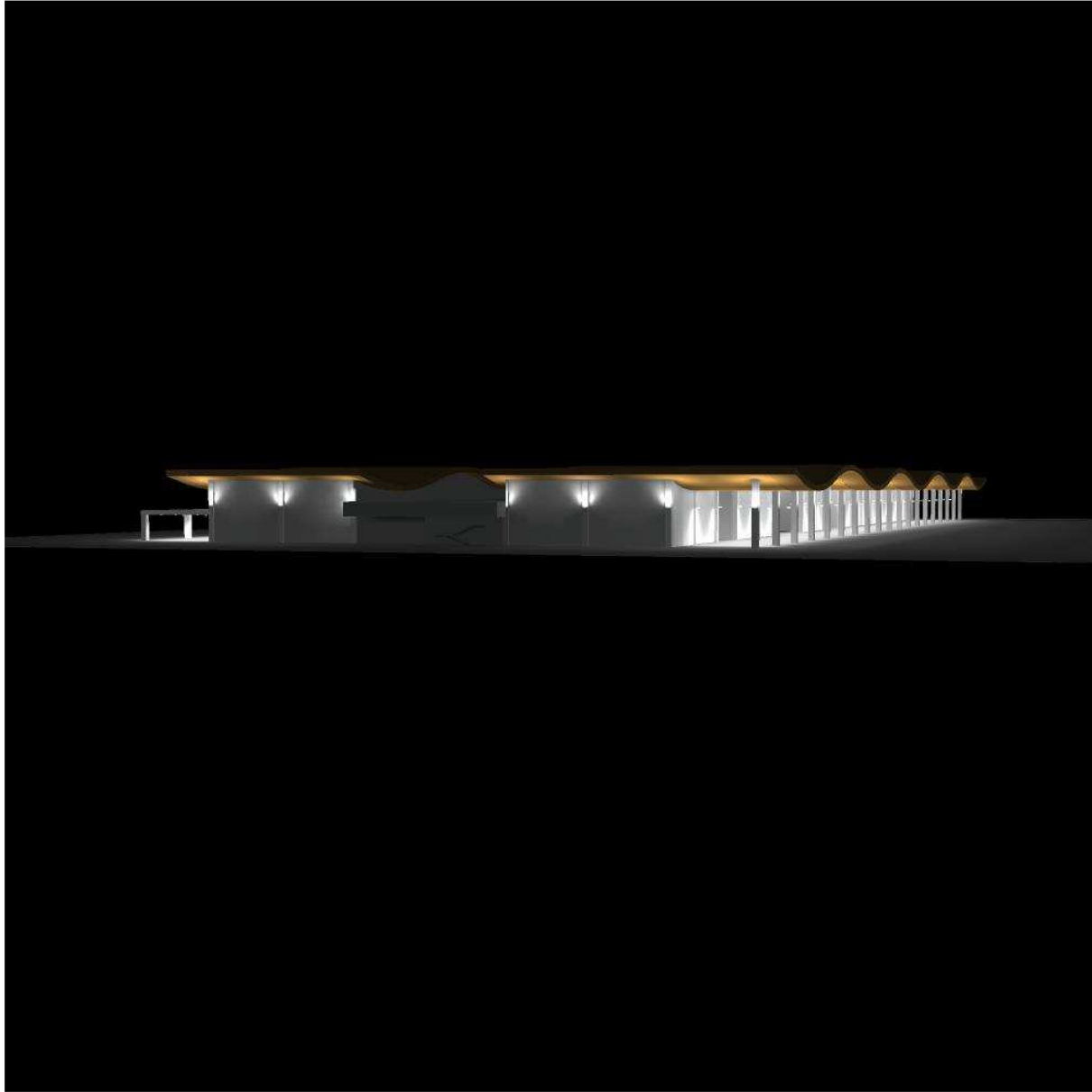
Operator
Telephone
Fax
e-Mail

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Baggage Make-up Area	
Value Chart (E, Perpendicular)	7
Departure Area	
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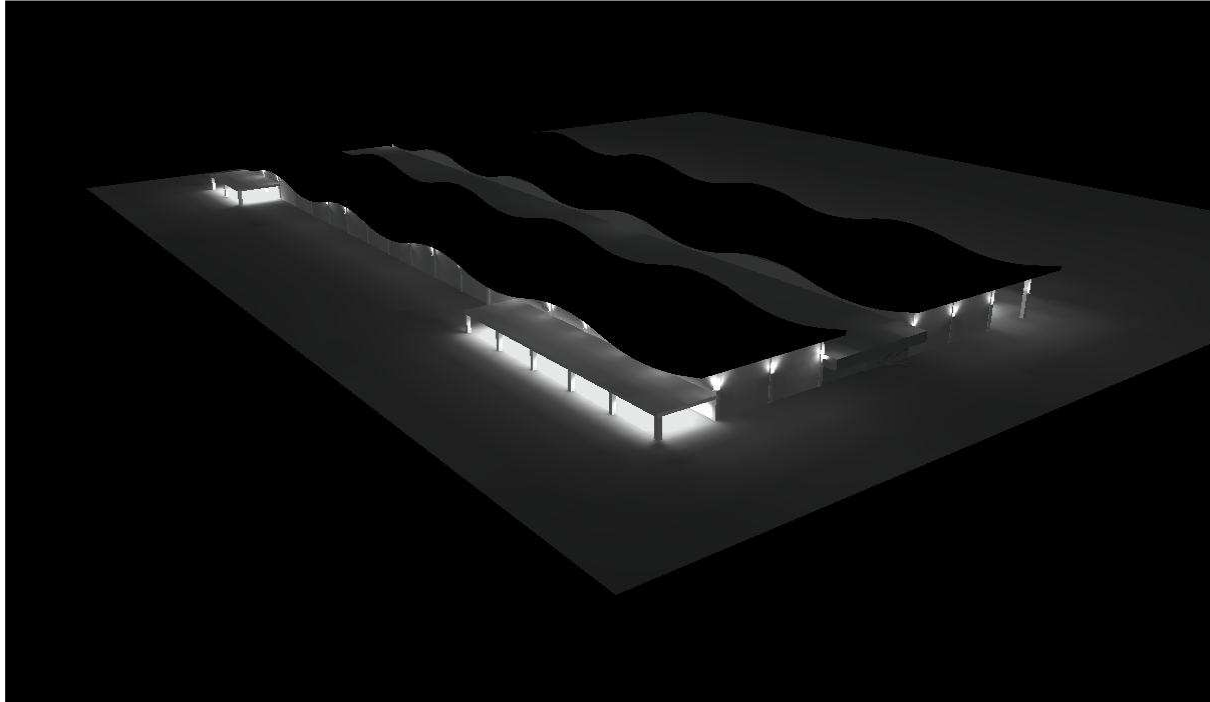
Operator
Telephone
Fax
e-Mail

