AR-6. Structural Calculation Sheets for Outdoor Equipment Foundations

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6.1.1 APPLICABLE CODES AND STANDARDS

1) For design and allowable stress of structural materials

Reinforced concrete structure

AIJ : "Standards for calculation of reinforced concrete structures"

Foundation

AIJ : "Standards for structural design of building foundation"

* AIJ : Architectural Institute of Japan

6.1.2 STRUCTURAL MATERIALS TO BE USED AND ALLOWABLE UNIT STRESS

1) Qualities of materials

Concrete ; Comperessive strength of 28 days

 $Fc' = 210 \text{ kg/cm}^2$

Reinforcement; Deformed reinforcement

ASTM A615 Grade 40

 $fy = 2.812 \text{ kg/cm}^2$

2) Physical constants for structural materials Modulus of elasticity

Concrete

 210 t/cm^2

Reinforcement

2100 t/cm²

3) ALLOWABLE UNIT STRESS

i) Allowable Unit Stress of Concrete (kg/cm²)

	stresses	Permanent Stresses					Temporary Stresses		
Materials		Compress	Shear	Bond			Compress	shear	Bond
		0011p1 000		Α	В	C			
	concrete Deformed		7.0		12.6 21.0	•	Permanent Stresses x 2.0		ses

* Remarks

A ; Top bar of flexural members

B : Bar, except "Item A", of flexural members

C : Anchors and lap splices

ii) Allowable Unit Stress of Reinforcing Bars (kg/cm^2)

Stresses	Permanent S	tresses	Temporary Stresses			
Materials	Tension Compression		Tension Compression	shear Reinforcement		
Deformed bar ASTM A615 Grade 40	1,870	1,870	2,812	2,812		

6.1.3 LOAD COMBINATION

- Load combination for steel and concrete structure
 Long term loading
 - i) D.L+L.L+M.L+C.L

Short term loading

- i) D.L+L.L+M.L+C.D+W.L
- ii) D.L+L.L+M.L+C.D+S.L

where;

D.L ; Dead load

L.L ; Live load and over burden load

M.L ; Machine load

C.L ; Crane operation load

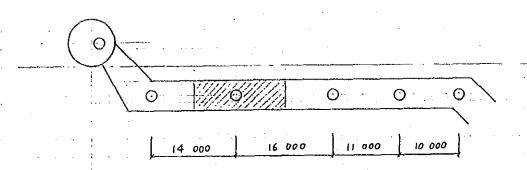
C.D.L ; Crane dead load

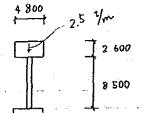
W.L ; Wind load

S.L ; Seismic load

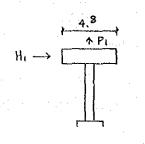
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§ SI GENERAL DRAWING





\$2. LOADING DATA



SEISMIC FORCE

FORCE WIND

D,L



E.L

$$M_1 = 3.75 < (8.50 + 2.60/2) = 36.75 cm$$

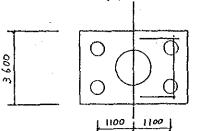
WL

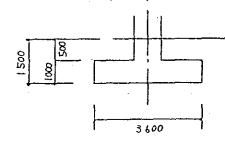
$$M_1 = 7.02 \times 9.80 = 68.80 \text{ t-m}$$

\$3.DESIGN OF FOUNDATION

OUTLINE OF FOUNDATION







Foundation weight

$$Nf = 24 \times (36 \times 36 \times 1.0 + 1.0 \times 11.0 \times 11.0 \times 11.0 \times 1.0 \times 1.0$$

LOADING

		N (t)	Hx (t)	Hy (t)
1	D.L	37.50		
	L,L			
S	.Lx	0	3.75	
S	.Ly	0		3,75
H	Lx	- 7,56	7.02	
W	.Ly			

Stress at bottom of foundation

$$R = 37.50 - 7.56 + 45.22 = 75.16^{+}$$

CHECK OF BEARING PRESSURE

Check of Pile Reaction

$$P_1 = 75.16/4 + 80.73/(27.2) = 37.14$$
 P_1 in $(35.9.15)$ P_1 ' = $29.94/4 + 80.73/(22.2) = 25.83$ P_2 ine

DESIGN OF FOOTING

Factored	Factored Load							
Load case	ΣN (t)	ΣH (t, m)	P1 (t/n)	P1' (t/n)				
D.L+ L.L	37.50							
D.L+ L.L+W.L				:				
D.L+ L.L+S.L				-				
D.L+ W.L	29.94	80.73	37,14	25.83				



Stress

$$PF = 25.83 t$$

$$MF = 25.83 * 0.7 = 2.58 tm$$

Reinforcement

$$D = 100$$
 cm, $d = 85$ cm, $j = 7/8d = 74.38$ cm

ec At =
$$\frac{MF}{ft \cdot j} = 1.23 \text{ cm}^2$$

$$\phi = \frac{Q}{fa \cdot j} = 11.02 \text{ cm}$$

$$\frac{Q}{fa \cdot j} = 0.96 < 7.0 \text{ kg/cm}^2$$

()

DESIGN OF CONCRETE PILE

Foundation weight

$$Nf = 2.4 \cdot \{0.5 \times 5.0 \times 8.0 + 0.2 \times 0.5 \times (8.0 + 5.0) \times 2\}$$
= 54.24 +

LOADING

stress at bottom of toundation

$$N = 81.^{\circ} + 54.24 = 135.24^{\pm}$$

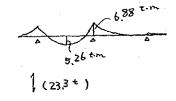
Check of Pile Reaction

2-2. DESIGN OF FOOTING

$$W_1 = 24 \times 0.5 \times 2.5 = 3.00 \text{ ym}$$
 (Footing weight)

$$P_1 = 80.0/2 \times 1/2 + 2.4 \times 0.2 \times 0.5 \times 2.2/2 = 20.26$$
 t

$$P_2 = 0.5 + 2.4 \times 0.2 \times 1.0 \times 1.5 = 1.22$$



(l= 145cm)

$$\phi = \frac{\theta}{\text{fa. j}} = \frac{23.3 \times 10^3}{21 \times 35} = 31.70 \text{ cm}$$

$$\begin{cases} As = 16 \\ \phi = 40 \end{cases}$$

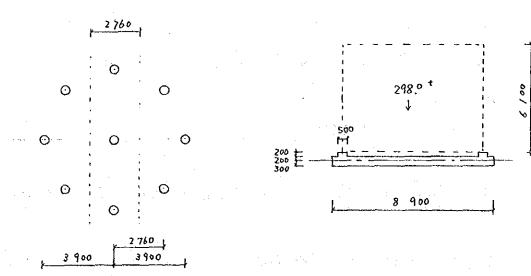
$$T = \frac{Q}{b \cdot J} = \frac{23.3 \times 10^{3}}{145 \times 35}$$

$$= 4.59 < 7.5$$

9

6.4 FUEL OIL SERVICE TANK

\$1. FOUNDATION PLAN AND SECTION



\$2 DESIGN OF FOUNDATION

2-1 DESIGN OF CONCRETE PILE

Foundation weight

$$N_{f} = 24 \times (8.9/2 \times 8.9/2 \times 11 \times 0.5 + 3.9 \times 3.9 \times 11 \times 0.2)$$

$$= 97.59^{-t}$$

Seismic force

stress at bottom of foundation

LONG TERM

M = -

SHORT TERM

The state of the s

Check of Pile Reaction

LONG TERM

$$P_1 = 395.59 / 9 = 43.95$$
 $\%$ Pile < 45 $\%$ Pile

SHORT TERM

$$\frac{2}{2} = \frac{(3.9^2 + 2.76^2 \times 2) \times 2}{3.9} = 15.61$$

$$P_1 = \frac{395.59}{9} \pm \frac{111.75}{15.61} = 51.11 \text{ %pile } < 45 \times 2 , 36.80 \text{ %pile } > 0$$

2-2. DESIGN OF FOOTING

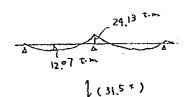
LONG TERM

$$w = 298.0 / (8.9/2 \times 8.9/2 \times 11) \times 2.76 = 13.22 \text{ t/m}$$

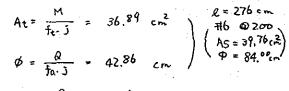
SHORT TERM
$$Z = \frac{111.75}{32} = 46.59$$

 $W = (4.79 + \frac{111.75}{46.59}) \times 2.76 = 19.84 \%$

LONG TERM



$$\phi = \frac{1}{f_{\alpha} \cdot J} - 42.00$$



$$7 - \frac{Q}{b \cdot j} = 3.26 < 7.9$$

SHORT TERM

$$At = 36.80 \text{ cm}$$

$$A = 42.81 \text{ cm}$$

$$18.11 \text{ cm}$$

$$1 (47.2^{\frac{1}{2}})$$

$$E = 4.89$$

$$< 7.99$$

At = 36.80 cm
$$\# b \otimes 200$$

 $\phi = 42.81$ cm $\# b \otimes 200$
 $(As = 39.762)$
 $\phi = 84.966$

AR-7. Calculation Sheets For Air Conditioning and Ventilation System

For Main Powerhouse

 $\cdot \left(\cdot \right)$

CONTENTS

·	1 .	DESIGN CRITERIA		1
	2.	DATA	dia interneti Affinia teriala sepa	2
)	3.	HEAT TRANSMISSION	ule manus pième transp spe-	4
	4.	ROOM LOAD SUMMRY		7
	5.	EQUIPMENT LOAD		2 1
)	6.	SELECTION OF		
		COOLING EQUIPMENT		29
	7.	VENTILATION	No of the same of the same	3 9

L

1. DESIGN CRITERIA

- 1 1 DESIGN CONDITION
 - 1) For air conditioning system
 - (a) Outdoor air

Summer : 42.2°C DB, 28.6°C WB, 37%RH

(b) Room

Summer : 24°C+2°C DB, 50%RH

Winter : Not more than the condition in summer

2) Minimum ventilation air vol.
For Control Room

25 m³/Hr person

3) Lighting

 20 W/m^2

4) People

Refer to "Cooling and dehumidifying estimate sheets"

5) LOcation

25.4°(N), 68.3°(E)

2. DATA

Data used for load estimation is based on Carrier, s Design Manual of the newest condition.

2-1 Outdoor air

1) Dry Bulb

Time Dry Bulb	. 8	9	10	11	12	13	14	15	16 17 17 18
°C	28.2	30.3	32.8	35.7	38.4	40.4	41.7	42.2	41.7 40.5 38.7

2) HUmidity Ratio

Time Humidity Ratio	8	9	10	11	12	13	14	15	16	17	18
g/Kg	19.1	19.0	19.0	19.2	18.9	19.0	18.8	19.0	18.8	18.9	18.8

2.- 2 Solar heat gain

1) Peak solar heat gain thru ordinary glass

EXPOSORE HEAT	NL NE	SE	sw	NW	HORIZONTAL	SHADE	
Kcal/h m ²	٠ 3 66	252	252	366	674	47	

2) Solar gain correction factors

for steel sash

1/0.85

for dew point

0.94

3) Load storage factors , solar heat gain thru ordinary glass

TIME EXPOSURE	8	9	10	11	12	13	14	15	16	17	18
NE	0.57	0.46	0.30	0-24	0-20	0.19	0_17	0_16	0.15	0_13	0_11
SE	0.47	0.61	0.67	0.65	0.57	0-44	0-29	0-24	0-21	0_18	0.15
sw	0.08	0.08	0.10	0-24	0.40	0-55	0.66	0_70	0.64	0.50	0-26
· NW	0.09	eo.0	0.10	0.10	0.10	0-10	0-16	0-34	0.52	0.65	0_64

NOTE: Venetian blind to be located on the inside of glass.

(Overall factor is 0.65)

1) For wall

EXI	TIME POSURE	8	9	10	11	12	13	14	15	16	17	18
	NE	4,6	7.9	16.8	16,0	15.3	13.3	11:3	11.9	12.6	13.0	13.5
	SE	5.4	8.6	11,1	12.4	13.6	13.8	13.9	12.9	124	11,8	11,5
	SW	2.6	3.1	3.7	5.0	5.9	8.6	12.1	15.8	18.6	19.2.	195
	NW	3.7	4.5	5.3	6.6	7.9	10.1	11.3	13.5	15,4	19.5	23.2

These figures are basing on medium color, outside air temperature at 42.2°C DB, inside air temperature at 24°C DB daily range of 16.7°C and specific weight of wall 200Kg/m².

2) For wall

EXE	TIME POSURE	8	9	10	11	12	13	14	15	16	17	18
	NE	15.7	16.2	16,8	14.8	12.8	12.7	12.4	13.0	13.7	13.6	13.5
	SE	7.4	9.6	12,1	13.1	14.1	14.4	14.2	13.1	12.6	12.0	11.5
	s₩	1.9	28	3.7	5.7	7.0	12.2	14.9	17,9	20.3	20.4	20.5
	NW.	3.7	4.7	5.7	7.4	9.1	11.3	12.4	15.8	18.3	22.4	25,5

These figures are basing on medium color, outside air temperature at 42.2°C DB, inside air temperature at 24°C DB daily range of 16.7°C and specific weight of wall 100Kg/m^2 .

'3) For roof

For	TRŒ r∞f	8	9	10	11	12	13	14	15	16	17	18	
1	°C	10.3	10.2	10.8	12.4	14.9	18.0	21.2	24.0	26.2	27.8	28.5	

These figures are basing on medium color, outside air temperature at 42.2°C DB, inside air temperature at 24°C DB daily range of 16.7°C and specific weight of wall 300Kg/m^2 .

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· ·				r	
TYPE OF STRUCTURE	MATERIALS	THICKNESS	RESISTANCE	AIR FILM	K-Value
		(mm)	(m ² H°C/Kcal)	(m ² H°C/Kcal)	(Kcal/m ² H°C)
					^
ROOF 1.	OCONCRETE.			Yo = 005	
	BLOCK	30	0.067		
The way	Q SAND		0.0/5		
	3 ASPHALT	10	0.108		
auto a fee diaman and provider state at	ROOFING				<u> </u>
=	DCONCRETE_	100	0.071		
	DPECK PLATE	1.2		7	
	GAIR SPACE			6.7	
	OGLASS WOOL	50	1.36		
	B CEILING	75	6,132		
	<u> </u>	 		71=0.189 (2.192)	0,46
			<u></u>	(2(1/2)	
CEILING 1					
FLOOR 1		 		71= 0.125	
	OCEMENT_	30	0.023		
1 1 1	MORTAL		- 04		
	@CINDER	60	0.084		
	CONCRETE				
	DASPHALT:	10	0.108		
	WATER PROOF				
	@ CONCRETE	100	0.071		
	3 DECK PLATE	1.2	**************************************		
	DAIR SPACE			0,2	
	(DCEILING	75.0	0.132		
		·		$\gamma'_{1} = 0.125$	1.16
	<u> </u>			(0.868)	<u>/`</u>
FLOOR ?]	·		
CEILING'S				Y = 0.125	
	DVINYL	Ζ	0.054		<u></u>
	ASBESTOS TILE				
who was	@CEMENT	Z.8	5,077		
	MORTAL				
	@ CONCRETE	100	0.071		
	DECK PLATE	1.7			
			·	Y1=0.125	2.52
				(6.397)	
FLOOR 3.				~:-	
, 		 		T; = 0.125	
	1 FLOORING	12	0,086		
	DAIR SPACE	 		٥.٥	
	DONC RETE	130	0.093	 	
	@DECK PLATE	. 1'5			
	ļ			71=0.125	
				(0.629)	1,59
	·			(0.647)	1/2 /
				<u> </u>	

TYPE OF STRUCTURE	MATERIALS	THICKNESS	RESISTANCE	AIR FILM	K-Value
		(mm)	(m ² H°C/Kcal)	(m ² H°C/Kcal)	(Kcal/m ² H°C)
WALL 1				70 = 0.05	
WALL I	Opprose.	40.	0,086	76 = 0.03	<u> </u>
	OPRECAST	120	0,088		
2 / B	CONCRETE		1.36		
	OGLASS WOOL	5 <i>0</i>			
11 (9)	3 AIR SPACE			5.0	
	PLASTER BOAR	12	0.664		
$ u_{ij}-u_{ij} _{L^{2}(\mathbb{R}^{n})}\leq u_{ij}-$				7i = 0.133	0,53
				(1,893)	0,00
WALL Z					
VV /10-2				Yo= 0.05	
T-10-T	10 CONCRETE	150	0.334		
2	BLOCK			11 11 11 11 11 11 11 11 11 11 11 11 11	
0-17	@ AIR SPACE			5,0	
	3 PLASTER BOAD	ΙZ	0.064		
				Yi = 0.133	
				(0.781)	1,29
WALL 3	; š			Yo = 0.05	
WALLS	OSTEEL	/			
	2 GLASS WOOL	50	1,36		
	BAIR SPACE	1		0.2	
	@PLASTER_	17	0.064		
υ- -	B0AD				
	100010			71 = 0.133	
The state of the s				(1.807)	0,56
PARTITION 1			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	$\gamma_i' = 0.133$	
	O save OF To		0.334	11 = 0.155	
Tar	O CONCRETE_	150	<u>0,554</u>		
	BLOCK	17	1 A		,
0-+/	@ PLASTER	12	0.064		
	BOAD				<u> </u>
			· · · · · · · · · · · · · · · · · · ·	$\gamma i = 0.133$	1,51
Committee of the second			<u> </u>	(0,664)	7.57
PARTITION 2			·		-
				ri=0.133	
nn sann <u>an gerle bir i</u> me an da e	OPLASTER	31	0.064		
	BOAD				
· · ·	DAIR SPACE			0,2	
①—————————————————————————————————————	3 PLASTER	12	0.064		· · · · · · · · · · · · · · · · · · ·
	ВОАР				
			* .	$Y_i = 0.133$	
and the second s		<u> </u>			
				(0.594)	1.69
A Commence of the commence of					

25%

TYPE OF STRUCTURE	MATERIALS	THICKNESS (mm)	RESISTANCE (m ² H°C/Kcal)	AIR FIIM (m ² H°C/Kcal)	K-Value (Kcal/m ² H°C)
				Yi= 0, 133	
PARTITION 3	O PLASTER	12	0.064	11-01123	
•		 	<u>0.044</u>		
	BoAD	· ·	0,334		
	@ CONCRETE	150	0,537		
2 4	BLOCK		1.36		
0	3 GIASS WOOL	<u> 50</u>			
₽ P	@ PLASTER	12	0.064		
	B⊘AD				
				r'i= 0.133	40
				(2,088)	0,48
DOOR					
				$\gamma' = 0.133$	
	① STEEL	1,72			
② —	QAIR SPACE			0.7	81
3	3 STEEL	1,7			
(i)—				y' = 0.133	
				(0.466)	2,15
ظهال				, , , , , , , , , , , , , , , , , , ,	<u></u>
WINDOW (OUT)					- I
	ORDINARY	3			5,1
	GLASS				
·					
WINDOW (IN)			···		
W1.4 1.	ORDINARY	3			<i>3</i> ,8
	GLASS				
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	1		\$		

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4. ROOM LOAD SUMMARY

4-1. AC-Z

1) ROOM PEAK LOAD

-		1) ROOM	1 PEAK	LOAD	>		· · · · · · · · · · · · · · · · · · ·	·	·· · ÷		
ţ				AREA	VOLUME	PEVOID	PEAK R.S.H	LOAD R.T.H	INDICATED	DEHUIM AIR	OUT ALE
	No	ROOM	NAME	(4h ₂)	(m³)	i aurit	(Kal/H)	(KCAP/H)	A DP(2)		(4/4) (2)
	OPER. Floor 0-2	CENTRA CONTROL		328 ²⁹	978,81	В	42.936	43.656	12.9		650
1		SUB	TOTAL.				42.936	43.656	12.6	14,500	650
				:			-	, ,			
	FORTH FLOOR F-J		R∞M	56.0	1568	6	4.365	4,791	12.2	1470	IFO
	F-Z	REST	ROOM	19,6	54.88	. ፘ.	1. 273	1.415	12.1	450	50
	F-3	CONFERI	ENCE RM.	8 8. 0	246.4	10	5.358	6.169	11.8	1.850	400
	F-4	TNSTRU	ROOM	1980	554.4	Ь	10.023	10.551	12.5	3,400	300
	F-5	PABX	R∞M	કૃપ. ⁶⁸	189,5	4	3.438	4.223	12.4.	1.330	100
		50B	TOTAL		1,11		24.957	27.149		8.500	1000
	4-1								·		
		TOTI	4 L					70.805	12,6	23,000	1.650
					1		SHF	= 0,96	·		
		- :		·							
		:									
	·									-	
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	المارية المشار										
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1									

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2), LOAD SUMMARY (TIME)

				00	41		F	, DB
	0 - 4	LIAME				· · · · · · · · · · · · · · · · · · ·	E.R.S.H	E,R.T.H
No.	ROOM	NAME		E.R.T.H (Ken/h)	(Kal/r)		(Keng/4)	(Ked/4)
oPER.	CENTRA		*	*	4 - 1-40			
0-2	CONTROL	. R∞N	42.936	43.656	42.568	43.278	41.670	42.380
	50B	TOTAL	42.936	43.656	42.548	43.278	41.670	47.380
		:						
4F					*	*		
F-1	SHIFT	ROOM	4.358	4.786	4.365		4.715	4641
F-2.	REST	ROOM	1.175	1.318	* 1.273		1.166	1.308
F-3		VCE ROOM	5.331	6.159	* 5.358	* <169	5,307	6.118
F-4	ELECTR INSTRU REPAIR	MENT BOOM	9.905	10.437	k [6,023	10.55	10013	10.541
F-5	PABX	ROOM	3.811	4096	3.926	4.220	* 3.938	* 4.zz3
	SUB	TOTAL	74.580	76.796	24.945	27.146	Z4.639	26.831
			*	*				
AC-Z	TOTA	L_	67.516	70.452	67.5,3	70.424	66.309	69.211
		¥.						
		:	-				e e	
		· · · · · · · · · · · · · · · · · · ·						
						:	<u> </u>	
·					<u> </u>			
			:				111	
				ł		Į :		
<i>'</i>								

No	ROOM NAME	AREA.	VOLUME		R.S.H (Kal/4)			DEHUM AIR	OUT.AIR (がね)
OPER. Floor 0-1	COMPUTER ROOM	84°	757	4	23.754	74,040	13.0	8.400	100
0-3	COMPUTER ROOM	127.21	381. ⁶³	6	35.25J	35 685	13.0	12.300	150
	TOTAL	211.21	633.63	10	59011	59.725	13.0	20.700	<i>250</i>

SHF=0.99.

4-3 AC-3

	TOTAL	216.33	605.73	6	41.732	42.160	13	14600	150
									· ·
MEZZ FLOOI H-1	UNIT NO.1 & NO.Z CONTROL EQUIPMENT ROOM	216.33	605.73	6	41. 732	42.160	13	14.600	150
NO	ROOM NAME	AREA (M')	(m³) NOMNE	PEOPLE	R. S. H (Kal/4)	R.T.H (Kcal/h)		DEHUMAIR (%3/H)	00T.AIR (* ³ /ኍ)

SHF=0.99

1-4 Ac-4

					the state of the s	,			
ИО	ROOM NAME	AREA	NOTHE		R. S. H (KCAP/H)			DEHUIM.AIR (m²/n)	OUT AIR
MEZZ FLOOR M-1		65,57	183.60	a	6.765	6605	1z.5	7.700	100
	WATER ANALITICAL ANALITIAL INSTRUMENT ROOM		377. ³	7	12.976	13.464	12.6	4.400	210
	TOTAL			11	19.235	20.069	12.6	6.600	310

6HF=0196

·								
	, COC	LING A	ND DE	HUN	4IDIF	ニスル	NG E	ESTIMATE(METRIC)
NOUMING NO),		ln ln	QUIRED	Ву			DATE ORIGINAL
DO NAME			A	DDRESS				REVISION
PACE USED		RAL CONT	ROL RO		0			SYSTEM PERSON IN CHARGE
12 E	m×	m= 328,7	'Y m'		×		m(H/)=	918.81 m
ITEM	AREA OR	1	FACTOR			al/h	·	ESTMATE FOR. PM PEAK LOAD PM3
		i TEMP. DIFF.		3:	00		ECTION	
	the state of the s	IN GLASS			,	4:00		HOURS OF OPERATION HOUR (-)
(SE)		21034/085×09	14 x065	<u> </u>	131	115	98	Cottage Standard
· · · · · · · · · · · · · · · · · · ·	w,×	×		 	<u> </u>	ļ	 	
	m'.×	×			!			
	m,×	<u>×</u>			<u> </u>	ļ		
	m,×	: X		<u> </u>	<u> </u>	}	1	BLIND NON-EXISTENCE (OUTSIDE, INSIDE) L. M. D.
		SAIN-WALLS			^/9	0	nen	GLASS ORDINARY, THICK, ABSORBENT. %. DOUBLE
WALL (SE)		13.! ×	0.56	 -	969	434	100	COLOR LIGHT, MEDIUM, DARK.
	m'X	<u> </u>		 -		 		WEIGHT kg/m*(FLOOR) kg/m*(WALL)
	m ^z X	×		┼	!	 		INTERNAL HEAT; Wim' m'/PEOPLE
	m [†] X	×	 	 	<u> </u>	 	-	INFILTRATION
ROOF-SUN				 		 		Swinging
Roof - Shai			5 DOOF	_		 	1	REVOLVING DOORS PEOPLEX CMH/PER
		EPT WALLS	5,1		279	201	758	OPEN DOORS DOORSX CHH/DOOR
	5,0 m'× 5,04 m'×	18, ^z ×	116		793	771		EXHAUST AIR
	6.0 4 m'x		2.52		529	7322		CRACK MX CMH/m
		9.1 ×	1,51	 	014	986		INFILTRATION CMH III
PANTITION()	3'1 *, ×		1,69		42	41	38	VENTILATION
DOOR (I		4	2,15	 	106	103	46	5 PEOPLE × 25 CMH/PER 125
GLASS(IN)	2 1435 A	9.1 2	5.8	 	127	123		
<u>umx(#/</u>		AL HEAT		 	<u> </u>	"="		VENTILATION CMH 650
PEOPLE		5 PEOPLEX 4	1.	1.	205	705	205	SENSIBLE HEAT FACTOR
	9.7 Kwx		. 860	20	434.	20434		ESH.F= 42.936 (ERSH) 6.98 (17.1°C)
LIGHTS		1 x 20 W×	1.08		1091	7091	701	
APPLIANCES		<u> </u>		1	Ī			DEHUMIDIFIED AIR
AFFERMOLS								APPARATUS DEWPOINT 17.6 C
			:					
CREDIT FO	STORAGE	m'×	deg×	 !	i	(←)		124RM-12.6ADP)(1-6,BF)×0.29 14.500 CMH
) HERMAL	3,01702		SUB TOTAL	J	!	<u> </u>	!	(Z4RM-12,6ADP)(1-6,BF)×0,29
SAFETY FAC	TOR		. %		1		ļ	NOTES
		HEAT SUB TOT	AL :	>8	720	38394	137.68	SR = 23.0 × 13.75 +6.0 + (3.05+50)×15=378,20
SUPPLY DUC		y Duct FA			•	T .		
HEAT GAN	÷LEA	k Loss _ +l	HP = 0%	3	872	3840	3761	GLASS (SE): 15x1,0x2=3,0
EYPASS OUT	SIDE AR 65	6 CMH > 18.2 sez . 6	5, B.F. 0.29		344	334	715	WALL (SE) : 27. x 5.0-30- 132.0
EFFE	CTIVE ROO	M SENSIBLE	HEAT	42	936	47568	41.690	
		TENT HEAT		-	İ		1	PARTITION(1): 27.0×3.0-(3.66+3.6)=73.74
INFILTRATION	смнх	g/kg×	0.72		!		<u> </u>	$(2) : [5 \times 3.9 - 1.0 = 4.7]$
PEOPLE		5 PEOPLE × 4	19	<u> </u>	245	<u> </u>	<u> </u>	DOOR (IN) : 0.9 x 2.0 x 3 = 5.4
STEAM		kg/h×	540	1	<u> </u>	 	 	1
APPLIANCES	ETC.			 	<u> </u>	<u> </u>	ļ	GLASS(110), 3.05 2 11 /2 05 1 E.0) x 1.5
				ļ	<u> </u>	 	<u> </u>	GLASS(IN), 3.03 2 10 - 3.05 + 5.0) x1.5 CEILING = 23.0 x 3.0 + (3.05 + 5.0) x1.5 = 75.04
VAPOR TRAN	s.				ļ	ļ	<u>i</u>	= 7504
			Sub TOTAL	 	<u> </u>	<u> </u>	<u> </u>	FLOOR : SR
SAFETY FAC		<u> </u>	<u> </u>	<u> </u>	1		!	1
R	DOM LATENT	HEAT SUB TOY			245	245		
	T LEAKAGE L		10 %	}	<u>zs</u>		25	
		H×9,6 R/kg×0,1			450		440	4
		M LATENT H			720			
EFFE		M TOTAL HE	AT E	43	656	13278	46180	
	OUTSIDE	AIR HEAT		1 '	1	l	1 .	

CMH× deg×(1- BF)×0.29

CMH× g/kg×(1~ BF)×0.72

GRAND TOTAL HEAT SUB TOTAL
RETURN DUCT RETURN DUCT PUMP PIPE
HEAT GAIN LEAK GAIN H.P GAIN
(U.S.R.T) GRAND TOTAL HEAT

SENSIBLE:



COOLING AND DEHUMIDIFYING ESTIMATE (METRIC)