Airport Exterior Area / 3D Rendering



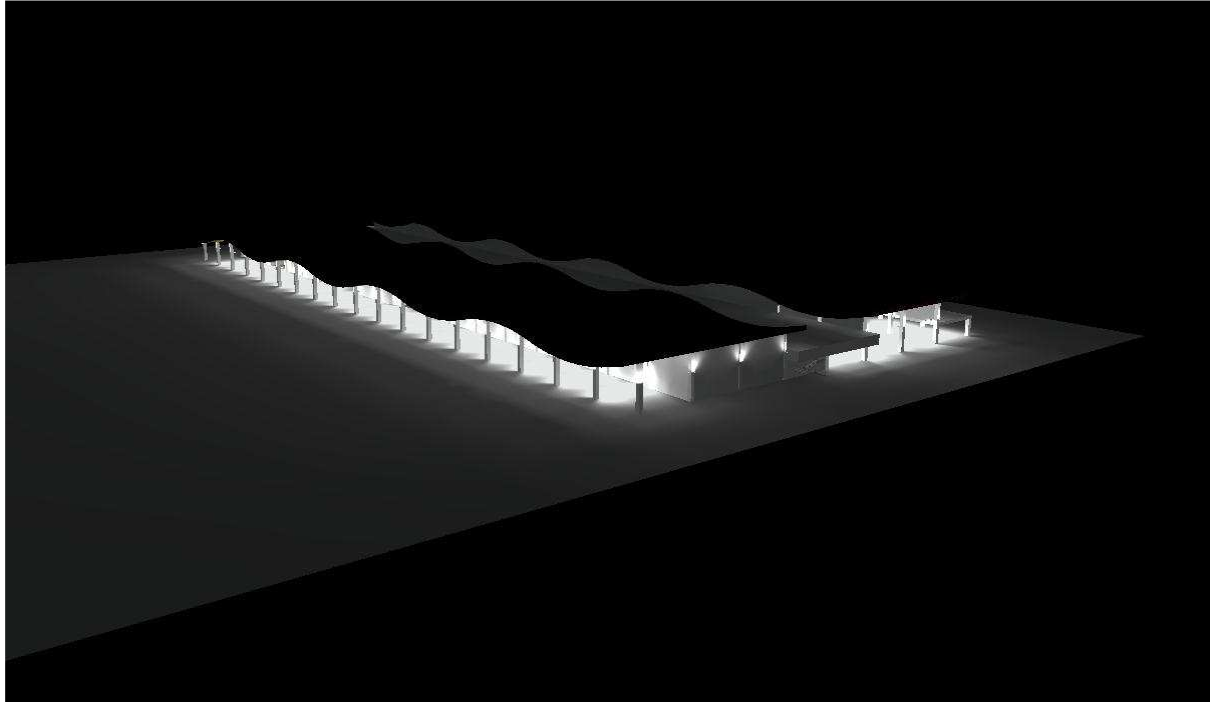
Operator
Telephone
Fax
e-Mail

Airport Exterior Area / Raytrace preview 1



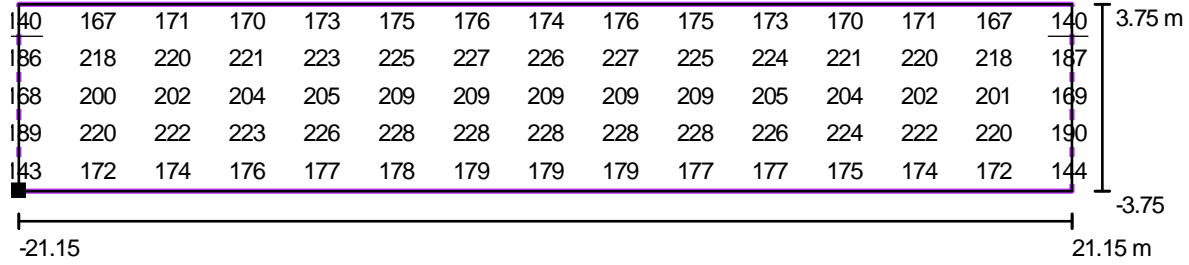
Operator
Telephone
Fax
e-Mail

Airport Exterior Area / Raytrace preview 2



Operator
Telephone
Fax
e-Mail

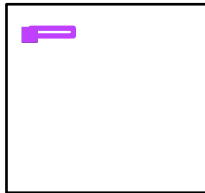
Airport Exterior Area / Baggage Breakdown Area / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 303

Not all calculated values could be displayed.