				DORESE						DA	TE ORIG	INAL	
O NAME				DORESS				SYS	TEM	RE	VISION		
PACE USED F			E-1)	·		- 0		A 15.22		PEF	SON IN	CHAR	GE :
SIZ E	m×		56.0 m'		×		m()-()=	156.8	ω,				
STEM	AREA OR	SUN GAM OF	FACTOR	Ļ	Ke	i/h		ESTMATE F	OR.	AM	PEAK L	LOAD	AM.
115.	QUANTITY	TEMP DIFF		<u> </u>			ECTION	1		PM			PM4
5	SOLAR GAIL	Y GLAS	s	4	100	5:00	3:00	HOURS OF	OPER	ATION	Hour (_
SE) 3.	,o m³×253	x021/085 x0	94x3.65		115	98	131	OUTSIDE DE	SIGN CO	SACHTICA	COB	CW	B %
		40.15/0.85 ×			60	57	64	CONDITIONS	DB &	WBC	1 % RH	DP V	g/k
(NE)	m, X	<u> 0, 70 дз</u> ×	011976102	 	i		<u> </u>	OUTSIDE		28,4	38	Ť .	18.
<u></u>		×				 	 	Room	24.0	1	50	 	94
	m [†] X			ļ	 -	ļ	 	£		1		1	
	m³ X	×			1			DEFERENCE			1 ×××		
	TRANS G		S & ROOF			6.5		BLIND	i .	1.1	OUTSIDE. N		L. M. D
WALL (SE) 3	2.48 m'x	12.6 ×	0.56		230	219		GLASS	ORDHAN	Y, THICK	C. ABSORBI	ENT.	%, DOU
/AIE) 32	2,52 mix	13.7 ×	0.56		750	748	237	COLOR	LIGHT. N	EDUM. D	ARK.		
(m*X	×				1	1	WEIGHT		kg/m*(!	FLOOR)	kg	/m³ (WA
	m*×	×		 		-		INTERNAL HEAT	•	W'm'		m*/P	EOPLE
					1 n H		110		VFILTR				
ROOF-SUN		26's ×	0.46	 -	675	717	619	4	ALIE I C	A I IOIY	e dije e		
ROOF - SHADI		×				ļ	<u> </u>	Swinging	7. v.	25.7%			
TRANS.	GAIN-EXCE	PT WALLS	& ROOF	[i	1		REVOLVING I	DOORS	PEOPLE	X CMH/PER	دا :	·
SLASS 4	5 m³×	17.7 ×	5.I		407	379	1418	OPEN DOOR	s Do	XZRO	CMH/DOOR	₹ !	
	m³×	×	a seemen of			100		EXHAUST A	in.	11 14	17.3	i	
	5,65 m'×	8,85 ×	1,16		264	246	271	CRACK	m×		CMH/m	T	
PARTITION (I)		8.85 ×			1771	123	176	INFLITRA	TION	CN	AH K	1	
						1			ENTIL				
		8.85 x		ļ	235	196	242	Ç				1.	
DOOR LINY	1.84 1	& 82 ×	2.15		35	32	36	6 PEOPLE	:× 2		MH/PER.	1 15	50
NELTRATION	CMH	X de	EX 0.29	!	1		<u> </u>	m'×	· · · · · · · · · · · · · · · · · · ·	C	MH/m [*]	1	
	INTERNA	L HEAT		I			Ī	VENTILA	MOIT	CN	4H 💻	1 15	70
PEOPLE	4	PEOPLEX	rt.		246	246	246		SENSI	SLE HE	EAT FAC	TOR	
		×	860		200	-570	1	}	4.36	-	(ERSH)	. 0.	112 2
(₩	Kwx		·	}		·	1	ES.H.F=-	479		(ERTH)	0.11	ر ادر م
-IGHTS	560	× 20 W×	1.08		210	1.210	1.210	<u>}</u>				10	- خير مند
APPLIANCES E	ETC.			<u> </u>	1	ļ		1	וט	EHUMID	NFIED A	Carlotte and	
4 4 4	\$		e grant traveler		1		<u> </u>	APPARATUS	DEWPO	NT.	12.	6'	t
				<u> </u>	1		1						
THERMAL S	R	m,×	deg×	[1		(-)	1	\$	ノマノヤ	5 in the	(FRSH)		
HEHWAL 5			4				1	ł	<u> </u>		=	140	7 64
	<u> </u>		Sub. Total		1		<u> </u>	124 RM-126	ADP)(1	- BF)	×0.29	147	D CM
Service.	<u> </u>		SUB TOTAL	- 1	1			124 RM-126	ADP)(1	- BF)	×0.29	147	D CM
SAFETY FACT	OR		%				- 000	IZO RM-126	ADP)() - BF)	×0.29		D CM
SAFETY FACT	<u> </u>		%			3766	5.889	IZO RM-12.	ADP)() - BF)	×0.29		D CM
PAFETY FACT	OR OM SENSIBLE		%		898	3766		120 RM-12.5 NOTES GLASS	ADP)()	: ^D x	×0.29 .5 x 2 ≈ 3		O CM
SAFETY FACT ROC SUPPLY DUCT	OR OM SENSIBLE SUPPLY	HEAT SUB TO	%				5.889 389	120 RM-12.5 NOTES GLASS	ADP)()	: ^D x	×0.29		O CM
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN	OR OM SENSIBLE SUPPLY +LEAK	HEAT SUB TO	% TAL FAN HP =10%		390	3766 377	389	124 RM-124 NOTES GLASS	(SE)	: ^D x	×0.29 .ちょ2 = 3 1,5 = 1,5	5.0	
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN SYPASS OUTS	OR DM SENSIBLE SUPPLY + LEAK IDE AIR 150	HEAT SUB TO DUCT F LOSS CMH> 177008	% TAL FAN -HP =10% -0.1 BF-0.29	3	398 390	3766 377 2P	329 80	IZA RM-126 NOTES GLASS WALL	(SE) (NE)	10x1 10x1 10x1	×0.29 .5 ×2 = 3 1.5 = 1.5 4.86 = 3	5. o 5 = 32	. 48
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN SYPASS OUTS	OR DM SENSIBLE SUPPLY +LEAK IDE AIR 150 TIVE ROOM	HEAT SUB TO PUCT F LOSS CMH>177006	% TAL FAN -HP =10% -0.1 BF-0.29	3	390	3766 377 2P	329 80	IZA RM-126 NOTES GLASS WALL	(SE) (NE)	10x1 10x1 10x1	×0.29 .5 ×2 = 3 1.5 = 1.5 4.86 = 3	5. o 5 = 32	. 48
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN SYPASS OUTS	OR DM SENSIBLE SUPPLY +LEAK IDE AIR 150 TIVE ROOM	HEAT SUB TO DUCT F LOSS CMH> 177008	% TAL TAN -HP =10% -0,1 BF-029 HEAT B	3	398 390	3766 377 2P	329 80	IZARM-12L NOTES GLASS WALL	(SE) (NE) (SE) (NE)	10x1 10x1 10x1 10x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1	. = 32 .5 = 31	.48 Z. ⁵²
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN SYPASS OUTS	OR DM SENSIBLE SUPPLY +LEAK IDE AIR 150 TIVE ROOM	HEAT SUB TO PUCT F LOSS CMH>177006	% TAL FAN -HP =10% -0,1 BF-029 HEAT #	3	398 390	3766 377 2P	329 80 4358	IZARM-12L NOTES GLASS WALL	(SE) (NE) (SE) (NE)	10x1 10x1 10x1 10x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1	. = 32 .5 = 31	.48 Z. ⁵²
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN TYPASS OUTS: EFFEC	OR SUPPLY +LEAK DE AIR 150 TIVE ROOM ROOM LAT	HEAT SUB TO PUCT F LOSS CMH > 17.7000 1 SENSIBLE ENT HEAT	% TAL FAN -HP =10% -0,1 BF-029 HEAT # X 0.72	3	398 390	3766 377 377	329 80	IZA RM-126 NOTES GLASS WALL	(SE) (NE) (SE) (NE)	10x1 10x1 10x1 10x1 10x1	×0.29 .5 × 2 = 3 1.5 = 1.5 • 4.86 3 • 4.86 1.	0 = 32 5 = 3 8 = z.	.48 Z. ⁵²
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN SYPASS OUTS: EFFEC NFILTRATION PEOPLE	OR SUPPLY +LEAK DE AIR 150 TIVE ROOM ROOM LAT	HEAT SUB TO POUCT LOSS CMHX 17.7008 SENSIBLE ENT HEAT g/kg 6 PEOPLEX	% TAL FAN -HP =10% -0.1 BF-029 HEAT B × 0.72	3	390 77 365	3766 377 377	329 80 4358	NOTES GLASS WALL PARTIL	(SE) (NE) (SE) (NE) (NE)	10x1 10x1 10x1 10x 10x	×0.29 .5 × 2 = 3 1.5 = 1.5 .4.86 3 .4.86 1. .2.8 = 1	2 = 32 2 = 12.1 5 .68	.48 Z. ⁵²
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN TYPASS OUTS: EFFEC NEUTRATION PEOPLE STEAM	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT	HEAT SUB TO PUCT F LOSS CMHX 17.7000 SENSIBLE ENT HEAT g/kg	% TAL FAN -HP =10% -0.1 BF-029 HEAT B × 0.72	3	390 77 365	3766 377 377	329 80 4358	NOTES GLASS WALL PARTIL	(SE) (NE) (SE) (NE) (NE)	10x1 10x1 10x1 10x 10x	×0.29 .5 × 2 = 3 1.5 = 1.5 .4.86 3 .4.86 1. .2.8 = 1	2 = 32 2 = 12.1 5 .68	.48 Z. ⁵²
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN SYPASS OUTS EFFEC	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT	HEAT SUB TO POUCT LOSS CMHX 17.7008 SENSIBLE ENT HEAT g/kg 6 PEOPLEX	% TAL FAN -HP =10% -0.1 BF-029 HEAT B × 0.72	3	390 77 365 294	3766 377 377	329 80 4358	PARTILL	(SE) (NE) (SE) (NE) (SE) (NE) (NE)	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 .4.86 3 .4.86 1 .2.8 = 1 .2.8 = 1	5.0 = 32 5 = 32 8 = 12.1 5.68	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN TYPASS OUTS: EFFEC NFILTRATION PEOPLE STEAM APPLIANCES E	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX	HEAT SUB TO PUCT LOSS CMHX 17.7008 SENSIBLE ENT HEAT g/kg 6 PEOPLEX	% TAL FAN -HP =10% -0.1 BF-029 HEAT B × 0.72	3	390 77 365 294	3766 377 377	329 80 4358	PARTILL	(SE) (NE) (SE) (NE) (SE) (NE) (NE)	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 .4.86 3 .4.86 1 .2.8 = 1 .2.8 = 1	5.0 = 32 5 = 32 8 = 12.1 5.68	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN TYPASS OUTS: EFFEC NFLTRATION PEOPLE STEAM	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX	HEAT SUB TO PUCT LOSS CMHX 17.7008 SENSIBLE ENT HEAT g/kg 6 PEOPLEX	% TAL FAN -HP =10% -0.1 BF-029 HEAT B × 0.72	3	390 77 365 294	3766 377 377	329 80 4358	PARTILL DOOR	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (LN) (LN)	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 .4.86 3 .4.86 1 .2.8 = 1 .2.8 = 1	5,0 = 32 5 = 32 8 = 12,1 5,68	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN YPASS OUTS: EFFEC NFELTRATION PEOPLE STEAM APPLIANCES E	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX	HEAT SUB TO PUCT LOSS CMHX 17.7008 SENSIBLE ENT HEAT g/kg 6 PEOPLEX	% TAL FAN -HP =10% -0.1 BF-029 HEAT B × 0.72	3	390 77 365 294	3766 377 377	329 80 4358	PARTILL	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (LN) (LN)	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 .4.86 3 .4.86 1 .2.8 = 1 .2.8 = 1	5,0 = 32 5 = 32 8 = 12,1 5,68	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN YPASS OUTS: EFFEC NFATRATION PEOPLE STEAM APPLIANCES E	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX	HEAT SUB TO PUCT LOSS CMHX 17.7008 SENSIBLE ENT HEAT g/kg 6 PEOPLEX	% TAL FAN HP =10% & 1 BF 1029 HEAT × 0.72 49 540	3	390 77 365 294	3766 377 377	329 80 4358	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN YPASS OUTS: EFFEC NFELTRATION PEOPLE STEAM APPLIANCES E VAPOR TRANS	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC.	HEAT SUB TO DUCT LOSS CMHY 17 Tore SENSIBLE ENT HEAT g/kg 6 PEOPLEX kg/h×	% TAL FAN HP =10% 0.1 BF10.29 HEAT B X 0.72 49 540 Sub Total	3	390 77 365 294	3766 377 377	329 80 4358	PARTILL DOOR	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT MEAT GAIN YPASS OUTS: EFFEC NFRITRATION FEOPLE TEAM APPLIANCES E SAFETY FACT RO	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC.	HEAT SUB TO DUCT LOSS ICMHY IN TOOL A SENSIBLE ENT HEAT g/kg 6 PEOPLE kg/hX	% TAL FAN FHP =10% 0.1 BF+0.29 HEAT B X 0.72 49 540 Sub Total X TAL	3	398 390 77 365 294	3766 377 72 4.715	389 80 4358 294	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
APETY FACT ROC SUPPLY DUCT REAT GAIN YPASS OUTS: EFFEC NFILTRATION EOPLE TEAM APPLIANCES E APOR TRANS AFETY FACT RO UPPLY DUCT	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR DOM LATENT F	HEAT SUB TO DUCT LOSS ICMHY 17 Tore I SENSIBLE ENT HEAT g/kg 6 PEOPLEX kg/hX HEAT SUB TO	% TAL FAN HP =10% \$ 1 BF 1029 HEAT X 0.72 49 540 Sub TOTAL X TAL	3	398 390 77 365 294 294 30	3766 377 72 4.715 294 30	389 80 4358 294 294 30	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT SEAT GAIN YPASS OUTS: EFFEC NFRITRATION PEOPLE TEAM APPLIANCES E SAFETY FACT RO SUPPLY DUCT BYPASS OUTS	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR DOM LATENT H LEAKAGE LO	HEAT SUB TO DUCT LOSS ICMHY IN TOOL A SENSIBLE ENT HEAT g/kg 6 PEOPLE* kg/hX HEAT SUB TO SS 1× 1/4 g/kg×6	% TAL FAN FHP =10% FA 1 BF 10.29 HEAT B X 0.72 49 540 Sub TOTAL X TAL 10 % 0, BF X 0.72	3	398 390 77 365 294 294 30 102	3766 377 72 4.715 294 30	389 80 4358 294 294 30 109	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN TYPASS OUTS EFFEC NFRITRATION PEOPLE STEAM APPLIANCES E APOR TRANS SAFETY FACT RO SUPPLY DUCT SYPASS OUTS	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR DOM LATENT H LEAKAGE LO IDE AIR 150 CMH CTIVE ROOM	HEAT SUB TO DUCT LOSS ICMHY IN TOOL A SENSIBLE ENT HEAT g/kg 6 PEOPLE* kg/hX HEAT SUB TO SS IX (4 g/kg×6 M LATENT	% TAL FAN FHP = 10% A.1 BF+0.29 HEAT B X 0.72 49 540 Sub TOTAL X TAL (0 % 0,BF×0.72 HEAT B	3	398 390 77 365 294 294 30 102 426	3766 377 72 4.715 294 30 102 426	389 80 4358 294 294 30 109 428	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN SYPASS OUTS EFFEC NFRITRATION PEOPLE STEAM APPLIANCES E VAPOR TRANS SAFETY FACT RO SUPPLY DUCT SYPASS OUTS	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR DOM LATENT H LEAKAGE LO	HEAT SUB TO DUCT LOSS ICMHY IN TOOL A SENSIBLE ENT HEAT g/kg 6 PEOPLE* kg/hX HEAT SUB TO SS IX (4 g/kg×6 M LATENT	% TAL FAN FHP = 10% A.1 BF+0.29 HEAT B X 0.72 49 540 Sub TOTAL X TAL (0 % 0,BF×0.72 HEAT B	3	398 390 77 365 294 294 30 102	3766 377 72 4.715 294 30	389 80 4358 294 294 30 109 428	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROC SUPPLY DUCT HEAT GAIN TYPASS OUTS EFFEC NFRITRATION PEOPLE STEAM APPLIANCES E APOR TRANS SAFETY FACT RO SUPPLY DUCT SYPASS OUTS	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LATENT F LEAKAGE LO IDE AIR 150 CMH X CMH X	HEAT SUB TO DUCT LOSS IMMY IN TOTAL BYRE A SENSIBLE ENT HEAT g/kg A PEOPLE kg/hX HEAT SUB TO SS IX 9 8 8 kg/kg M LATENT M TOTAL H	% TAL FAN FHP = 10% FA, 1 BF + 0.29 HEAT \$\frac{1}{2}\$ X 0.72 49 540 Sub Total X TAL (0 % 0, BF × 0.72 HEAT \$\frac{1}{2}\$	3	398 390 77 365 294 294 30 102 426	3766 377 72 4.715 294 30 102 426	389 80 4358 294 294 30 109 428	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROCE SUPPLY DUCT HEAT GAIN TYPASS OUTS EFFEC NERTRATION PEOPLE STEAM APPLIANCES E TAPOR TRANS SAFETY FACT ROCE SUPPLY DUCT EFFEC EFFEC	OR SUPPLY LEAK IDE AIR 150 TIVE ROOM ROOM LAT TC. OR LEAKAGE LO IDE AIR 50 CMHX TOTIVE ROOM CTIVE ROOM CTIVE ROOM CTIVE ROOM OUTSIDE	HEAT SUB TO DUCT LOSS LOMBY 17 ONE A SENSIBLE ENT HEAT g/kg 6 PEOPLEX kg/hX HEAT SUB TO SS 1×9,4 g/kg×6 M LATENT M TOTAL H AIR HEAT	% TAL FAN FHP = 10% FA 1 BF 10.29 HEAT B X 0.72 49 540 Sub TOYAL X TAL (0 % 0.BF × 0.72 HEAT B HEAT B	3	398 390 77 365 294 294 30 102 426	3766 377 72 4.715 294 30 102 426	389 80 4358 294 294 30 109 428	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROCE SUPPLY DUCT HEAT GAIN TYPASS OUTS EFFEC NERTRATION PEOPLE STEAM APPLIANCES E TAPOR TRANS SAFETY FACT ROCE SUPPLY DUCT EFFEC EFFEC SENSIBLE:	OR SUPPLY LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR DOM LATENT 1 LEAKAGE LO IDE AIR 150 CMHX TIVE ROOM CTIVE ROOM CTIVE ROOM CMHX	HEAT SUB TO DUCT LOSS LOMBY 17 POSE A SENSIBLE ENT HEAT g/kg 6 PEOPLEX kg/hX HEAT SUB TO SS 1×9.4 g/kg×0 M LATENT M TOTAL H AIR HEAT degx(1-	% TAL FAN FHP = 10% FA 1 BF 1029 HEAT B X 0.72 49 540 Sub TOTAL X TAL (0 % BF × 0.72 HEAT B BF) × 0.29	3	398 390 77 365 294 294 30 102 426	3766 377 72 4.715 294 30 102 426	389 80 4358 294 294 30 109 428	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROCE SUPPLY DUCT HEAT GAIN TYPASS OUTS EFFEC NFRITRATION PEOPLE STEAM APPLIANCES E APPLIANCES E GAFETY FACT ROCE SUPPLY DUCT EFFEC EFFEC SENSIBLE: ATENT:	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR LEAKAGE LO IDE AIR 150 CMHCTIVE ROOM CTIVE ROOM CTIVE ROOM CMHX CMHX CMHX	HEAT SUB TO DUCT LOSS CMHY 17 OF TO THEAT A SENSIBLE ENT HEAT A/KE B PEOPLEX KE/hX HEAT SUB TO SS AX 14 E/KEX M LATENT M TOTAL H AIR HEAT B/KEX(1- E/KEX(1- E/KEX(1-	% TAL FAN FHP = 10% FA 1 BF 1029 FEAT S X 0.72 47 540 Sub Total X TAL 10 % FEAT S BF) X 0.29 FF) X 0.29 FF) X 0.72	4	398 390 77 365 294 294 30 102 476 791	3766 377 72 4.715 294 30 102 426	389 80 4358 294 294 30 109 428 4786	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
SAFETY FACT ROCE SUPPLY DUCT HEAT GAIN TYPASS OUTS EFFEC NERTRATION PEOPLE STEAM APPLIANCES E APPLIANCES E GAFETY FACT ROCE SUPPLY DUCT EFFEC EFFEC ENSIBLE: ATENT: GR	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR DOM LATENT 1 LEAKAGE LO IDE AIR 150 CMHX CTIVE ROOM CTIVE ROOM OUTSIDE CMHX CMHX KAND TOTAL 1	HEAT SUB TO DUCT LOSS ICMHY 17 7000 A SENSIBLE ENT HEAT g/kg 6 PEOPLEX kg/hX HEAT SUB TO SS IX 9 4 6/kg X/ M LATENT M TOTAL H AIR HEAT deg X (1 — g/kg X (1 — HEAT SUB TO	% TAL FAN FHP = 10% FA 1 BF 1029 HEAT B X 0.72 47 540 Sub Total X TAL 10 % BF × 0.72 HEAT B BF) × 0.29 BF) × 0.29 AL	4	398 390 77 365 294 294 30 102 426	3766 377 72 4.715 294 30 102 426	389 80 4358 294 294 30 109 428 4786	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76
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SAFETY FACT ROCE SUPPLY DUCT SEAT GAIN YPASS OUTS EFFEC NEATRATION PEOPLE STEAM APPLIANCES E SAFETY FACT ROCE SUPPLY DUCT EFFEC EFFEC EFFEC SENSIBLE: ATENT: GR	OR SUPPLY +LEAK IDE AIR 150 TIVE ROOM ROOM LAT CMHX TC. OR LEAKAGE LO IDE AIR 150 CMHCTIVE ROOM CTIVE ROOM CTIVE ROOM CMHX CMHX CMHX	HEAT SUB TO DUCT LOSS CMHY 17 OF TO THE TO T	% TAL FAN FHP = 10% FA 1 BF 1029 HEAT B X 0.72 47 540 Sub Total X TAL 10 % BF × 0.72 HEAT B BF) × 0.29 BF) × 0.29 AL	4	398 390 77 365 294 294 30 102 476 791	3766 377 72 4.715 294 30 102 426	389 80 4358 294 294 30 109 428 4786	PARTILL DOOR ROOF	(SE) (NE) (SE) (NE) (NE) (NE) (NE) (NE) (NE) (NE) (N	1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1 1.0x1	×0.29 .5 × 2 = 3 1.5 = 1.5 :4.86 3 :4.86 1 : 2.8 = 1 : 2.8 = 1 : 2.0 = 1	5 = 32 5 = 37 8 = 2,1 5,68 8 = 25,6	.48 2.52 76

COOLING AND DEI			1.11.	i Chi	SHEET NO. 12
	OURED	BY			DATE ORIGINAL
	PPRESS				REVISION
SPACE USED FOR REST ROOM (F-2)					SYSTEM PERSON IN CHARGE
Size 5,6 mx 3,5 m= 19,6 m	-	×	<u> 2/8</u>	m(H)=	
TEM AREA OR SUN GAN OR FACTOR	<u> </u>	Kei	l/h	-	ESTMATE FOR. AM PEAK LOAD AM
QUANTITY TEMP. DEF.			CORR	ECTION	PM PM4
SOLAR GAIN GLASS	4:	`oo	5:00	3:00	HOURS OF OPERATION HOUR (-)
(SE) 1.5 m'x 257 x 021 /625 x 0.94 x 0.65		158	49	66	OUTSIDE DESIGN CONDITIONS COB CWB KRH
m²X X					CONDITIONS DB C WB C %RH DP C g/kg
m ₁ X X	1		1		OUTSIDE 41.7 28.4 38 18.8
m'X X		i			ROOM 74.0 50 9.4
m³X X				i	DIFFERENCE 17.7 XXX XXX XXX 9.4
SOLAR & TRANS GAIN-WALLS & ROOF		1			BLIND NON-EXISTENCE (OUTSIDE, INSIDE) L. M. D.
		196	, n=	114	GLASS ORDINARY, THICK, ABSORBENT. %. DOUBLE
	 	170		1 T	COLOR LIGHT, MEDIUM, DARK,
The second secon	 	!		-	WEIGHT kg/m1(FLOOR) kg/m2(WALL
m³X X			ļ	}	
m* × ×	 _	<u> </u>	ļ <u>.</u>		INFILTRATION
ROOF-SUN 19.5 m'x 26.2 x 0.46		237	251	217	
ROOF -SHADED M'X X		!			SWMGMG
TRANS. GAIN-EXCEPT WALLS & ROOF	•			1	REVOLVING DOORS PEOPLEX CMH/PER
GLASS 1.5 m'x 17,7 x 5.1		136	127	140	OPEN DOORS DOORSX CMH/DOOR
Celling m²X X		<u> </u>		<u> </u>	EXHAUST AIR
FLOOR m ^t X X		!			CRACK MX CMH/m
PARTITION m ^x X X					INFILTRATION CMH
				i i	VENTILATION
The state of the s	-	ī		1	2 PEOPLEX 25 CMH/PER. 50
INSTRUMENT CMHX deg X 0.29				•	m²× CMH/m²
THEFT				:	VENTILATION CMH = 50
INTERNAL HEAT	ļ	82	82	82	SENSIBLE HEAT FACTOR
PEOPLE Z PEOPLEX 4		_عد_	00	<u> </u>	202 (ERSH) . 9 / 17 1)
Kw Kw× × 860	<u> </u>		4.4	4-4	E.S.H.F= 1415 (ERTH)
LIGHTS 19.5 × 70 W× 1.08	<u> </u>	424	424	474	DEHUMIDIFIED AIR
APPLIANCES ETC.	 		 	- 1	
		<u> </u>		!	APPARATUS DEWPOINT 12.6 C
	L	!		<u> </u>	1.273 (ERSH) (24RM- (ADP)(1- BF)×0.29 430 CMH
CREDIT FOR THERMAL STORAGE MTX deg X	!	i	()	<u> </u>	1.6/3 H 430 CMH
Sub Total	<u> </u>	!			154 Kill 156 VD 111
SAFETY FACTOR %		!	<u> </u>	<u> </u> -	INOTES
ROOM SENSIBLE HEAT SUB TOTAL	1	133	1038	43 ه را	GLASS (SE): 1.0x 1.5 = 1.5
SUPPLY DUCT SUPPLY DUCT FAN		1			WALL (SE): 35 × 486_1,5=15,51
HEAT GAN +LEAK LOSS +HP =10%	1	114	104	105	Anima
BYPASS OUTSIDE AR 50 CMH 17,7 4+1 4 6. BF +0.29		Z6	z4		
EFFECTIVE ROOM SENSIBLE HEAT	,	273		1.175	
ROOM LATENT HEAT			<u> </u>	 	
		1		l	
INFILTRATION CMHX g/kgX 0.72	 	00		98	1
PEOPLE Z PEOPLE 49		98		70	
STEAM kg/hX 540	<u> </u>				
APPLIANCES ETC.					
	ļ	1			
VAPOR TRANS.	ļ	<u> </u>		ļ	
VAPOR IRANA.		1	·	<u> </u>	
Sub Total					
Sub Total		1 48	98	98	
Sub Total SAFETY FACTOR ROOM LATENT HEAT Sub TOTAL		198	98	98	
Sub Total SAFETY FACTOR % ROOM LATENT HEAT SUB TOTAL Supply Duct Leakage Loss /0 %		10			
Sub Total Safety Factor Room Latent Heat Sub Total Supply Duct Leakage Loss Bypass Outside Air 25 CMH × 9.4 E/kg × 0.1 BF × 0.72			10	10	
Sub Total SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR 25 CMH × 9.4 E/kg × 0.1 BF × 0.72 EFFECTIVE ROOM LATENT HEAT ###################################		10 34 142	10 34 142	10 35 143	
Sub Total SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR SCMH×9.4 E/kg×0.1 BF×0.72 EFFECTIVE ROOM LATENT HEAT EFFECTIVE ROOM TOTAL HEAT		10 34	/o 34	10 35 143	
SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR 25 CMH × 9.4 E/kg × 0.1 BF × 0.72 EFFECTIVE ROOM LATENT HEAT OUTSIDE AIR HEAT		10 34 142	10 34 142	10 35 143	
SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR 25 CMH × 9.4 E/kg × 0.1 BF × 0.72 EFFECTIVE ROOM LATENT HEAT EFFECTIVE ROOM TOTAL HEAT OUTSIDE AIR HEAT SENSIBLE: CMH × deg × (1 - BF) × 0.29		10 34 142	10 34 142	10 35 143	
SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR TO ME EFFECTIVE ROOM LATENT HEAT EFFECTIVE ROOM TOTAL HEAT OUTSIDE AIR HEAT SENSIBLE: CMH × deg × (1 - BF) × 0.29 LATENT: CMH × g/kg × (1 - BF) × 0.72		10 34 142	10 34 142	10 35 143	
SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR SCHMHX 9.4 E/kg x0.1 BF x 0.72 EFFECTIVE ROOM LATENT HEAT EFFECTIVE ROOM TOTAL HEAT OUTSIDE AIR HEAT SENSIBLE: CMHX deg x (1 - BF) x 0.29 LATENT: CMHX g/kg x (1 - BF) x 0.72 GRAND TOTAL HEAT SUB TOTAL		10 34 142	10 34 142	10 35 143	
SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR TO ME SUBSTITUTE EFFECTIVE ROOM LATENT HEAT EFFECTIVE ROOM TOTAL HEAT OUTSIDE AIR HEAT SENSIBLE: CMHX dogx(1-BF)×0.29 LATENT: CMHX g/kg×(1-BF)×0.72 GRAND TOTAL HEAT SUB TOTAL RETURN DUCT RETURN DUCT PUMP PIPE **		10 34 142	10 34 142	10 35 143	
SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR SCMM×9.4 g/kg x0. BF x 0.72 EFFECTIVE ROOM LATENT HEAT EFFECTIVE ROOM TOTAL HEAT OUTSIDE AIR HEAT SENSIBLE: CMH x deg x (1 - BF) x 0.29 LATENT: CMH x g/kg x (1 - BF) x 0.72 GRAND TOTAL HEAT SUB TOTAL		10 34 142	10 34 142	10 35 143	

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1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						•		ESTIMATE	-	τ No.		13	
INQUIRING NO.				DORESS					DATE ORIGINAL				
				/ F-		,		SYSTEM	REV	SION			
SIZE , 8.0			B m'		<u></u>	- B	m(H)=	246,4 m²	PER	SON IN C	HARG	E	
10.0	AREA OR	SUN GAN OR		7	Ke				AM			AM	
ITEM	QUANTITY	TEMP DIFF	FACTOR			·	ECTION	ESTIMATE FOR	PM	PEAK LO	AD	PM4	
S		N GLASS	100	41	00		3:00	HOURS OF OPER	ATION	Hour (~		
(SE) 45	m*×252	x 0,21/695× 05	74×0,65		1172		196	OUTSIDE DESIGN CO	NDITIONS	CD8	CWB	%R	
	m [®] X	×			T			CONDITIONS DB C) WB C	*RH	OP C	g/kg	
	m³×	×						OUTSIDE 41.7	1284	38		188	
	m³×	×			<u> </u>		<u> </u>	ROOM 24.	!	50		94	
	m²×	×			1		<u> </u>		IXXX		XXX	9.4	
		AIN-WALLS	a ROOF							UTSIDE, INSI			
WALL (SE) 30	איש מלי	12.6 ×	0.56	ļ <u>.</u>	243	<i>23</i> 1.	253			ABSORBENT	(%	. DOUBL	
	m³×	<u>×.</u>		 	<u>!</u>		1	[MEDIUM. DA				
	m³X	×		-	 	ļ <u>-</u> -	<u>:</u>	WEIGHT	kg/m³(F) W/m²	LOOK)	m³/PE	n' (WAL	
	m²X	× ×	<u>an Albaha</u>	}		3-7	000	INTERNAL HEAT			m·/me	JPLE	
ROOF-SUN	38 m'×	29' ₂ ×	0.46		061	1.120	972	SWINGING	ATION				
ROOF - SHADE		PT WALLS 8	ROOF	 	:		· · ·	REVOLVING DOORS	PEOPLEX	CMH/PER			
GLASS A	711.—EΛCE 5 m³X	ロワワ ×	5.1		407	270	418			MHIDOOR			
CELING	m³×	× ×	_5(407	711	7.0	EXHAUST AM					
FLOOR	m²X	×		 	Ť		-	CRACK m	<	CMH/m			
PARTITION (1)	88 m2×	8.85 ×	1,51	 	757	735	259	INFILTRATION	СМІ	-			
	}. * ×	885 x	1.69	1	168	157	113	VENTIL	ATION		- ;		
	3,6 m x	8,85 ×	2,15	1	1 69.	64	171	(DPEOPLEX	25 CM	H/PER.	250	·	
INFLITRATION	СМН	X deg X	0.29		!			m ₂ ×	CM	1H/m*	#	<u> </u>	
	INTERNA	L HEAT						VENTILATION:		4 1 1	400		
PEOPLE	10	PEOPLEX41			416	410	410	SENS	14 A	AT FACTO			
Kw	KwX	×	860	\	!		1 - 3	ESHF=-5.3		RSH) = 0	.87 (11.8°C	
LIGHTS		× Zo W×	1.08		901	1901	1.901		5) IE				
APPLIANCES ET	С			ļ	-		!	🖁 in ye i i i 🖼	EHUMIDI	FIED AIR		13	
	·			 			<u> </u>	APPARATUS DEWPO	INT	12.4		_&	
CREDIT FOR				 -	ļ	(-).	 	5358	ζ. (Ε	RSH)	<u>.</u>		
CREDIT FOR THERMAL ST	ORAGE	m²×	GERX Sub Total	 		-	` 	124 RM- (2.64 DP)	1- BF) X	0.29	800	CMH	
C E			300 TOTAL		1		1	NOTES	0.				
SAFETY FACTO		HEAT SUB TOTA		1	683	1156	4.653	f in a company of the company	1 ° × 1.5	×3 ≃4	.5		
SUPPLY DUCT					000	4.000	7.57 <u>5</u> 	WALL (SE)	00 7 1	86 45.	 - 213	8	
HEAT GAIN		Loss +H	A Company of the Comp	N 10	469	465	466	WALL COFT		. 28 - 36	J-4.	į.	
		CMH > 17.7 0			206	192		PARTITION	() : 2 ~ .	Z.8 = 11.	7		
		SENSIBLE I	7	5	358	5307	5,331	(3) , 4,53	. S'8 = 111	u . Tayan		
F	OOM LAT	ENT HEAT						R∞F: SR	1 + 15		. "		
INFLITRATION	CMHX	g/kg×	0.72		1				. 6	0 1			
PEOPLE	1	O PEOPLE A	.9		490		490	DOOR (IN)	: 1,35 × 7	و. ۳ خ ع. b			
STEAM .		kg/h×	540		<u> </u>		<u> </u>	!				1.0	
APPLIANCES ET	· ·			ļ	1		ļ			-	: : : :		
				ļ	<u> </u>		<u> </u>						
VAPOR TRANS.					<u>[</u>			e e agric					
	<u> </u>		SUB TOTAL	ļ									
SAFETY FACTO			*	-	40	490	105						
		TEAT SUB TOTA		ļ	490						- 11 - 12		
SUPPLY DUCT I			10%		271	50	288						
		X 9,4 g/kg X0,1 g		 -	811	2.11 81	828				1		
		A LATENT HE		7	169	6 118							
FLLFC.		A TOTAL HE	<u>., e</u>		<u> </u>	, 10	<u> </u>)					
	OUTSIDE	VIS HEVE											

FORM E-20E

LATENT: CMHX g/kg×(1- BF)×0.29

GRAND TOTAL HEAT SUB TOTAL

RETURN DUCT RETURN DUCT PUMP PIPE # %

HEAT GAN LEAK GAN H.P GAN

(U.S.R.T) GRAND TOTAL HEAT E

COOLING AND DE	HUMIDI	FYING	ESTIMATE	
Incumus No.	YE GARILLO	n de la companya de l		SHEET NO. 14
	DDRESS	jewa.	And the second s	DATE ORIGINAL
SPACE USED FOR ELECTRICAL & INSTRUMENT	REPAIR	ROOM ()	-d) SYSTEM	REVISION
Size 18.0 m× 11.0 m= 198.0 m2	×	2,8 m(H)		PERSON IN CHARGE
AREA OR SUN GAN OR	I Ke	al/h		AM: LANCE AM
TEM QUANTITY TEMP. DIFF.		CORRECTIO	ESTMATE FOR	PM PEAR LOAD PM4
SOLAR GAIN - GLASS	4:00	5:00 3:0		RATION HOUR (-)
10 Jahr 18	1729	196 26		
	 	1,451,73		CIWBCISRH DPC E/RE
w ₁ × ×		 		
m*X X				
·m³× ×	 		ROOM 24,	
m*X X	 	 		7 1 X X X X X X X X X X 9.4 EXISTENCE (OUTSIDE, MISIDE) L. M. D.
SOLAR & TRANS GAIN-WALLS & ROOF	1 1	ما اما		HARY, THICK, ABSORBENT. S. DOUBLE
WALL (SE) 81.48 mix 12.6 x 0.56	1575	548 59		
ω₁× ×	}			, MEDUM. DARK:
m ² X X	 		WEIGHT	kg/m³(FLOOR) kg/m³(WALL
m'× ×			INTERNAL HEAT	Wim' m'/PEOPLE
ROOF-SUN 1980m1× 26,2 × 0,46	2387	2532 2.18	<u>~</u> ;	RATION
ROOF-SHADED MEX X	!		SWINGING	
TRANS. GAIN-EXCEPT WALLS & ROOF	1		REVOLVING DOORS	
GLASS 6.0 m1x 17.7 x 5,1	547	505 55	OPEN DOORS	DOOREX CHH/DOOR
CERUNG m²× X			EXHAUST AM	<u> </u>
FLOOR mºX X	1 1 1		CRACK M	n× CMH/m
PARTITION 43,2 MIX 8,85 X 1,51	578	539 590	MELTRATION	CMH B
- OSE - IE	137	128 14		ILATION
DOOR 7,5 X 2,19	1	1-1-1	& PEOPLE X	ZE CMH/PER. 150
INSETRATION CMHX deg X 0.29	+	 	m ^t ×	CMH/m" W
INTERNAL HEAT	1 	1	VENTILATION	CMH # 300
2 B 4 1	301	246 24	,	SIBLE HEAT FACTOR
PEOPLE 6 PEOPLEX 41	Z46	1 340 34	<u>~~.</u>	
Kw Kw× × 860	- 	1 - 22 105		023 (ERSH) 0.95 (125°C)
LIGHTS 198. × 20 W× 1.08	4277	4277 425		DEHUMIDIFIED AIR
APPLIANCES ETC.		 		
			APPARATUS DEWP	POINT 12.6 C
	 		1007	23. (ERSH))(1-BF)×0.29 3.400 CMH
CREDIT FOR THERMAL STORAGE M2X deg X	1-1	<u> </u>	1/44 BM-12 (ADB)	1/1 - BEX0.29 3.460 CMH
Sub Tora	4	 	174111111111111111111111111111111111111	617
SAFETY FACTOR %		 	INCIES	
ROOM SENSIBLE HEAT SUD TOTAL	8971	897 88	O GLASS (SE): 1.0×1.5×4=6.0
SUPPLY DUCT SUPPLY DUCT FAN		1 1	, WALL (SE)): 180x 4.86 -6.0 = 81.48
HEAT GAN -LEAK LOSS +HP =10%	898	898 83	PARTITION	N: 180x 7,8 -7.2 =43.2
BYPASS OUTSIDE AIR 300 CMHY 17, 445 0, B.F. 0.29	154		1	1): 1.8 × 2.0 × 2 = 7.2
EFFECTIVE ROOM SENSIBLE HEAT	10023	100131991	DOOK CLIV	
ROOM LATENT HEAT		T	Roo F	: > K
INFETRATION CMHX g/kgX 0.72	<u>.</u>	(
PEOPLE 6 PEOPLEX 49	294	. 29	4]	
Later Section 1		T		
SIRAM	1	1-1-	;	
APPLIANCES ETC.	1	 	_	
Vanor Transfer	1	 	7	
VAPOR TRANS. Sub TOTAL	 	1.1		
		1	7	and the second s
SAFETY FACTOR	294	294 29	4	and the second of the second o
ROOM LATENT HEAT SUB TOTAL		1		
SUPPLY DUCY LEAKAGE LOSS 16 %				
Bypass Outside Am OCMH × 94 g/kg ×0, BF × 0.72	204	1		
EFFECTIVE ROOM LATENT HEAT	528	1		
EFFECTIVE ROOM TOTAL HEAT	10 551	10541104	य	
OUTSIDE AIR HEAT				and the second of the second o
SENSIBLE: CMHX degx(1- BF)x0.29	 	 		and the second of the second o
LATENT: CMHX g/kgx(1- BF)x0.72				
GRAND TOTAL HEAT SUB TOTAL			_	damental and comments of the second
O Des Person Duck Pure Per	i i	1.4		His Control of the American
HEAT GAIN LEAK GAIN H.P GAIN]	_]	in the second of the second
THE TOTAL CONTRACTOR OF THE CO		·	TO 10	
(U.S.R.T) GRAND TOTAL HEAT E	1) 1	` .	