Position of surface in external scene:
Marked point: (24.200 m, 197.206 m,
0.000 m)

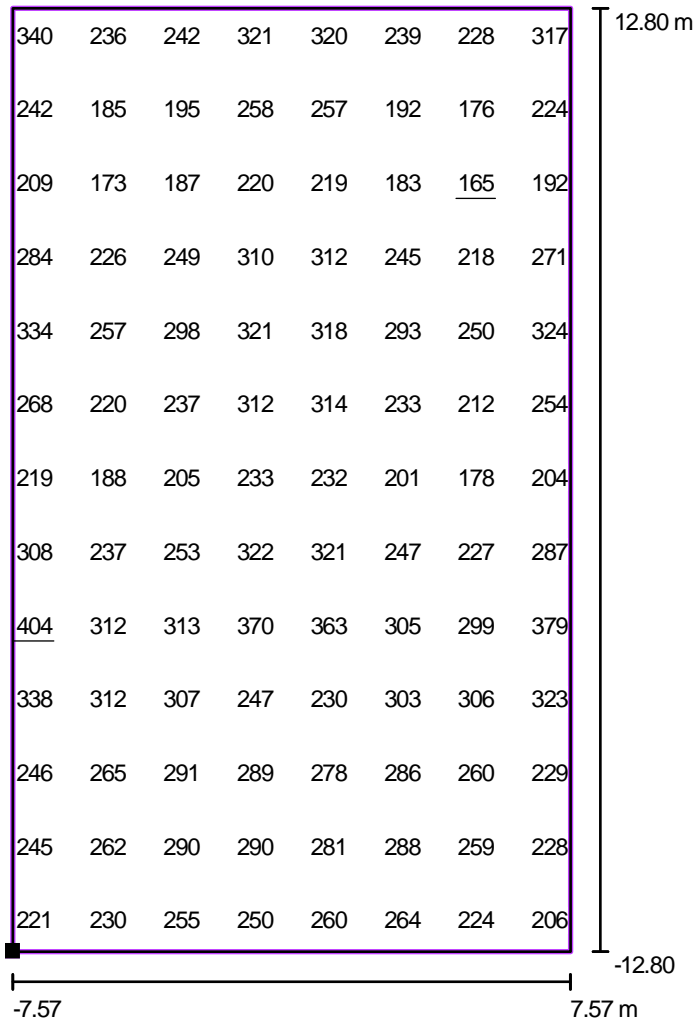


Grid: 29 x 5 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
205	140	235	0.68	0.59

Operator
Telephone
Fax
e-Mail

Airport Exterior Area / Baggage Make-up Area / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 205

Position of surface in external scene:
Marked point: (168.287 m, 170.101 m, 0.000 m)



Grid: 8 x 13 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	$u0$	E_{min} / E_{max}
262	165	404	0.63	0.41

Operator
Telephone
Fax
e-Mail

Airport Exterior Area / Departure Area / Value Chart (E, Perpendicular)

56	309	174	272	225	220	280	172	313	155	308	174	272	223
50	246	162	220	190	187	224	160	248	149	245	161	220	189
47	240	159	216	187	184	219	157	242	147	240	159	215	185
51	304	170	267	219	213	274	167	310	151	304	169	267	217

3.60 m

-3.60

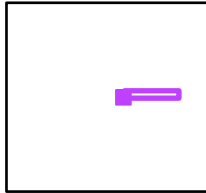
-27.00

27.00 m

Values in Lux, Scale 1 : 387

Not all calculated values could be displayed.

Position of surface in external scene:
Marked point: (117.300 m, 134.100 m,
0.000 m)



Grid: 28 x 4 Points

E_{av} [lx]
212

E_{min} [lx]
145

E_{max} [lx]
315

$u0$
0.68

E_{min} / E_{max}
0.46

3. NAVAIDS Calculation

(1) AGL DESIGN ANALYSIS

(2) ANS DESIGN ANALYSIS

(1) AGL DESIGN ANALYSIS

1) LOAD CALCULATION

- List
- PALS1
- PALS2
- SALS
- PAPI21
- PAPI.3
- REDL1
- REDL2
- TEDL & TXGS

List of Load Schedule 1

Description	Circuit	Abbreviation	Type	Power Consumption [W]	Quantity	Sub-Total [W]	Total [W]	Total [kW]	Remarks
Aerodrome Beacon	ABN			2,010.00	1	2,010.00	2,010.00	2.01	
PALS	PALS1	PALS1(Elevated)	JF6.6A200WV3	210.00	81	17,010.00	17,010.00	17.01	CCR 30KVA
	PALS2	PALS2(Elevated)	JF6.6A200WV3	210.00	80	16,800.00	18,243.80	18.24	CCR 30KVA
		PALS2(Inset)	JF6.6A275WSF		288.75	5	1,443.80		
SALS	SALS	SALS(Elevated)	JF6.6A200WV3	210.00	51	10,710.00	10,710.00	10.71	CCR 15KVA
PAPI21	PAPI21	PAPI21	JFR6.6A200W/P×3	600.00	4	2,400.00	2,400.00	2.40	CCR 5KVA
PAPI03	PAPI03	PAPI03	JFR6.6A200W/P×3	600.00	4	2,400.00	2,400.00	2.40	CCR 5KVA
Runway Edge Light RTHL WBAR TPEL	REDL-1	Elevated	JF6.6A150WV3	157.50	30	4,725.00	11,970.00	11.97	CCR 20KVA
		Inset	JF6.6A105WSF×2	210.00	4	840.00			
		RTHL	JF6.6A200WV3	210.00	17	3,570.00			
		RENL	JF6.6A100WV3	105.00	6	630.00			
		STWL	JF6.6A100WV3	105.00	4	420.00			
		WBAR	JF6.6A200WV3	210.00	5	1,050.00			
		TPEL	JF6.6A100WV3	105.00	7	735.00			
	REDL-2	Elevated	JF6.6A150WV3	157.50	30	4,725.00	11,550.00	11.55	CCR 20KVA
		Inset	JF6.6A105WSF×2	210.00	2	420.00			
		RTHL	JF6.6A200WV3	210.00	17	3,570.00			
		RENL	JF6.6A100WV3	105.00	6	630.00			
		STWL	JF6.6A100WV3	105.00	6	630.00			
		WBAR	JF6.6A200WV3	210.00	5	1,050.00			
		TPEL	JF6.6A100WV3	105.00	5	525.00			
Taxiway Edge Light Taxiway Guidance Signs	TEDL	ELO-38D	7.5W LED	7.50	79	592.50	1,252.50	1.25	CCR 10KVA
	TXGS	7 Inscription	84W LED	84.00	4	336.00			
		3 Inscription	54W LED	54.00	6	324.00			
Wind Direction Indicator Light	WDIL21	WDIL LED Type	60W×4	60.00	4	240.00	250.00	0.25	
		OB LED Type	10W	10.00	1	10.00			
	WDIL03	WDIL LED Type	60W×4	60.00	4	240.00	250.00	0.25	
		OB LED Type	10W	10.00	1	10.00			
AGL Interface Panel				360.00	1	360.00	360.00	0.36	
Apron Floodlighting	Pole No.1	AFL	M1000×4+NH660×2	5,320.00	1	5,320.00	5,320.00	5.32	
	Pole No.2	AFL	M1000×3+NH660×1	3,660.00	1	3,660.00	3,660.00	3.66	
	Pole No.3	AFL	M1000×3+NH660×1	3,660.00	1	3,660.00	3,660.00	3.66	
	Pole No.4	AFL	M1000×3+NH660×1	3,660.00	1	3,660.00	3,660.00	3.66	
	Pole No.5	AFL	M1000×3+NH660×3	4,980.00	1	4,980.00	4,980.00	4.98	
	Portable Winch				750.00	5	3,750.00	3,750.00	3.75

<u>CCR Load Calculation for PALS1 Circuit No.1</u>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
ALS	EHU-31	JF6.6A200WV3	210.00	81	17,010.00
Sub-Toatal of item No.1					17,010.00 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-200	200		16.00	81	1,296.00
Sub-Toatal of item No.1					1,296.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω /km]		Max. Amp [A]	Length[km]	Total Load[W]
5kV XLPE1C-8sq	2.31		6.6	5.800	583.62
2PNCT 2C-4sq	5.10		6.6	0.379	84.11
Sub-Toatal of item No.3					667.73 ③
Toatal of item ①+②+③					18,973.73 ④
Power factor of the Circuit is 100%, Total of the Load④ \div 1.0					
18,973.73 \div 1.0=		18,973.73 [VA]			⑤
Capacity of the CCR		20 [kVA]			
Input Capacity of CCR [VA]=Total Load ⑤/Demand factor of CCR					
18,973.73 \div 0.83=		22,859.92 [VA]			0.83 ⑥
Input Capacity of CCR		22.86 [kVA]			

<u>CCR Load Calculation for PALS1 Circuit No.2</u>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
ALS	EHU-31	JF6.6A200WV3	210.00	80	16,800.00
	FHU-31	JF6.6A275WSF3	288.75	5	1,443.75
Sub-Toatal of item No.1					18,243.75 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-200	200		16.00	80	1,280.00
LT-300	300		18.00	5	90.00
Sub-Toatal of item No.1					1,370.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω/km]	Max. Amp [A]	Length[km]	Total Load[W]	
5kXLPE1C-8sq	2.31	6.6	6.188	622.66	
2PNCT 2C-4sq	5.10	6.6	0.395	87.75	
Sub-Toatal of item No.3					710.41 ③
Toatal of item ①+②+③					20,324.16 ④
Power factor of the Circuit is 100%, Total of the Load④÷1.0					
20,324.16÷1.0=		20,324.16 [VA]			⑤
Capacity of the CCR		30 [kVA]			
Input Capacity of CCR [VA]=Total Load ⑤/Demand factor of CCR					
20,324.16÷0.83=		24,486.94 [VA]			0.83 ⑥
Input Capacity of CCR		24.49 [kVA]			

<u>CCR Load Calculation for SALS Circuit</u>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
ALS	EHU-31	JF6.6A200WV3	210.00	51	10,710.00
Sub-Toatal of item No.1					10,710.00 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-200	200		16.00	51	816.00
Sub-Toatal of item No.2					816.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω/km]	Max. Amp [A]	Length[km]	Total Load[W]	
5kV XLPE1C-8sq	2.31	6.6	3.060	307.91	
2PNCT 2C-4sq	5.10	6.6	0.235	52.12	
Sub-Toatal of item No.3					360.03 ③
Toatal of item ①+②+③					11,886.03 ④
Power factor of the Circuit is 100%, Total of the Load④÷1.0					
11,886.03÷1.0=		11,886.03 [VA]		⑤	
Capacity of the CCR		15 [kVA]			
Input Capacity of CCR [VA]=Total Load ⑤/Demand factor of CCR					0.83 ⑥
11,886.03÷0.83=		14,320.52 [VA]			
Input Capacity of CCR		14.32 [kVA]			

<u>CCR Load Calculation for PAPI21 Circuit</u>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
PAPI	P	JFR6.6A200W/P×3	600.00	4	2,400.00
Sub-Toatal of item No.1					2,400.00 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-200	200		16.00	12	192.00
Sub-Toatal of item No.2					192.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω/km]	Max. Amp [A]	Length[km]	Total Load[W]	
5kV XLPE1C-8sq	2.31	6.6	1.945	195.69	
2PNCT 2C-4sq	5.10	6.6	0.048	10.66	
Sub-Toatal of item No.3					206.35 ③
Toatal of item ①+②+③					2,798.35 ④
Power factor of the Circuit is 100%, Total of the Load④÷1.0					
2,798.35÷1.0=		2,798.35 [VA]		⑤	
Capacity of the CCR		3.5 [kVA]			
Input Capacity of CCR [VA]=Total Load ⑤/Demand factor of CCR					0.83 ⑥
2,798.35÷0.83=		3,371.51 [VA]			
Input Capacity of CCR		3.37 [kVA]			