COOLING AND DEHUMIDIFYING ESTIMATE (METRIC) 15 INCURED BY INDUMING No. DATE ORIGINAL A DDRESS JOD NAME REVISION (F-5 SYSTEM SPACE USED FOR PABX ROOM PERSON IN CHARGE 189 50 67.68 m n = m X SUN GAN OR Kcal/h AM AREA OF ESTMATE FOR PEAK LOAD ITEM PM 5 QUANTITY TEMP DEF 5:00 CORRECTION 4:60 HOURS OF OPERATION SOLAR GAIN -- GLASS Hour I 3:00 CDB %RH OUTSIDE DESIGN CONDITIONS 'CWB m² X CONDITIONS DBC | WBC %RH | g/kg m[‡]X mtX 405 1 28.Z 39 18.8 50 24. m¹× Room 9,4 16.5 XXX XXX 9.5 m²× DIFFERENCE BLIND NON-EXISTENCE(OUTSIDE, INSIDE) L. M. D. SOLAR & TRANS GAIN-WALLS & ROOF WALL (SE) 33.05m1X GLASS ORDINARY, THICK, ABSORBENT, Z43 Z34 120 777 (5W) 41,80 mex 20.4 478 419 476 COLOR LIGHT, MEDIUM, DARK, <u>650</u> kg/m1(FLOOR) × WEIGHT kg/m³(WALL) m¹/PEOPLE INTERNAL HEAT W/m² × ROOF-5UN 67.68 m'x INFILTRATION 866 748 816 × 0.46 ROOF - SHADED MIX REVOLVING DOORS PEOPLEX CMH/PER TRANS, GAIN-EXCEPT WALLS & ROOF DOORSX CMH/DOOR! OPEN DOORS m²× EXHAUST AM CELING CRACK $m^{r} \times$ FLOOR ZZ.ªª m'X 1,51 8.75 309 300 INFILTRATION 780 PARTITION DOOR (IN) 35m2 VENTILATION 69 3,25 64 71 75 CMH/PER. 4 PEOPLEX CMH/m² m²X. CMHX deg X INFILTRATION СМН VENTILATION INTERNAL HEAT SENSIBLE HEAT FACTOR 4 PEOPLEX 41 PEOPLE 164 164 (ERSH) = 0.93 (12.4) × 3938 Kw× 860 Kw. 1:462/1462/146 ×Zo WX 4723 1.08 DEHUMIDIFIED AIR APPLIANCES ETC. APPARATUS DEWPONT 3.938 (ERSH) CREDIT FOR THERMAL STORAGE 1330 CMH 124 RM-12,6ADP)(1-0,BF) ×0.29 SUB TOTAL SAFETY FACTOR 3418 3521 SR=68x11.0-7.85x2.5=67.68 3536 ROOM SENSIBLE HEAT SUD TOTAL SUPPLY DUCT SUPPLY DUCT WALL (SE) : 6.8 x 4.86 = 33.05 354 34 2 +LEAK LOSS +HP =10% (SW): 86 x4.86-41.80 48 53 | 52 BYPASS DUTSIDE AR LOO CMH 165 ... 0 | BFA029 EFFECTIVE ROOM SENSIBLE HEAT 3 938 3811 3926 PARTITION: 9,3×7.8-3.6-22.44 ROOM LATENT HEAT DOOR (IN) : 1.8x2.0=3.6 g/kg× INFILTRATION 196 196 196 PEOPLE PEOPLE 49 ROOF : SR kg/h× 540 STEAM APPLIANCES ETC. VAPOR TRANS. SUD TOTAL 196 196 196 ROOM LATENT HEAT SUD TOTAL 10% 20 20 SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AND CMH × 9,5 8/KE XO, BF × 0.72 69 69 285 285 EFFECTIVE ROOM LATENT HEAT 284 4 223 EFFECTIVE ROOM TOTAL HEAT 40961422 OUTSIDE AIR HEAT deg x (1- BF) x 0.29 CMHX SENSIBLE: g/kg×(1-BF)×0.72 CMHX

GRAND TOTAL HEAT SUD TOTAL

U.S.R.T) GRAND TOTAL HEAT

H.P GAN

RETURN DUCT _ RETURN DUCT _ PUMP

LEAK GAN

umana No	,,	LING AN		UIRED		4			••-	SHEE	T No.		16
NOUMING NO.										DAT	E ORIGI	NAL	
ED NAME				DRESS						REV	ISION	3 3 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	المستخفية أألف
PACE USED FO	O COMPUT	ER RM. UN	5.0N TI	(0-	1)			SYS	TEM	PER	SON IN	CHARGI	E
12.0	mx 7.0	m= 84			×	3.0	m(H)=	てき 2	· m				
	AREA OR	SUN GAN OR			Kei	il/h				AM	maria I		MA
TEM	QUANTITY		FACTOR	3,	00	Coss	ECTION	ESTMATE !	OR.	PM	PEAK L	DAD	PM3
				2				HOURS O	r OPFR		Hour		}
5		GLASS									CDB	,CMB	%RH
	m*×	×					!	OUTSIDE D					
	m³×	/×	·		100		<u> </u>	CONDITIONS			1%RH	DPC	g/kg
<u></u>	m¹×	. У						OUTSIDE	42.2	28.6	37		19.0
	m'×	×			i		Ī	Room	24.0	T	50		94
		×						DIFFERENCE	0.2	IXXX	xxx	xxx	9.6
	m'×							BLIND			UTSIDE. IN		
SOLAR &	TRANS GA	AIN-WALLS 8	ROOF			٠	}	1	í		ABSORBE		
WALL	m¹×	×	<u> </u>				1	GLASS					· DOGGCC
	m*X	×,,,,*			7		<u> </u>	COLOR	ILIGHT. N	AEDIUM, DA	IRK.		<u></u>
	m²×	//×						WEIGHT	1	kg/m*(F	LOOR)	kg/m	n² (WALL)
	×	X					T	INTERNAL HEA	T,	W/mt		m*/PE	OPLE
							 		NFILTR	ATION		1:	
Roof-Sun	m'×	×			<u> </u>			ŧ.		. , , .			
ROOF -SHADE	D m'Y	×				ļ		SWINGING		رائين معمود السياسي	A	1	4.1
TRANS.	GAIN-EXCE	PT WALLS &	ROOF		•		1	REVOLVING					
GLASS	m*X	×				1		OPEN DOOL	s Do	ORSX (MH/DOOR	<u> </u>	<u> </u>
	19.0 m'×		1.16		518	}	Ī	EXHAUST	Air		1321 T	1	
						 		CRACK	m×		CMH/m	1	
	84 o w, x	<u> 9.1 × </u>	1,59		216		 	INFILTR		СМ		1	
PARTITION(!)	13.5 m'×	al x	1.51	<u> </u>	186	<u> </u>	1	<u> </u>					
(z) I	50.4 ×	q t x	1.69		776		 	-{:	VENTIL				
DOOR (IN)	3.6 m² ×	4.1 ×	7.15		71	<u></u>	1	4 PEOPL	EΧ	25 C	MH/PER.	100	
INFILTRATION	CMH:	× deg×	0.29		!	I		m*	<	CI	dH/m²	1	
INPLIKATION		L HEAT		<u> </u>			1	VENTE	ATION	СМ	н 🔳	100	2
9 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2					, , A	([AT FAC	TOR	1 11
PEOPLE	4	PEOPLE × 41		ļ	164	ļ	1	·					
Kw	Kw×	×	860		800	 	 	E.S.H.F=-	<u> 23.75</u>	24 !	ERSH)	09961	3.07
Lights	84.0×	ZO WX	1.08	1	815		<u>i </u>	<u> </u>	2-10-1	1	ERTH)		
APPLIANCES E									Ď:	EHUMIDI	FIED A	R	1 N 1
	. , , , , , , , , , , , , , , , , , , ,						1	APPARATUS	Ph	њ.т		306	₽ .
	· · · · · · · · · · · · · · · · · · ·				: I		i -						-
Carne Co-						j)	 	124 RM- 1	3,75	4 (ERSH)	04 -	
CREDIT FOR	TORAGE	m²X c	seg ×	; '	ــــــــــــــــــــــــــــــــــــــ	<u></u> ,	+	124 PM- 15	ADP)	1- BF)	×0.29	0.400	CMH
			SUB TOTAL				!	F 44 1 1 1		0.1			
SAFETY FACTO	DR		%				!	NOTES			<u> 2</u> 44 5. f	_	
		HEAT SUB TOTAL		71	546	1	•	PART	ITION	(1):4	5×3,0=	13.5	• .
						1	Ī]		(z]; ig	0×3.0 -	3.6 = 5	0.4
SUPPLY DUCT	SUPPLY			_	155	l		1	•				
HEAT GAIN	+LEAK				155		:	, 	/ + A. 1	, , 9	470 -	3.6	
		CWH> 18'5 **1 > 0		<u> </u>	53	<u> </u>	<u> </u>	POOR	CEIAT	,0	× 2.0 =		3.54
EFFEC	TIVE ROOM	SENSIBLE H	EAT	_23	754			68111	NG	. 170	c 7,0 = 4	19,0°	. • •
	ROOM LATI							المانين	1	~ ~ ~		•	
		g/kg×	0.72			Į.	ļ .	FLOO	R :	SR	5.4		
INFLITRATION	CMH×			<u> </u>	101	 	1	1			•		+ 44
PEOPLE		4 PEOPLEX 4			196	ļ	+	-					1.0
STEAM		kg/h×	540			 	 	-					
APPLIANCES ET	rc.	•				<u></u>	<u> </u>	1					1
						f	1	J					
						I	1	1					1.11
V.=05 -55:::5	•			<u> </u>			Ī -	1					
VAPOR TRANS.				L	<u> </u>		+	†		1			
VAPOR TRANS.			SUD TOTAL		l	<u> </u>		∤					2.1.11
SAFETY FACTO			*				1	1					
SAFETY FACTO		IEAT SUB TOTAL	*		196			•	7.4				
SAFETY FACTO	OM LATENT H	SEAT SUB TOTAL	*		196 Z0		<u> </u>	j					
SAFETY FACTO ROO SUPPLY DUCT	OM LATENT H	SEAT SUB TOTAL	10%		Zo								
SAFETY FACTO ROO SUPPLY DUCT BYPASS OUTSH	OM LATENT H LEAKAGE LO: DE AIR ¹⁰ 0CMH	IEAT SUB TOTAL SS × 9.6 g/kg×0/B	% (0% sf×0.72		Z0 70								
SAFETY FACTO ROO SUPPLY DUCT BYPASS OUTSI EFFEC	OM LATENT H LEAKAGE LO: DE AIRIOCMH TIVE ROOM	SEAT SUB TOTAL SS 1×9,6 g/kg×0/B 1 LATENT HE	(0% F×0.72	- 7.	20 70 286								
SAFETY FACTO ROO SUPPLY DUCT BYPASS OUTSI EFFEC	OM LATENT H LEAKAGE LO: DE AIRIOCMH TIVE ROOM	IEAT SUB TOTAL SS × 9.6 g/kg×0/B	(0% F×0.72	24	Z0 70								
SAFETY FACTO ROO SUPPLY DUCT BYPASS OUTSI EFFEC	OM LATENT H LEAKAGE LO: DE AIRIOCMH TIVE ROOM	SEAT SUB TOTAL SS IX 9.6 g/kg X0/B I LATENT HE IN TOTAL HEA	(0% F×0.72	24	20 70 286								
SAFETY FACTO ROO SUPPLY DUCT BYPASS OUTSH EFFEC EFFEC	OM LATENT H LEAKAGE LOI DE AIRIMCMH TIVE ROOM TIVE ROOM	SEAT SUB TOTAL SS IX 9,6 g/kg×0/B I LATENT HE A TOTAL HEA AIR HEAT	N 0% F×0.72 EAT ■	24	20 70 286			and the state of t					
SAFETY FACTO ROO SUPPLY DUCT BYPASS OUTSH EFFEC EFFEC SENSIBLE:	OM LATENT H LEAKAGE LO DE AIRIPOCMH TIVE ROOM OUTSIDE CMHX	SEAT SUB TOTAL SS IX 9,6 g/kg×0/B I LATENT HE A TOTAL HEA AIR HEAT deg×(1- BF	# {0% sF×0.72 (AT ■ (XT €)	24	Zo 70 286 040			and the state of t					
SAFETY FACTOR ROC SUPPLY DUCT BYPASS OUTSH EFFEC EFFEC SENSIBLE: LATENT:	OM LATENT H LEAKAGE LO DE AIR OCH TIVE ROOM OUTSIDE CMHX CMHX I	SEAT SUB TOTAL SEAT SUB TOTAL A TOTAL HEA AIR HEAT deg × (1 - BF g/ke × (1 - BF	# {0% sF×0.72 (AT ■ (XT €)		Zo 70 286 040			Annual Control of the					
SAFETY FACTOR ROC SUPPLY DUCT BYPASS OUTSH EFFEC EFFEC SENSIBLE: LATENT: GRA	OM LATENT H LEAKAGE LO DE AIR ¹⁰⁰ CMH :TIVE ROOM OUTSIDE CMHX CMHX I AND TOTAL H	JEAT SUB TOTAL SS X 9,6 g/kg × 0/B A LATENT HE A TOTAL HEA AIR HEAT deg × (1 - BF g/kg × (1 - BF EAT SUB TOTAL	% % % % % % % % % %		Zo 70 286 040								
SAFETY FACTOR ROC SUPPLY DUCT BYPASS OUTSH EFFEC EFFEC SENSIBLE: LATENT:	OM LATENT H LEAKAGE LO DE AIR ¹⁰⁰ CMH :TIVE ROOM OUTSIDE CMHX CMHX I AND TOTAL H	JEAT SUB TOTAL SS X 9,6 g/kg × 0/B A LATENT HE A TOTAL HEA AIR HEAT deg × (1 - BF g/kg × (1 - BF EAT SUB TOTAL	# {0% F×0.72 AT ■ (Y ©)×0.29 I×0.72		Zo 70 286 040			Annual Principles (Control of the Control of the Co					
SAFETY FACTO ROO SUPPLY DUCT BYPASS OUTSH EFFEC EFFEC SENSIBLE: LATENT: GRA RETURN DUCT	OM LATENT H LEAKAGE LO DE AIR ¹⁰⁰ CMH :TIVE ROOM OUTSIDE CMHX CMHX I AND TOTAL H	SEAT SUB TOTAL SS X 9,6 g/kg x0/B 1 LATENT HE A TOTAL HEA AIR HEAT deg x (1 - BF g/ke x (1 - BF EAT SUB TOTAL UCT PUMP P	(0% F×0.72 EAT ■ (1 € (1×0.72		Zo 70 286 040			And the second s					

FORM E-2RE

COOLING AND DE	HUMIDII	TYING I	ESTIMATE	
	OURED BY			SHEET NO. 17
				DATE ORIGINAL
. 000	DORESE		CVCYPLA	REVISION
SPACE USED FOR COMPUTER ROOM UNIT			SYSTEM	PERSON IN CHARGE
Size 'mx m= 127.71 m'	т×	3.0 m(Hi=	3816* ""	
TEM AREA OR SUN GAIN OR FACTOR	Ke.		ESTMATE FOR	AM PEAK LOAD
QUANTITY TEMP. DEF.	3:00	CORRECTION	<u> </u>	РМ РМЗ
SOLAR GAIN - GLASS			HOURS OF OPER	
m!×	<u> </u>	<u> </u>	OUTSIDE DESIGN CO	NOTING COB CWB KRH
we will be a mark with the second of the sec			CONDITIONS DB C	
m'X X]		OUTSIDE 42.2	128,6 37 19.0
m'X X	T i		ROOM 24.0	50 9.4
The first of the second	1 7	,	DEFERENCE 18.2	XXX XXX XXX Q.
SOLAR & TRANS GAIN-WALLS & ROOF	i		BLIND HONE	(ISTENCEIOUTSIDE, NSIDE) L. M.D.
WALL (SE) #15 m'X 13.1 × 0.56	378	1	GLASS ORDINA	RY. THICK, ABSORBENT, %. DOUBLE
(SW) 430 m'x 17.9 x 0,56	431		COLOR LIGHT.	MEDIUM, DARK.
m'X X	17-21-	 	WEIGHT	kg/m²(FLOOR) kg/m²(WALL)
m²× ×	 	 	INTERNAL HEAT	W/m' m'/PEOPLE
The state of the s	 	 	INFILTE	
ROOF-SUN M'X X	 	 	SWINGING	
NOOF CHACLE	 		2	PEOPLEX CMH/PER
TRANS. GAIN-EXCEPT WALLS & ROOF	1 1	1 1		DORSX CMH/DOOR
GLASS M'X	 	 	{	CONTRACTOR OF THE PROPERTY OF
CELLING 22.35 m'X 9.1 X 1.16	236		EXHAUST AIR	× CMH/m
FLOOR 127.21 m'X 9.1 X 1,59	1841		CRACK M	
PARTITION 42,75 m2 x 9,1 x 1,51	588		INFILTRATION	CMH III
DOOR 36 M'x 911 y 7.15	71		VENTIL	The control of the c
				25 CMH/PER. 150
INFRITRATION CMHX dogX 0.29			m²×	CMH/m²
INTERNAL HEAT			VENTRATION	
PEOPLE 6 PEOPLEX 41	Z46			IBLE HEAT FACTOR
Kw	25.440		E.S.H.F = 35 7	25 7 (ERSH) 099 (13°C)
LIGHTS IZ7, ZIXZO WX 1.08	2748		35	685 (ERTH)
APPLIANCES ETC	· ·		j	EHUMIDIFIED AIR
	1		APPARATUS DEWPO	13.0 C
				Salar Sa
CREDIT FOR THERMAL STORAGE M'X degX	}!	() · (35. 25	1- BF)×0.29 17.300 CMH
Sub Total			174RM-13 ADP	1- BF/X0.29
SAFETY FACTOR %	i	1	NOTES	
ROOM SENSIBLE HEAT SUB TOTAL	1 31979		J 25 = 1013 x 81	6+ 5,15 x 7,5 = 127,21
SUPPLY DUCT SUPPLY DUCT FAN	1		(4E).	103×50=51.5
HEAT GAIN +LEAK LOSS -HP = 10%	3198			
BYPASS OUTSIDE AIR 150 CMH 18.2000 01 B.F. 0.29	80		(SW)	8.×5.°=43.°
EFFECTIVE ROOM SENSIBLE HEAT	35 257	100	1	1545 × 3.0 - 3.6 = 42.75
ROOM LATENT HEAT			1	
INFERTRATION CMHX g/kgX 0.72		<u>}</u>	DOOR (IN)	1.8 = 2.0 = 3.6
PEOPLE 6 PEOPLE 49	294	4. 6. 6.		7.45 × 3.0 = 27.35
STEAM kg/hX 540				
APPLIANCES ETC.	 		FLOOR :	SR
*** CARTEES ET C.			1	
VAPOR TRANS.	 		1	
Sub Total	 		j e v i sa	
	 	 	1.	
SAFETY FACTOR	794	1000	1	
ROOM LATENT HEAT SUB TOTAL	1		1	
DOTTE BOCK CERTIFICATION	30		1	
BYPASS OUTSIDE AIR SCHIKY 4 E/NEX BFX 0.72	104	 	1	
EFFECTIVE ROOM LATENT HEAT	75 105	 	{	
EFFECTIVE ROOM TOTAL HEAT	751685	 	t in the second of the second	
OUTSIDE AIR HEAT		}		
SENSIBLE: CMHX degx(1- BF)X0.29	 	 		
LATENT: CMHX g/kg×(1- BF)×0.72	 	 	4	
GRAND TOTAL HEAT SUB TOTAL	 	-	.	
RETURN DUCT RETURN DUCT PUMP PIPE _ %		}*!	Maria Comment	
HEAT GAIN LEAK GAIN H.P GAIN	<u> </u>	 	1	
(U.S.R.T) GRAND TOTAL HEAT	<u> </u>		<u> </u>	

FORM E-20E

COOLING AND DEHUMIDIFYING ESTIMATE (METRIC) INDUIRING NO. INCUIRED BY DATE ORIGINAL A DORESS JOB NAME REVISION SPACE USED FOR UNITS NO. 1 (NO. 7 CONTROL EQUIPMENT ROOM (M-3) SYSTEM PERSON IN CHARGE z.8 m(H)= 605.73 m ml X m# 216.33 m Kcal/h AREA OR SUN GAN OR ESTIMATE FOR: PEAK LOAD FACTOR QUANTITY TEMP. DIFF. CORRECTION PM 3:00 HOURS OF OPERATION HOUR (SOLAR GAIN --- GLASS COB OUTSIDE DESIGN CONDITIONS CONDITIONS DBC | WBC | SRH | DPC | E/KE m*X 100 142.2 | 78.6 OUTSIDE 24.0 94 m²λ OFFERENCE 182 XXX XXX XXX 9,6 m²× INON-EXISTENCE (OUTSIDE, INSIDE) L. M. D. BLIND SOLAR & TRANS GAIN-WALLS & ROOF 351 GLASS ORDWARY, THICK ABSORBENT. 12.9 WALL (SE) 5/24 m2X LIGHT, MEDIUM, DARK (SW) 26,23 m3x COLOR 0.53 158 220 kg/m*(WALL) kg/m1(FLOOR) m1/PEOPLE INTERNAL HEAT W m* m*X INFILTRATION ROOF-SUN m*X ROOF - SHADED , m³ X REVOLVING DOORS PEOPLEX CMH/PER TRANS. GAIN-EXCEPT WALLS & ROOF OPEN DOORS DOORSX CHH'DOOR! m*X 7,57 EXHAUST, AIR CELING ZI6.38 m'X 4961 z.52 CMH/m 9,1 1961 CRACK FLOOR 216.33 1.51 CMH 9.7 PARTITION (1)56.06mix × 777 INFILTRATION VENTILATION (z)_{38,}5 ^w 1.69 592 DOOR (IN) 54" Z5 CMH/PER Z.15 9.1 6 PEOPLEX 106 CMH/m² CMHX 0.29 INFETRATION CMH . VENTILATION INTERNAL HEAT SENSIBLE HEAT FACTOR **246** 6 PEOPLEX 4 PEOPLE (ERSH) 099 (13.c) E.S.H.F = 41.737 365 Kwx 08 20.984 860 Kw____ 42.160 (ERTH) 216,33 x 20 WX 4673 DEHUMIDIFIED AIR APPLIANCES ETC. 13.0 APPARATUS DEWPONT___ 41.732 (ERSH) 124RM- 13 ADP)11- BF) XO.29 14 600 CMH CREDIT FOR THERMAL STORAGE deg> SUB TOTA NOTES WALL (SE): 16.8 x 3,05 = 51.74 ROOM SENSIBLE HEAT SUB TOTAL 37 865 (SW): 8,6 x 3,05 = 26.23 SUPPLY DUCT SUPPLY DUCT 3787 +HP -LEAK LOSS =10% HEAT GAIN EYPASS OUTSIDE AIR 150 CMH 18700EX 0. B.F. 0.29 80 CEILING : SR EFFECTIVE ROOM SENSIBLE HEAT 41:932 FLOOR : SR PARTITION(1): 71.95 x 7.8-5,4=56.06 ROOM LATENT HEAT 0.72 CMHX g/kg× INFILTRATION (2):1375 x 2,8=38,5 294 6 PEOPLE > 49 PEOPLE kg/h× 540 STEAM DOOR(IN): (1,8+0,9)x2,0=5,4 APPLIANCES ETC. 5R=16.8x 13.75 - z.85 x 5.15= 216.33 VAPOR TRANS. Sub TOTAL SAFETY FACTOR **Z94** ROOM LATENT HEAT SUD TOTAL <u> 30</u> SUPPLY DUCT LEAKAGE LOSS BYPASS OUTSIDE AIR SEMHX9, 6 E/KEX BF X 0.72 104 EFFECTIVE ROOM LATENT HEAT 428 12 160 EFFECTIVE ROOM TOTAL HEAT OUTSIDE AIR HEAT CMHX deg × (1 - BF) × 0.29 g/kg × (1 - BF) × 0.72 SENSIBLE: смнх GRAND TOTAL HEAT SUB TOTAL RETURN DUCT RETURN DUCT PUMP PIPE HEAT GAIN LEAK GAIN H.P. GAIN

U.S.R.T) GRAND TOTAL HEAT

COOLING AND DEHUMIDIFYING ESTIMATE (METRIC)