<u>CCR Load Calculation for PAPI03 Circuit</u>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
PAPI	P	JFR6.6A200W/P×3	600.00	4	2,400.00
Sub-Toatal of item No.1					2,400.00 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-200	200		16.00	12	192.00
Sub-Toatal of item No.2					192.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω /km]		Max. Amp [A]	Length[km]	Total Load[W]
5kV XLPE1C-8sq	2.31		6.6	2.917	293.54
2PNCT 2C-4sq	5.10		6.6	0.048	10.66
Sub-Toatal of item No.3					304.20 ③
Toatal of item ①+②+③					2,896.20 ④
Power factor of the Circuit is 100%, Total of the Load④÷1.0					
2,896.20÷1.0=		2,896.20 [VA]		⑤	
Capacity of the CCR		3.5 [kVA]			
Input Capacity of CCR [VA]=Total Load ⑤/Demand factor of CCR					0.83 ⑥
2,896.20÷0.83=		3,489.40 [VA]			
Input Capacity of CCR		3.49 [kVA]			

<i>CCR Load Calculation for REDL, RTHL, REL, WB, TPEL, STWL Circuit No.1</i>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
REDL-1	Elevated	JF6.6A150WV3	157.50	30	4,725.00
	Inset	JF6.6A105WSF×2	210.00	4	840.00
	RTHL	JF6.6A200WV3	210.00	17	3,570.00
	RENL	JF6.6A100WV3	105.00	6	630.00
	STWL	JF6.6A100WV3	105.00	4	420.00
	WBAR	JF6.6A200WV3	210.00	5	1,050.00
	TPEL	JF6.6A100WV3	105.00	7	735.00
Sub-Toatal of item No.1					11,970.00 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-100	100		12.00	17	204.00
LT-200	200		16.00	56	896.00
Sub-Toatal of item No.2					1,100.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω/km]	Max. Amp [A]	Length[km]	Total Load[W]	
5kV XLPE1C-8sq	2.31	6.6	4.900	493.06	
2PNCT 2C-4sq	5.10	6.6	0.147	32.72	
Sub-Toatal of item No.3					525.78 ③
Toatal of item ①+②+③					13,595.78 ④
Power factor of the Circuit is 100%, Total of the Load④÷1.0					
13,595.78÷1.0=		13,595.78 [VA]		⑤	
Capacity of the CCR		15 [kVA]			
Input Capacity of CCR [VA]=Total Load ⑤/Demand factor of CCR					0.83 ⑥
13,595.78÷0.83=		16,380.46 [VA]			
Input Capacity of CCR		16.38 [kVA]			

<i>CCR Load Calculation for REDL, RTHL, REL, WB, TPEL, STWL Circuit No.2</i>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
REDL	Elevated	JF6.6A150WV3	157.50	30	4,725.00
	Inset	JF6.6A105WSF×2	210.00	2	420.00
RTHL	RTHL	JF6.6A200WV3	210.00	17	3,570.00
	RENL	JF6.6A100WV3	105.00	6	630.00
WBAR	STWL	JF6.6A100WV3	105.00	6	630.00
ORL	WBAR	JF6.6A200WV3	210.00	5	1,050.00
	TPEL	JF6.6A100WV3	105.00	5	525.00
Sub-Toatal of item No.1					11,550.00 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-100	100		12.00	17	204.00
LT-200	200		16.00	54	864.00
Sub-Toatal of item No.2					1,068.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω/km]	Max. Amp [A]	Length[km]	Total Load[W]	
5kV XLPE1C-8sq	2.31	6.6	4.847	487.72	
2PNCT 2C-4sq	5.10	6.6	0.146	32.46	
Sub-Toatal of item No.3					520.18 ③
Toatal of item ①+②+③					13,138.18 ④
Power factor of the Circuit is 100%, Total of the Load④÷1.0					
13,138.18÷1.0=		13,138.18 [VA]		⑤	
Capacity of the CCR		15 [kVA]			
Input Capacity of CCR [VA]=Total Load ⑤/Demand factor of CCR					0.83 ⑥
13,138.18÷0.83=		15,829.13 [VA]			
Input Capacity of CCR		15.83 [kVA]			

<u>CCR Load Calculation for TEDL & TXGS Circuit</u>					
1. Power Consumption for Light					
Name	Type	Light Bulb	Load[W]	QTY	Total Load[W]
TEDL	ELO-38D	LED	7.50	79	592.50
TXGS	7 Inscription	84W LED	84.00	4	336.00
	3 Inscription	54W LED	54.00	6	324.00
Sub-Toatal of item No.1					1,252.50 ①
2. Power Consumption for Insulated Transformer					
Category	Capacity[W]	Input power[W]	Load[W]	QTY	Total Load[W]
LT-15	15		10.00	79	790.00
LT-65	65		10.00	6	60.00
LT-100	100		12.00	4	48.00
Sub-Toatal of item No.2					898.00 ②
3. Power Consumption for Cable					
Category	Conductor Resistance [Ω /km]		Max. Amp [A]	Length[km]	Total Load[W]
5kV XLPE1C-8sq	2.31		6.6	4.000	402.49
2PNCT 2C-4sq	5.10		6.6	0.546	121.39
Sub-Toatal of item No.3					523.88 ③
Toatal of item ① + ② + ③					2,674.38 ④
Power factor of the Circuit is 100%, Total of the Load④ \div 1.0					
2,674.38 \div 1.0=		2,674.38 [VA]		⑤	
Capacity of the CCR		3.5 [kVA]			
Input Capacity of CCR [VA]= Total Load ⑤/Demand factor of CCR					0.83 ⑥
2,674.38 \div 0.83=		3,222.14 [VA]			
Input Capacity of CCR		3.22 [kVA]			

2) LOCATION OF PAPI

1. Location of PAPI R/W03side

1.1 Reference:

3.1.1 Pass angle	:	3	degree
3.1.2 ILS(Glide slope)	:	None	degree
3.1.3 Minimum wheel height over threshold (METH)	:	9	m
3.1.4 Threshold centerline elevation	:	7.5	m
3.1.5 Eye to wheel height(EWH)	:	6.84	m
3.1.6 Lamp beam center above the mounting plinth	:	0.4	m

* Value for EWH is based on A320

1.2 PAPI plinth design location based on a flat field & PAPI lamp beam center

$$\begin{aligned}
 D1 &= (\text{METH} + \text{EWH} - 0.4) / \tan(\theta - 00^\circ 12') \\
 &= (\text{METH} + \text{EWH} - 0.4) / \tan(3^\circ - 00^\circ 12') \\
 &= (9 + 6.84 - 0.4) / \tan 2.8 \\
 &= 315.6937 \text{ m} \\
 &= \text{Aproxi } 316\text{m}
 \end{aligned}$$

1.3 Correction for nominal PAPI location based on ground height variation

3.3.1 Distance from threshold to PAPI 03 side (Unit D)	:	316	m
3.3.2 Ground level for PAPI 03 side	:	7.298	m

Theoretical plinth design level

$$\begin{aligned}
 &= \text{Design height} - (316 * \tan 2.8) + 7.5\text{m} \\
 &= 15.44 - (316 * \tan 2.8) + 7.5\text{m} \\
 &= 15.44 - (316 * 0.049) + 7.5\text{m} \\
 &= 7.456 \text{ m}
 \end{aligned}$$

Difference

$$\begin{aligned}
 &= 7.456 \text{ m} - 7.298 \text{ m} \\
 &= 0.158 \text{ m}
 \end{aligned}$$

Therefore, move PAPI towards threshold

$$\begin{aligned}
 &= -0.158\text{m} * \text{Cotangent } 2.8 \\
 &= -3.231 \text{ m}
 \end{aligned}$$

Recommended PAPI location

$$\begin{aligned}
 &= 315.694 \text{ m} - 3.231 \text{ m} \\
 &= 318.925 \text{ m}
 \end{aligned}$$

1.4 Recheck ground level for the recommended PAPI location

3.4.1. Distance from threshold to PAPI 03 side (Unit D)	:	318.925	m
3.4.2. Ground level for PAPI 03 side	:	7.301	m

1.5 Theoretical plinth design level

$$\begin{aligned}
 &= \text{Design height} - (319 * \tan 2.8) + 7.5\text{m} \\
 &= 15.44 - (319 * \tan 2.8) + 7.5\text{m} \\
 &= 15.44 - (319 * 0.049) + 7.5\text{m} \\
 &= 7.309 \text{ m} \doteq 7.301 \text{ m}
 \end{aligned}$$

Therefore. Plinth design level (PAPI unit D) is 8mm above the ground level @319m from threshold 03

2. Location of PAPI R/W21side

2.1 Reference:

4.1.1 Pass angle	:	3	degree
4.1.2 ILS(Glide slope)	:	3	degree
4.1.3 Minimum wheel height over threshold (METH)	:	9	m
4.1.4 Threshold centerline elevation	:	9.5	m
4.1.5 Eye to wheel height(EWH)	:	6.84	m
4.1.6 Lamp beam center above the mounting plinth	:	0.4	m

* Value for EWH is based on A320

2.2 PAPI plinth design location based on a flat field & PAPI lamp beam center

$$\begin{aligned}
 D1 &= (\text{METH} + \text{EWH} - 0.4) / \tan(\theta - 00^\circ 17') \\
 &= (\text{METH} + \text{EWH} - 0.4) / \tan(3^\circ - 00^\circ 17') \\
 &= (9 + 6.84 - 0.4) / \tan 2.717 \\
 &= 325.4728 \text{ m} \\
 &= \text{Aproxi } 326\text{m}
 \end{aligned}$$

2.3 Correction for nominal PAPI location based on ground height variation

4.3.1. Distance from threshold to PAPI 21 side (Unit D)	:	326	m
4.3.2. Ground level for PAPI 21 side	:	8.582	m

Theoretical plinth design level

$$\begin{aligned}
 &= \text{Design height} - (326 * \tan 2.717) + 9.5\text{m} \\
 &= 15.44 - (326 * \tan 2.717) + 9.5\text{m} \\
 &= 15.44 - (326 * 0.0475) + 9.5\text{m} \\
 &= 9.455 \text{ m}
 \end{aligned}$$

Difference

$$\begin{aligned}
 &= 9.455 \text{ m} - 8.582 \text{ m} \\
 &= 0.873 \text{ m}
 \end{aligned}$$

Therefore, move PAPI away threshold

$$\begin{aligned}
 &= 0.873\text{m} * \text{Cotangent } 2.717 \\
 &= 18.396 \text{ m}
 \end{aligned}$$

Recommended PAPI location

$$\begin{aligned}
 &= 325.473 \text{ m} + 18.396 \text{ m} \\
 &= 343.869 \text{ m}
 \end{aligned}$$

2.4 Recheck ground level for the recommended PAPI location

4.4.1. Distance from threshold to PAPI 21 side (Unit D)	:	344	m
4.4.2. Ground level for PAPI 21 side	:	8.564	m

2.5 Theoretical plinth design level

$$\begin{aligned}
 &= \text{Design height} - (344 * \tan 2.717) + 9.5\text{m} \\
 &= 15.44 - (344 * \tan 2.717) + 9.5\text{m} \\
 &= 15.44 - (344 * 0.0475) + 9.5\text{m} \\
 &= 8.6 \text{ m} \doteq 8.564 \text{ m}
 \end{aligned}$$

Therefore. Plinth design level (PAPI unit D) is 36mm above the ground level @344m from threshold 21

(2) ANS DESIGN ANALYSIS

1) LOCATION OF LLZ

1. Verification of located LLZ antenna for PANGLAO

1 . 1 Difinition

Thereshhold crossing hight on the 21 side must be seen by LLZ antenna.