A design of the context of the conte

PACE USED FOR FUEL LABORATORY (M - 12E 8.3 mx 7.9 ms 65.57 ms ITEM AREA OR SUN GAN OR FACTOR SOLAR GAIN — GLASS SOLAR GAIN — GLASS MYX X X MYX X MYX X MYX X MYX X SOLAR & TRANS GAIN—WALLS & ROOF WALL (SE) ZZ3Z ms 12.9 X 0.53 (NE) 2410 ms 11.9 X 0.53 (NE) 2410 ms 11.9 X 0.53 MYX X ROOF—SUN MS X ROOF—SUN MS X ROOF—SHADED MS X TRANS GAIN—EXCEPT WALLS & ROOF SLASS 3.0 ms 18.7 X 5.1 ELING 65.57 ms 9.1 X 2.52 CLOOR 65.57 ms 9.1 X 2.52 CLOOR 65.57 ms 9.1 X 1.69 NPETRATION CMHX degx 0.29 INTERNAL HEAT COPIE 4 PEOPLEX 4.1 SUPPLANCES ETC. CREDIT FOR HERMAL STORAGE MS degx (-) SUPPLANCES ETC. CREDIT FOR SOMM SENSIBLE HEAT METAL SUB TOTAL SUPPLANCES ETC. CREDIT FOR SOMM SENSIBLE HEAT METAL SUB TOTAL SUPPLANCES ETC. CREDIT FOR SOMM SENSIBLE HEAT METAL SUB TOTAL SUPPLANCES ETC. CREDIT FOR SOMM SENSIBLE HEAT METAL SUB TOTAL SUPPLANCES ETC. CREDIT FOR SOMM SENSIBLE HEAT METAL SUB TOTAL SUPPLANCES ETC. CREDIT FOR SOMM SENSIBLE HEAT METAL SUB TOTAL SUPPLANCES ETC. CREDIT FOR SUB TOTAL SUPPLANCES ETC. CAPOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	×	i/h	SYSTEM INCIDION SYSTEM INCIDION
ITEM	279 153 153 153 154 1504 110 233 164 1417 5647 565 53	CORRE	ESTMATE FOR. AM PEAK LOAD HOURS OF OPERATION HOUR (~ OUTSIDE DESIGN CONDITIONS CDB CWE CONDITIONS DB C WB C SRH DP C OUTSIDE 42.7 23.6 37 ROOM 24.0 50 DIFFERENCE [8.2 XXX XXX XXX XXX BLIND NON-EXISTENCEIOUTSIDE, INSDE) L GLASS ORDINARY, THICK ABSORBENT. S COLOR LIGHT, MEDIUM, DARK, WEIGHT REMINISTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORS CMH/DOOR EXHAUST AR CRACK MX CMH/M INFLITATION CMH B VENTILATION 4 PEOPLEX 25 CMH/PER. 11 J' m'X CMH/m' VENTILATION CMH B SENSIBLE HEAT FACTOR 6.665 (ERSH) 6.665 (ERSH) DEHLIMIDIFIED AIR APPARATUS DEWPOINT /2.6 6.265 (ERSH) OTEN
ITEM	279 153 152 152 1504 1504 110 233 164 1417 5647 565 53 6 265	CORRE	ESTMATE FOR. PM PEAK LOAD HOURS OF OPERATION HOUR (~ OUTSIDE DESIGN CONDITIONS CDB CWE CONDITIONS DB C WB C %RH DP C OUTSIDE 42.7 28.6 37 ROOM 74.0 50 DIFFERENCE 18.7 XXX XXX XXX BLIND NON-EXISTENCEIOUTSIDE, INSIDE) L GLASS ORDMARY, THICK, ABSORBENT. 9 COLOR LIGHT, MEDIJM, DARK, WEIGHT kg/m*(FLOOR) kg/ INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CHH/DOOR EXHAUST AIR CRACK MX CMH/M INFILTRATION CMH B VENTILATION 4. PEOPLEX 25 CMH/PER: 11 I m'X CMH/m' VENTILATION CMH B SENSIBLE HEAT FACTOR 6.265 (ERSH) 6.665 (ERSH) 1.2.6 6.265 (ERSH) 1.2.6 6.265 (ERSH) CALASS (SE): 1,0X1,5X2=3,0 WALL (SE): 8,3x3,05-3,0=72 CEILING: SR FLOOR: SR
SOLAR GAIN — GLASS SOLAR GAIN — GLASS M'X X M'X X M'X X M'X X M'X X SOLAR & TRANS GAIN—WALLS & ROOF NALL (SE) ZZ ^{3Z} m'X Z, 9 X 0, 53 (NE) Z4 ¹⁰ m'X 1, 9 X 0, 53 (NE) Z4 ¹⁰ m'X 1, 9 X 0, 53 M'X X ROOF—SUN M'X X ROOF—SUN M'X X ROOF—SUN M'X X TRANS. GAIN—EXCEPT WALLS & ROOF SLASS 3,0 m'X 18, 7 X 5, 1 CLOOR 65, 57 m'X 9, 1 X 2, 52 LOOR 65, 57 m'X 9, 1 X 2, 52 LOOR 65, 57 m'X 9, 1 X 1, 51 (2) 5 12 m'X 9, 1 X 1, 67 INTERNAL HEAT PEOPLE 4 PEOPLEX 4 1 KW KW X 860 KPPLANCES ETC. REDIT FOR HERMAL STORAGE M'X degX PAPELANCES ETC. REDIT FOR HERMAL STORAGE M'X degX PAPELANCES ETC. REPETT FACTOR SUPPLY DUCT FAN HERMAL STORAGE M'X degX PAPELANCES ETC. REPETT FOR HERMAL STORAGE MEX DISTORAL ROOM LATENT HEAT ROOM LATENT HEAT ROOM LATENT HEAT ROOM LATENT HEAT SUPPLY DUCT LEAKAGE LOSS W X SUPPLY DUCT LEAKAGE LOSS W X SUB TOTAL SUPPLY DUCT LEAKAGE LOSS W X SUPPLY DUCT LEAKAGE LOSS W X SUPPLY DUCT LEAKAGE LOSS	3 00 131 153 152 152 1504 110 233 164 1417 5647 565 53 6 265	CORREC	HOURS OF OPERATION HOUR (OUTSIDE DESIGN CONDITIONS CDB CWE CONDITIONS DBC WBC SRH DPC OUTSIDE 42.7 28.6 37 ROOM 74.0 50 DIFFERENCE 18.2 XXX XXX XXX BLIND HON-EXISTENCE(OUTSIDE, INSIDE) L GLASS ORDINARY, THICK, ABSORBENT. COLOR LIGHT, MEDIUM, DARK, WEIGHT KE/M*(FLOOR) KE/ INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER. OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFILTRATION 4 PEOPLEX 25 CMH/PER. 1. YENTILATION 4 PEOPLEX 25 CMH/PER. 1. YENTILATION CMH SE SENSIBLE HEAT FACTOR E.S.H.F= 6.265 (ERSH) 6.665 (ERSH) CAGS (ER
SOLAR GAIN — GLASS SE	279 153 152 279 1504 110 233 164 1417 5647 565 53 6 265		HOURS OF OPERATION HOUR (OUTSIDE DESIGN CONDITIONS CDB CWE CONDITIONS DBC WBC SRH DPC OUTSIDE 42.7 28.6 37 ROOM 74.0 50 DIFFERENCE 18.2 XXX XXX XXX BLIND NON-EXISTENCE(OUTSIDE, INSIDE) L GLASS ORDINARY, THICK, ABSORBENT. COLOR LIGHT, MEDIUM, DARK, WEIGHT RE/M'(FLOOR) RE/ INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AR CRACK MX CMH/M INFETRATION CMH TOWN VENTILATION 4 PEOPLEX 25 CMH/PER. 11 1 m'X CMH/m' VENTILATION CHAPTER SENSIBLE HEAT FACTOR ESH.F= 6.765 (ERSH) 6.765 (ERSH) CAGS (
	279 1504 1504 1504 1504 100 233 164 1417 565 565 53 6 265	←	OUTSIDE DESGN CONDITIONS CDB CWE CONDITIONS DBC WBC SRH DPC OUTSIDE 42.7 28.6 37 ROOM 74.0 50 DIFFERENCE 18.2 XXX XXX XXX XXX BLIND NON-EXISTENCE(OUTSIDE, INSIDE) L GLASS ORDMARY, THICK, ABSORBENT. COLOR LIGHT, MEDIUM, DARK, WEIGHT Ref/INFILOOR) RE/ INFILTRATION SWINGING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFILTRATION 4 PEOPLEX 25 CMH/PER. 11 I MIX CMH/M VENTILATION 4 PEOPLEX 25 CMH/PER. 11 I MIX CMH/M VENTILATION COMMINE SENSIBLE HEAT FACTOR 6.265 (ERSH) 6.265 (ERSH) DEHLIMIDIFIED AIR APPARATUS DEWPOINT /2.6 6.265 (ERSH) OTES GLASS (SE): 1,0X1,5X2=3,0 WALL (SE): 8,3X3,05,-3,0=72 CEILING: SR FLOOR: SR FLOOR: SR PARTITION(1) 2,85 X 2,8 = 7,98;
m'X	279 1504 1504 1504 1504 100 233 164 1417 565 565 53 6 265	←	CONDITIONS DBC WBC SRH DPC OUTSIDE 42.7 28.6 37 ROOM 74.0 50 DIFFERENCE 18.2 XXX XXX XXX BLIND NON-EXISTENCEIOUTSIDE, INSIDE) L GLASS ORDWARY, THICK, ABSORBENT. COLOR LIGHT, MEDIUM, DARK, WEIGHT Reform, FLOOR) KE/ INFILTRATION SWINGING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFILTRATION 4 PEOPLEX 25 CMH/PER. VENTILATION 4 PEOPLEX 25 CMH/PER. INTIX CMH/M VENTILATION CAH SE SENSIBLE HEAT FACTOR E.S.H.F= 6.265 (ERSH) 6.265 (ERSH) DEHUMIDIFIED AIR AFFARATUS DEWPOINT /2.6 6.265 (ERSH) CALASS (SE): 1,0×1,5×2×3,0 WALL (SE): 8,3×3,05,-3,0=72 WALL (SE): 8,3×3,05,-3,0=72 CEILING: SR FLOOR: SR FLOOR: SR PARTITION(1) 2,85 x 2,8 = 7,98;
m'X	279 1504 1504 110 233 164 1417 5647 565 53	←)	OUTSIDE 42.7 28.6 37
m'X X m'X X SOLAR & TRANS GAIN—WALLS & ROOF NALL (SE) 27,32 m'X 12,9 X 0,53	279 1504 1504 110 233 164 1417 5647 565 53	←	ROOM 74.0 50 DIFFERENCE 18.2
SOLAR & TRANS GAIN—WALLS & ROOF WALL (SE) ZZ3 ^Z m'X Z, 9	279 1504 1504 110 233 164 1417 5647 565 53	(-)	DIFFERENCE 18.2 XXX XXX XXX BLIND HON-EXISTENCE(OUTSIDE, INSIDE) L GLASS ORDINARY, THICK, ABSORBENT. COLOR LIGHT, MEDIUM, DARK, WEIGHT REFILED WITH MITTER WITH MITTER AT ION SWINGING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFETRATION CMH MITTER CMH/MITTER CMH/MIT
SOLAR & TRANS GAIN—WALLS & ROOF WALL (SE) ZZ3 ^Z m'X Z, 9	279 1504 1504 110 233 164 1417 5647 565 53	(-)	BLIND NON-EXISTENCELOUTSIDE, NISDE) L GLASS ORDWARY, THICK, ABSORBENT. COLOR LIGHT, MEDIUM, DARK, WEIGHT RE/M'IFLOOR) RE/ INTERNAL HEAT W/M' M'/PE INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER. OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX 'CMH/M' INFILTRATION CMH WI VENTILATION 4. PEOPLEX 25 CMH/PER. I' M'X CMH/M' VENTILATION CMH SE SENSIBLE HEAT FACTOR 6.765 (ERSH) 6.605 (ERSH) DEHUMIDIFIED AIR APPARATUS DEMPONT /2.6 6.765 (ERSH) (24 RM-12 ADP)(1-0, FF) × 0.29 NOTES GLASS (SE): 1,0×1,5×2×3,0 WALL (SE): 8,3×3,05,-3,0=72 CEILING: SR FLOOR: SR PARTITION(1) 2,85×2,8=7,98;
VALL (SE) 27, 32 m'X 2, 9	279 1504 1504 110 233 164 1417 5647 565 53	(-)	GLASS ORDWARY, THICK, ABSORBENT. COLOR LIGHT, MEDIUM, DARK. WEIGHT RE/M'(FLOOR) RE/ INTERNAL HEAT W/m' INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER. OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFILTRATION CMH POINT VENTILATION 4. PEOPLEX 25 CMH/PER. I'M'X CMH/M' VENTILATION CMH SE SENSIBLE HEAT FACTOR 6.765 (ERSH) 0.75 (ERSH) DEHUMIDIFIED AIR APPARATUS DEMPORT 12.6 6.265 (ERSH) (24 RM-12 ADP)(1-0, FF) X0.29 NOTES GLASS (SE): 1.0 X 1.5 X 2 3.0 WALL (SE): 8.3 X 3.05 3.0 = 72 CEILING: SR FLOOR: SR PARTITION(1) 2.85 X 2.8 = 7.98;
VALL (SE) 27, 32 m'X 2, 9	279 1504 1504 110 233 164 1417 5647 565 53		COLOR LIGHT, MEDIUM, DARK, WEIGHT RE/M'(FLOOR) RE/ INTERNAL HEAT W/M' M'/PE INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFILTRATION CMH W VENTILATION 4 PEOPLEX 25 CMH/PER: 10 1 M'X CMH/M' VENTILATION CMH SE SENSIBLE HEAT FACTOR 6.765 (ERSH) 6.605 (ERSH) DEHUMIDIFIED AIR APPARATUS DEMPONT /2.6 6.765 (ERSH) (24 RM- 12 ADP)(1-0, BF) X0.29 NOTES GILASS (SE): 1,0×1,5×2×3,0 WALL (SE): 8,3×3,05,-3,0=72 WALL (SE): 8,3×3,05,-3,0=72 CEILING: SR FLOOR: SR PARTITION(1) 2,85×2,8=7,98;
(NE) 2410 m'X 1.9	279 1504 1504 110 233 164 1417 5647 565 53		WEIGHT RE/MITCOOR) RE/ INTERNAL HEAT W/M' M'/PE INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX 'CMH/M INFILTRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER: 11 I M'X CMH/M' VENTILATION CMH M SENSIBLE HEAT FACTOR ES.H.F= 6.765 (ERSH) 6.605 (ERSH) DEHUMIDIFIED AIR APPARATUS DEMPONT /2.6 6.745 (ERSH) (24 RM- 17 ADP)(1-0, BF) × 0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.0530=722 WE : 7.9×3.05=74.1 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
M*X	279 1504 1504 110 233 164 1417 5647 565 53	←)	MTERNAL HEAT WM" m'/PE INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORE DOORSX CMH/DOOR EXHAUST AIR CRACK MX 'CMH/M INFILTRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER: 1 m'X CMH/m' VENTILATION CMH M SENSIBLE HEAT FACTOR ES.H.F= 6.265 (ERSH) 6.605 (ERSH) 6.605 (ERSH) 12.60 APPARATUS DEMPORT 12.6 6.265 (ERSH) 7.65 CARM 12.60P)(1-0,F)×0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.0530=72 WALL (SE): 8.3×3.0530=72 CEILING: SR FLOOR: SR PARTITION(1): 2.85×2.8=7.98;
m'X X ROOF-SUN m'X X ROOF-SHADED m'X X TRANS. GAIN-EXCEPT WALLS & ROOF SLASS 3.0 m'X 18.7 X 5.1 SELING 65.57 m'X 9.1 X 2.57 LOOR 66.57 m'X 9.1 X 2.57 LOOR 66.57 m'X 9.1 X 1.51 (2)15.12 m'X 9.1 X 1.69 INTERNAL HEAT PEOPLE 4. PEOPLEX 4.1 W KWX X 860 LIGHTS 65.57 XZO WX 1.08 LAPPLANCES ETC. REEDIT FOR HERMAL STORAGE m'X degX SUB TOTAL SAFETY FACTOR % ROOM SENSBLE HEAT SUB TOTAL SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AM 100 CMHX 8.2 ex 3.1 B.Fx0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT ROOM LATENT HEAT SUPPLIANCES ETC. APPLIANCES ETC. APPLIANCES ETC. APPLIANCES ETC. SUPPLY DUCT SUPPLY DUCT FAN ROOM LATENT HEAT ROOM LATENT HEAT SUPPLIANCES ETC. APPLIANCES ETC. APPLIA	1504 1504 110 233 164 164 1417 565 53 6 265	←	MTERNAL HEAT WM" m'/PE INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORE DOORSX CMH/DOOR EXHAUST AIR CRACK MX 'CMH/M INFILTRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER: 1 m'X CMH/m' VENTILATION CMH M SENSIBLE HEAT FACTOR ES.H.F= 6.265 (ERSH) 6.605 (ERSH) 6.605 (ERSH) 12.60 APPARATUS DEMPORT 12.6 6.265 (ERSH) 7.65 CARM 12.60P)(1-0,F)×0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.0530=72 WALL (SE): 8.3×3.0530=72 CEILING: SR FLOOR: SR PARTITION(1): 2.85×2.8=7.98;
ROOF-SUN m*X X ROOF-SHADED m*X X TRANS. GAIN-EXCEPT WALLS & ROOF SLASS 3.0 m*X 18.7 x 5,1 CELING 65.7 m*X 9,1 x 2,52 LOOR 65.57 m*X 9,1 x 1,51 CARTITION (1) 7,98 m*X 9,1 x 1,69 NELTRATION CMHX degX 0.29 INTERNAL HEAT COPLE 4. PEOPLE 4.1 CW KWX X 860 LIGHTS 65.57 x 20 WX 1.08 LAPILANCES ETC. RECOIT FOR HERMAL STORAGE m'X degX SUB TOTAL SAFETY FACTOR % ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AM 100 CMHX 87 set 0,1 8 F x 0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	1504 1504 110 233 164 164 1417 565 53 6 265	()	INFILTRATION SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFILTRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER: 1 m'X CMH/m' VENTILATION CMH M SENSIBLE HEAT FACTOR ES.H.F= 6.265 (ERSH) 6.605 (ERSH) 0.95 (CARM 126DP)(1-0,15)×0.29 NOTES GLASS (SE): 1,0×1,5×2×3,0 WALL (SE): 8,3×3,05,-3,0=72 CEILING: SR FLOOR: SR PARTITION(1) 2,85×2,8=7,98;
TRANS. GAIN-EXCEPT WALLS & ROOF SLASS 3,0 m ¹ × 18,7 × 5,1 SELING 65,7 m ¹ × 9,1 × 2,5 ² LOOR 65,7 m ¹ × 9,1 × 2,5 ² LOOR 65,7 m ¹ × 9,1 × 1,5 ¹ (2) 5,1 ² m ¹ × 9,1 × 1,6 9 INTERNAL HEAT SOPLE 4. PEOPLE 4.1 W KW X X B60 LOHIS 65,57 × 20 W 1.08 APPLIANCES ETC. CREDIT FOR 8 HERMAL STORAGE m ¹ × deg X 1.08 APPLIANCES ETC. CREDIT FOR 96 ROOM SENSIBLE HEAT Sub TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AM 100 GMM× 18,2 deg × 0,1 BF 10.28 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kg × 0.72 TEOPLE 5 PEOPLE 49 STEAM kg/hx 540 APPLIANCES ETC. APPORTRANS. Sub TOTAL SUPPLY DUCT LEAKAGE LOSS %	1504 1504 110 233 164 1417 565 53 6 265	←)	SWINGING REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFETRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER. I M'X CMH/M' VENTILATION CMH M SENSIBLE HEAT FACTOR ES.H.F= 6.265 (ERSH) 6.665 (ERTH) DEHUMIDIFIED AIR APPARATUS DEMPORT 12.6 6.745 (ERSH) (74 RM-174 DP)(1-0, FF) × 0.29 NOTES GLASS (SE): 1,0×1,5×2=3,0 WALL (SE): 8,3×3,05,-3,0=72 CEILING: SR FLOOR: SR PARTITION(1) 2,85×2,8=7,98;
TRANS. GAIN-EXCEPT WALLS & ROOF SLASS 3.0 m²X 18.7 x 5.1 CELING 65.57 m²X 9.1 x 2.52 LOOR 65.57 m²X 9.1 x 2.52 CARTITION (1) 7.98 m²X 9.1 x 1.51 (2) 15.12 m² x 9.1 x 1.69 INTERNAL HEAT SEOPLE 4. PEOPLEX 4.1 W KWX X 860 CREDIT FOR HERMAL STORAGE m²X degx LAPPLANCES ETC. CREDIT FOR HERMAL STORAGE m²X degx SUB TOTAL CAPPLY DUCT SUPPLY DUCT FAN BEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMHX 18.2 eex 3.1 BF 10.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT ROOM LATENT HEAT ROOM LATENT HEAT SUPPLY DUCT SUPPLY DUCK SUPPLY DUCK ROOM LATENT HEAT ROOM LATENT HEAT SUPPLIANCES ETC. APOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS **SUB TOTAL	1504 1504 110 233 164 1417 565 53 6 265	←)	REVOLVING DOORS PEOPLEX CMH/PER OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFETRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER. 10 I M'X CMH/M' VENTELATION CMH M SENSIBLE HEAT FACTOR E.S.H.F= 6.765 (ERSH) 0.95 (DEHUMIDIFIED AIR APPARATUS DEMPORT 12.6 6.765 (ERSH) (74 RM- 17 ADP)(1-0, BF) × 0.29 NOTES GLASS (SE): 1.0×1.5×2=3.0 WALL (SE): 8.3×3.0530=72 WALL (SE): 8.3×3.0530=72 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
SLASS 3 0 m ¹ × 18,7 × 5,1	1504 1504 110 233 164 1417 565 53 6 265	←	OPEN DOORS DOORSX CMH/DOOR EXHAUST AIR CRACK MX CMH/M INFETRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER. 1 M'X CMH/M' VENTELATION CMH M SENSIBLE HEAT FACTOR ES.H.F= 6.765 (ERSH) 6.605 (ERTH) DEHUMIDIFIED AIR APPARATUS DEWPONT 12.6 6.765 (ERSH) (74 RM- 17 ADP)(1-0 BF)×0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.0530=72 WALL (SE): 8.3×3.0530=72 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