1 . 2 Condition of location

- 1. Approach surface on the 03 side : 1/50 0.02 %
- 2. TCH on the 21 side : 15~18 m
- 3. Planing elevation of LLZ antenna : 4.82 m

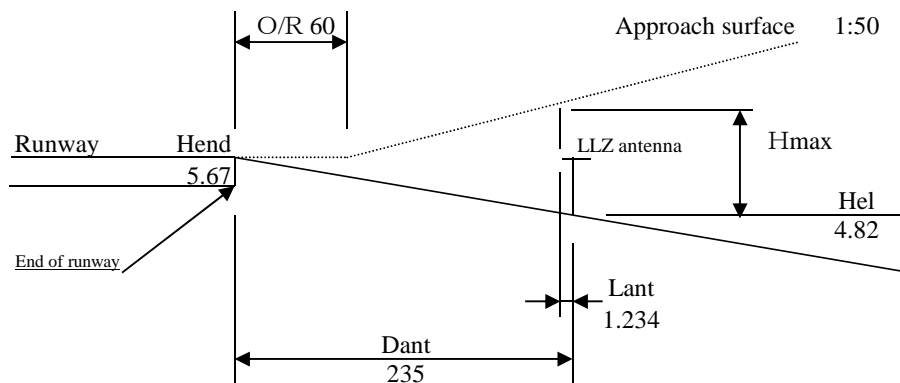
Based on the condition above, we would like to calculate how many distance from end of runway to LLZ antenna and how height of LLZ antenna it will be.

1 . 3 Verification of approach surface on the 03 side

Elevation of runway end(Hend) : 5.67 m

$$\begin{aligned}
 H_{max} &= H_{end} + (D_{ant} - L_{ant} - 60) / 50 - H_{el} \\
 &= 5.67 + (235 - 1.234 - 60) / 50 - 4.82 \\
 &= \boxed{4.325} \text{ (m)}
 \end{aligned}$$

- Condition
- Hmax : Maximum hight cliarance between ground to approach surface(m)
 - Hend : Elevation of runway end(m)
 - Hel : Elevation of LLZ antenna (m)
 - Dant : Distance between end of runway to LLZ antenna(m)
 - Lant : Distance between end of element to phase center of element(m)



1 . 4 Verification of TCH on the 21 side

Elevation of TCH

$$\begin{aligned} \text{Hpt} &= \text{Hth} + \text{Hpt} \\ &= 9.5 + 16.5 \\ &= \boxed{26.00} \text{ m} \end{aligned}$$

< Elevation of phase center of element in LLZ antenna >

$$\begin{aligned} \text{Hant} &= \text{Hel} + \text{hant} \\ &= 4.82 + 2.073 \\ &= \boxed{6.89} \text{ m} \end{aligned}$$

Condition

Hpt	:	Elevation of TCH(m)
Hth	:	Elevation of threshold (m)
Hpt	:	Height of TCH(m)
Hant	:	Elevation of phase center in antenna element(m)
Hel	:	Elevation of LLZ antenna (m)
Hant	:	Height of phase center in antenna element(m)

Threshold crossing height on the 21 side can be seen by LLZ antenna.

1 . 5 Conclusion of LLZ location and elevation

1. Height of antenna in the LLZ antenna	:	2.151 m
2. Elevation of antenna	:	6.971 m
3. Height of phase center in LLZ antenna	:	2.073 m
4. Elevation of phase center in LLZ antenna	:	6.89 m

2) LOCATION OF GS

2. Verification of located GS antenna for PANGLAO

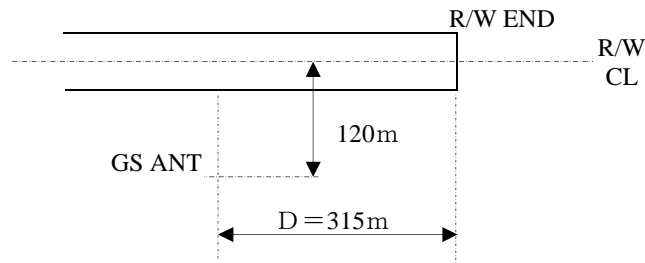
2.1 Condition

2.1.1 Angle of GS (θ)	:	3 degree
2.1.2 TCH (m)	:	16.5 m
2.1.3 Distance between center of runway and GS antenna (m)	:	120 m
2.1.4 Average slope for longitudinal section (%)	:	0.0001
2.1.5 Average slope for cross section (%)	:	0.01

Note

Don't consider calculation for cross section if it is within $\pm 1.5\%$ in the slope

$$\begin{aligned}
 D &= TCH / (\tan\theta - S) \\
 &= 16.5 / \{ \tan 3 - (0.0001) \} \\
 &= 315.441 \text{ m} \\
 &\approx \boxed{315} \text{ m}
 \end{aligned}$$



2.2 Verification of height for GS antenna

Formula

Lower antenna $HL = \frac{\lambda}{4 \sin(\theta - \alpha)} (m)$

Middle antenna $HM = \frac{\lambda}{2 \sin(\theta - \alpha)} (m)$

Upper antenna $HU = \frac{3\lambda}{4 \sin(\theta - \alpha)} (m)$

Legend

λ : Wave length (m)

θ : GS angle (deg)

α : Average slope related to terrain in front of GS antenna (deg)

$\tan^{-1} (\chi / 100)$ (In case of up hill, it will be plus)

χ : Average slope related to terrain in front of GS antenna (%)

$\theta = \boxed{3}^\circ$

$\chi = 0.00010 \%$

$\therefore \alpha = \boxed{0.0057}^\circ$

Frequencyf(MHz)	Conclusion		
	329	332	335
Wavelength λ (m)	0.912	0.904	0.896
HL (m)	4.364	4.325	4.286
HM (m)	8.728	8.649	8.572
HU (m)	13.092	12.974	12.858

2.3 Verification of offset value from center on the GS antenna

This section is verified offset value from center in the horizontally on the GS antenna which is temporally set on the design stage. Actually it will be settled by flight inspection

Formula

$$X = \frac{5 \cdot (HM)^2}{8D} \quad (m)$$

$$Y = \frac{3 \cdot (HM)^2}{8D} \quad (m)$$

Legend

D : Distance of antenna from center of runway(m)	→	120	
θ : Angle of GS (deg)	→	3	
HM: Hight of middle antenna(m)	→	8.728	(329MHz)
	→	8.649	(332MHz)
	→	8.572	(335MHz)

Calculated offset value at Each fequency is shown below

2.3.1 3 2 9 MH z

$$X = 5 \times (8.728)^2 \div (8 \times 120) = \boxed{0.397} m$$

$$Y = 3 \times (8.728)^2 \div (8 \times 120) = \boxed{0.238} m$$

2.3.2 3 3 2 MH z

$$X = 5 \times (8.649)^2 \div (8 \times 120) = \boxed{0.39} m$$

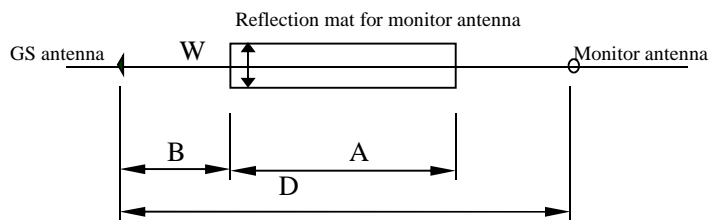
$$Y = 3 \times (8.649)^2 \div (8 \times 120) = \boxed{0.234} m$$

2.3.3 3 3 5 MH z

$$X = 5 \times (8.572)^2 \div (8 \times 120) = \boxed{0.383} m$$

$$Y = 3 \times (8.572)^2 \div (8 \times 120) = \boxed{0.23} m$$

2.4 Verification of located GS monitor antenna



Formula

$$D = \frac{(H_u^2 - H_L^2) \cdot \cos^2(\theta - \alpha)}{2\lambda} \quad (\text{m})$$

Hight of monitor antenna

$$H_{MON} = D \tan(\theta - \alpha) \quad (\text{m})$$

$$\theta = 3^\circ$$

$$\alpha = 0.0057^\circ$$

	Conclusion		
Frequency (MHz)	329	332	335
D (m)	83.3	82.53	81.78
H _{MON} (m)	4.36	4.32	4.28

2.5 Verification of located reflection mat for GS monitor antenna

Formula

$$B = \frac{D}{2} \left[\frac{\left\{ 1 + \frac{2H_M(H_M + H_{MON})}{\lambda D} \right\} - \sqrt{1 + \frac{4H_M \times H_{MON}}{\lambda D}}}{1 + \frac{(H_M + H_{MON})^2}{\lambda D}} \right]$$

$$A = \frac{D}{2} \left[\frac{\left\{ 1 + \frac{2H_U(H_U + H_{MON})}{\lambda D} \right\} + \sqrt{1 + \frac{4H_U \times H_{MON}}{\lambda D}}}{1 + \frac{(H_U + H_{MON})^2}{\lambda D}} \right] - B$$

$$W = \sqrt{\lambda D} \times \sqrt{\frac{1 + \frac{4H_M \times H_{MON}}{\lambda D}}{1 + \frac{(H_M + H_{MON})^2}{\lambda D}}}$$

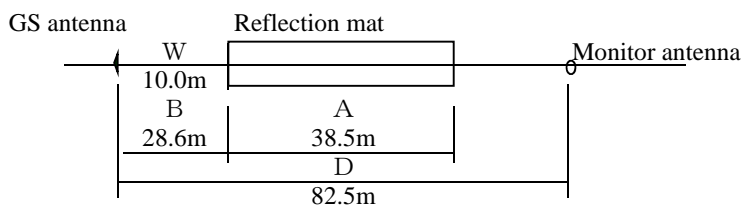
Compute A, B and W as mentioned below by formula above

		Conclusion		
Frequency (MHz)		329	332	335
A	(m)	45.87	45.45	45.03
B	(m)	29.10	28.83	28.58
W	(m)	8.37	8.30	8.22

As a result of conclusion above, reflection mat and monitor antenna which shall be reflected to figuer below based on computation

Legend

- D : Choosed Middle fequency : 82.53 m
 - W : Considered achievement in history : 10.00 m
 - A : Maximum size of mat in choosed minimum frequency : 45.87 m
 - B : Minimum distance between antenna and mat in choosed maximum frequency : 28.58 m
- Aploximately : 38.5 m



2.6 Verification of located theodolite

Formula

$$L2 = \frac{(1.58 + 0.05) \times L3}{1 - \frac{\Delta h2}{A}}$$

$$\begin{cases} L3 = \sqrt{D^2 + L1^2} \\ A = TCH + \Delta h2 \end{cases}$$

- 1.58 : Hight of eye level on the theodolite
 0.05 : Hight of foundation from ground level
 $\Delta h2$: Height of uneven land between antenna and center of runway
 L1 : Distance between threshold and GS antenna 315 m
 D : Distance between GS antenna and center of runway 120 m
 TCH : Threshold crossing hight 16.5 m

$\Delta h2$ = Height of uneven land between antenna and center of runway

$$= \frac{215.335}{1.200} - \frac{214.135}{1.200} \text{ m}$$

$$L3 = 337.083 \text{ m}$$

$$A = 17.700 \text{ m}$$

$$L2 = \frac{\{(1.58 + 0.05) \times 337.083 / 17.7\}}{1 - 1.2 / 17.7}$$

$$= 33.300 \text{ m}$$

Therefore

$$LD = 120 \times (33.3 / 337.083)$$

$$= 11.855 \text{ m}$$

$$d = 315 \times (33.3 / 337.083)$$

$$= 31.118 \text{ m}$$