ERING 6557 m'X 9,1 × 2,52 LOOR 6557 m'X 9,1 × 2,52 PARTITION (1) 7,98 m'X 9,1 × 1,69 (2) 15,12 m' × 9,1 × 1,69 INTERNAL HEAT PEOPLE 4 PEOPLEX 41 WW KWX X 860 WHENTS 65,57 × 20 WX 1.08 EREDIT FOR HERMAL STORAGE m'X degx CAFETY FACTOR % ROOM SENSIBLE HEAT Sub TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 18,2 degx 0,1 BF 10.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 TEAM kg/hX 540 APPLIANCES ETC. APPLY DUCT LEAKAGE LOSS %	1504 1504 110 233 164 1417 565 53 6 265	(-)	EXHAUST AIR CRACK MX CMH/M INFETRATION CMH M VENTILATION 4 PEOPLEX 25 CMH/PER. J' m'X CMH/m' VENTILATION CMH M SENSIBLE HEAT FACTOR ES.H.F= 6.265 (ERSH) 0.95 (6.605 (ERTH) DEHUMIDIFIED AIR APPARATUS DEWPOINT /2.6 6.765 (ERSH) (74 RM- 17 ADP)(1-0 BF)×0.29 NOTES GLASS (SE): 1,0×1,5×2×3,0 WALL (SE): 8,3×3.053,0=72 WALL (SE): 8,3×3.053,0=72 CEILING: SR FLOOR: SR PARTITION(1) 2,85×2,8=7,98;
ERING 6557 m'X 9,1 × 2,52 LOOR 6557 m'X 9,1 × 2,52 PARTITION (1) 7,98 m'X 9,1 × 1,69 (2) 15,12 m' × 9,1 × 1,69 INTERNAL HEAT PEOPLE 4 PEOPLEX 41 WW KWX X 860 WHENTS 65,57 × 20 WX 1.08 EREDIT FOR HERMAL STORAGE m'X degx CAFETY FACTOR % ROOM SENSIBLE HEAT Sub TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 18,2 degx 0,1 BF 10.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 TEAM kg/hX 540 APPLIANCES ETC. APPLY DUCT LEAKAGE LOSS %		(-)	CRACK MX CMH/M INFETRATION CMH VENTILATION 4 PEOPLEX 25 CMH/PER. 11 1 m'X CMH/M' VENTELATION CMH E SENSIBLE HEAT FACTOR E.S.H.F= 6.265 (ERSH) 6.665 (ERTH) DEHUMIDIFIED AIR APPARATUS DEWPONT (24 RM-12 ADP)(1-8 F)×0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.053.0=72 (NE): 7.9×3.05=74.1 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
CLOOR 65,57 m'X Q, X Z,57 CARTITION (1) 798 m'X Q, X 1,51 (2) 5 2 m' X Q, X 1,69 INTERNAL HEAT CEOPLE 4. PEOPLEX 4.1 CW KWX X 860 CREDIT FOR HERMAL STORAGE m'X degX CAPPLANCES ETC. CREDIT FOR ROOM SENSIBLE HEAT Sub TOTAL CAPPLY DUCT SUPPLY DUCT FAN IEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMHX 8,7 dex X 0,1 B F N 0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 CEOPLE 5 PEOPLEX 49 CEOPLE 5 PEOPLEX 40		(-)	INFETRATION
PARTITION (1) 798 m²X q,1 x 1,51 (2) 5 2 m² x q,1 x 1,69 INTERNAL HEAT PEOPLE 4 PEOPLEX 41 W KWX X B60 GHTS 65,57 x 20 WX 1.08 APPLIANCES ETC. PROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 8,7 dex x 0,1 B F x 0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 TEAM kg/hX 540 APPLIANCES ETC. PAPOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	164 164 1417 5647 565 53 6 265	(+)	IMPETRATION
(2) 5 2 m² x Q, 1 x 1,69 NETTRATION CMH x deg x 0.29 INTERNAL HEAT PEOPLE 4 PEOPLE X 4 I W KW X X 860 KRHTS 65,57 x 20 W X 1.08 REPLIANCES ETC. REDIT FOR HERMAL STORAGE m² X deg x Sub TOTAL SAFETY FACTOR % ROOM SENSIBLE HEAT Sub TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMH x 182 del x q, 1 B F 10.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMH X 2/kg X 0.72 PEOPLE 5 PEOPLE 49 STEAM kg/h X 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	233 164 1417 5647 565 53 6 265	(-)	VENTILATION 4 PEOPLEX 25 CMH/PER. 1 m'X CMH/m' VENTILATION CMH E SENSIBLE HEAT FACTOR 6.265 (ERSH) 0.75 (DEHUMIDIFIED AIR APPARATUS DEWPONT (24 RM-12 ADP)(1-8 F) × 0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.053.0=72 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
INTERTATION CMHX degX 0.29 INTERNAL HEAT SOPLE 4. PEOPLEX 4.1 TW KWX X 860 LIGHTS 65.57 XZO WX 1.08 APPLIANCES ETC. REDIT FOR HERMAL STORAGE M'X degX AFETY FACTOR % ROOM SENSIBLE HEAT Sub TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AIR 100 CMHX 187 degx 0,1 BFX0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 TEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	164 1417 5647 565 53 6265	(-)	4 PEOPLEX 25 CMH/PER. 11 1 m'X CMH/m' VENTELATION CMH SENSIBLE HEAT FACTOR 6.265 (ERSH) = 0.95 (6.665 (ERTH) DEHUMIDIFIED AIR APPARATUS DEWPOINT 12.6 6.265 (ERSH) (24 RM- 12 ADP)(1-0 BF) × 0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.053.0=72 (NE): 7.9×3.05=74.1 CEILING: SR PARTITION(1) 2.85×2.8=7.98;
INTERNAL HEAT PEOPLE 4 PEOPLEX 41 TW KWX X B60 GHTS 65,57 x 20 WX 1.08 APPLIANCES ETC. REDIT FOR HERMAL STORAGE M'X GegX FAFETY FACTOR % ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 18,7 delx 0,1 B F x 0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APPLIANCES ETC. APPLIANCES ETC. APPLY DUCT LEAKAGE LOSS %	5 647 5 65 53 6 265	<u> </u>	Fire CMH/m' Ventration CMH M SENSIBLE HEAT FACTOR SENSIBLE HEAT FACTOR 6.265 (ERSH) = 0.95 (6.665 (ERTH) DEHUMIDIFIED AIR APPARATUS DEWPOINT 12.6 (24 RM- 17 ADP)(1- BF) × 0.29 NOTES GLASS (SE): 1,0×1,5×2×3,0 WALL (SE): 8,3×3.05,-3,0=72 CEILING: SR FLOOR : SR PARTITION(1) 2,85×2,8=7,98
INTERNAL HEAT PEOPLE 4 PEOPLEX 41 TW KWX X B60 GHTS 65,57 x 20 WX 1.08 APPLIANCES ETC. REDIT FOR HERMAL STORAGE M'X GegX FAFETY FACTOR % ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 18,7 delx 0,1 B F x 0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APPLIANCES ETC. APPLIANCES ETC. APPLY DUCT LEAKAGE LOSS %	5 647 5 65 53 6 265	 ↓ /ul>	VENTEATION CMH SENSIBLE HEAT FACTOR SENSIBLE HEAT FACTOR 6.265 (ERSH) 0.95 (DEHLIMIDIFIED AIR APPARATUS DEWPOINT 12.6 (265 (ERSH) (24RM-17.6DP)(1-,3F)×0.29 2.200 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.053.0=72 (NE): 7.9×3.05=24.1 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
PEOPLE 4 PEOPLEX 41 W KWX X 860 GHTS 65,57 XZO WX 1.08 APPLIANCES ETC. REDIT FOR HERMAL STORAGE M'X degX Sub Total GAFETY FACTOR % ROOM SENSIBLE HEAT Sub TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMHX 18,7 dex 3 o,1 B F x 0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 GTEAM kg/hX 540 APPLIANCES ETC. APPLIANCES ETC. APPLY DUCT LEAKAGE LOSS %	5 647 5 65 53 6 265		SENSIBLE HEAT FACTOR 6.265 (ERSH) = 0.95 (6.605 (ERTH) = 0.95 (DEHUMIDIFIED AIR APPARATUS DEWPOINT
KWX X 860 LIGHTS 65,57 XZO WX 1.08 APPLIANCES ETC. REDIT FOR HERMAL STORAGE M'X degX HERMAL STORAGE M'X degX Sub Total SAFETY FACTOR % ROOM SENSIBLE HEAT Sub TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AIR 100 CMMX 187 degx o, 1 BFX0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NEETRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APPLIANCES ETC. SAFETY FACTOR X ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	5 647 5 65 53 6 265	<i>←</i> }	ESH.F= 6.265 (ERSH) = 0.95 (DEHUMIDIFIED AIR APPARATUS DEWPOINT 12.6 (265 (ERSH) (24 RM-12 ADP)(1-, BF)×0.29 2.200 NOTES GLASS (SE): 1,0×1,5×2×3,0 WALL (SE): 8,3×3.05-3,0=72 (NE): 7,9×3.05=24,1 CEILING: SR PARTITION(1) 2,85×2,8=7,98;
APPLIANCES ETC. CREDIT FOR HERMAL STORAGE M'X degx (-) SAFETY FACTOR % ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMHX 187 degx 0, 1 B FX 0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NEETRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APPLIANCES ETC. APPLY DUCT LEAKAGE LOSS %	5 647 5 65 53 6 7 65	(-)	DEHUMIDIFIED AIR APPARATUS DEMPORT 12.6 6 7.65 (ERSH) (24 RM- 17.6DP)(1-,BF)×0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.053.0=722 WE): 7.9×3.05=74.1 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
REDIT FOR HERMAL STORAGE M'X deg X (-) SUB TOTAL SAFETY FACTOR % ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN REAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AN 100 CMMX 182 deg x 0,1 BF x 0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NELTRATION CMHX g/kg X 0.72 PEOPLE 5 PEOPLE 49 STEAM kg/hX 540 APPLIANCES ETC. APPOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	5 647 5 65 53 6 7 65	(-)	DEHUMIDIFIED AIR APPARATUS DEMPORT 12.6 6 7.65 (ERSH) (24 RM- 17.6DP)(1-,BF)×0.29 NOTES GLASS (SE): 1.0×1.5×2×3.0 WALL (SE): 8.3×3.053.0=722 WE): 7.9×3.05=74.1 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
REDIT FOR HERMAL STORAGE M'X deg X (-) SUB TOTAL SAFETY FACTOR % ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN REAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AN 100 CMMX 182 deg x 0,1 BF x 0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NELTRATION CMHX g/kg X 0.72 PEOPLE 5 PEOPLE 49 STEAM kg/hX 540 APPLIANCES ETC. APPOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	5 647 5 65 53 6 7 65	(-)	APPARATUS DEMPONT 12.6
REDIT FOR HERMAL STORAGE M'X deg X (-) Sub Total Safety Factor % Room Sensible Heat Sub Total Supply Duct Supply Duct FAN Heat Gain + Leak Loss + HP = 10% YPASS OUTSIDE AN LOO CMMX 1872 465 × 0,1 B.F × 0.29 EFFECTIVE ROOM SENSIBLE HEAT M ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. Sub Total Supply Duct Leakage Loss %	5647 565 53 6 265	(-)	6 765 (ERSH) (24 RM- 17 ADP)(1-, BF) × 0.29 NOTES GLASS (SE): 1,0×1,5×2 * 3,0 WALL (SE): 8,3×3,05,-3,0=72 WE): 7,9×3,05=74,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85×2,8=7,98;
SUB TOTAL SAFETY FACTOR ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AIR 100 CMMX 182 402 0, 1 BFX0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NFETRATION CMHX g/kgX 0.72 TEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	5647 565 53 6 265	(+)	6 765 (ERSH) (24 RM- 17 ADP)(1-, BF) × 0.29 NOTES GLASS (SE): 1,0×1,5×2 * 3,0 WALL (SE): 8,3×3,05,-3,0=72 WE): 7,9×3,05=74,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85×2,8=7,98;
SUB TOTAL SAFETY FACTOR ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AIR 100 CMMX 182 402 0, 1 BFX0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NFETRATION CMHX g/kgX 0.72 TEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	5647 565 53 6 265	(-)	NOTES GLASS (SE): 1,0×1,5×2 = 3,0 WALL (SE): 8,3×3,05,-3,0=72 WE): 7,9×3,05 = 74,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85×7,8 = 7,98;
SUB TOTAL SAFETY FACTOR ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AIR 100 CMMX 182 402 0, 1 BFX0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NFETRATION CMHX g/kgX 0.72 TEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	5647 565 53 6 265		NOTES GLASS (SE): 1,0×1,5×2 = 3,0 WALL (SE): 8,3×3,05,-3,0=72 WE): 7,9×3,05 = 74,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85×7,8 = 7,98;
RAFETY FACTOR ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AN LOO CMMX 182 465 × 0,1 B.F × 0.28 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APPOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	5647 565 53 6 265		NOTES GLASS (SE): 1,0×1,5×2 = 3,0 WALL (SE): 8,3×3,05,-3,0=72 WE): 7,9×3,05 = 74,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85×7,8 = 7,98;
ROOM SENSIBLE HEAT SUB TOTAL SUPPLY DUCT SUPPLY DUCT FAN HEAT GAIN + LEAK LOSS + HP = 10% YPASS OUTSIDE AN 100 CMHX 187 465 0,1 B.F. 0.28 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NELTRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 REPLIANCES ETC. APPOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	565 53 6 265		GLASS (SE): 1.0×1.5×2=3.0 WALL (SE): 8.3×3.0530=ZZ WE): 7.9×3.05=Z4.1 CEILING: SR FLOOR: SR PARTITION(1) 2.85×2.8=7.98;
SUPPLY DUCT SUPPLY DUCT FAN JEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 182 402 0,1 BFX0.29 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT RETARTION CMHX g/kgX 0.72 FEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SAFETY FACTOR X ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS ***	565 53 6 265		WALL (SE): 8,3 x 3.05 - 3,0 = 72 (NE): 7,9 x 3,0 5 = 74,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85 x 7,8 = 7,98;
PEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 182 402 0,1 BFN029 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NFETRATION CMHX g/kgX 0.72 EOPLE 5 PEOPLEX 49 ITEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	6 26 <u>5</u>		WALL (SE): 8,3 x 3.05 - 3,0 = 72 (NE): 7,9 x 3,0 5 = 74,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85 x 7,8 = 7,98;
PEAT GAN + LEAK LOSS + HP = 10% YPASS OUTSIDE AR 100 CMMX 182 402 3,1 BF 1029 EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT NFETRATION CMMX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SAFETY FACTOR % ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	6 26 <u>5</u>		(NE): 7.9 x 3,0 5 = 24,1 CEILING: SR FLOOR: SR PARTITION(1) 2,85 x 2,8 = 7.98.
PER TRANS. Sub Total Supply Duct Leakage Loss YPASS OUTSIDE AR 100 GMHX 187 442 44 ROOM LATENT HEAT ROOM LATENT HEAT ROOM LATENT HEAT PEOPLE 5 PEOPLEX 49 Sub Total Supply Duct Leakage Loss YEAR 100 GMHX 187 44 ROOM LATENT HEAT Sub Total Supply Duct Leakage Loss	6 26 <u>5</u>		CEILING: SR FLOOR: SR PARTITION(1) 2,85 x 2,8 = 7.98.
EFFECTIVE ROOM SENSIBLE HEAT ROOM LATENT HEAT ROOM LATENT HEAT SEPPLE 5 PEOPLE 49 STEAM kg/hx 540 APPLIANCES ETC. APOR TRANS. SUB TOTAL SAFETY FACTOR ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS **	6 265		FLOOR : SR PARTITION(1) 2,85 x 2,8 = 7.98.
ROOM LATENT HEAT NEETRATION CMHX g/kgX 0.72 PEOPLE 5 PEOPLEX 49 STEAM kg/hX 540 APPLIANCES ETC. SAPOR TRANS. SUB TOTAL SAFETY FACTOR ** ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS **			PARTITION(1) 285 x 2,8 = 7.98 .
PEOPLE 5 PEOPLE 49 STEAM kg/hX 540 APPLIANCES ETC. APOR TRANS. Sub Total Supply Pactor Room Latent Heat Sub Total Supply Duct Leakage Loss	z45		
FOPLE 5 PEOPLEX 49 STEAM RE/hX 540 APPLIANCES ETC. SUB TOTAL SAFETY FACTOR X ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	245		(?) 5,4 × 2,8 = 15,12
APPLIANCES ETC. APPOR TRANS. Sub Total SAFETY FACTOR ROOM LATENT HEAT Sub TOTAL SUPPLY DUCT LEAKAGE LOSS **	245		
APPLIANCES ETC. APOR TRANS. Sub Total SAFETY FACTOR ROOM LATENT HEAT Sub TOTAL SUPPLY DUCT LEAKAGE LOSS **			
APOR TRANS. Sub Total SAFETY FACTOR ROOM LATENT HEAT Sub TOTAL SUPPLY DUCT LEAKAGE LOSS %			
APOR TRANS. Sub Total SAFETY FACTOR ROOM LATENT HEAT Sub TOTAL SUPPLY DUCT LEAKAGE LOSS %			
SUB TOTAL SAFETY FACTOR * ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS * **			
SUB TOTAL SAFETY FACTOR * ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS * **	7	* ** **	
ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %	1		
ROOM LATENT HEAT SUB TOTAL SUPPLY DUCT LEAKAGE LOSS %			
SUPPLY DUCT LEAKAGE LOSS %			
	245		
	25		
YPASS OUTSIDE AND CMHX 9,6 g/kg 20.1 BFX 0.72	70		
EFFECTIVE ROOM LATENT HEAT	340		
EFFECTIVE ROOM TOTAL HEAT	6605		
OUTSIDE AIR HEAT		****	
		: 1	
		+	
ATENT: CMH × g/kg×(1- BF)×0.72			
GRAND TOTAL HEAT SUD TOTAL			
RETURN DUCT RETURN DUCT PUMP PRE 3%	1	.	
TEAT GAIN LEAK GAIN H.P GAIN			
(U.S.R.T) GRAND TOTAL HEAT			
			FOR

	Budan service (pr. 19	in North British	 Sometimes of the property of the
, COOLING AND D	EHUMIDII	TYING I	ESTIMATE(METRIC)
Inquiring No.	INQUIRED BY		SHEET NO - ZO
JOB NAME	ADDRESS	(M-Z	DATE ORIGINAL
SPACE USED FOR WATER ANALYSIS & ANAL			SYSTEM TEVISION
Size	× × ×	2.8 miH)=	PERSON IN CHARGE
AREA OR ISUN GAIN OR		i/h	AM. AM
TEM QUANTITY TEMP. DIFF.	3:00	CORRECTION	ESTMATE FOR PM PEAK LOAD PM3
SOLAR GAIN - GLASS		1	HOURS OF OPERATION HOUR (-)
many and they have the	131	 	OUTSIDE DESIGN CONDITIONS COB CWB MRH
(SE) 3.0 m·× 25/2× 8.44/85 × 6.44× 8.15	<u></u>	<u> </u>	CONDITIONS DEC WET SEH DPC E/KE
m'× ×		 	OUTSIDE 42,2 78,6 37 19.0
m'× × ×		 	ROOM 24.0 50 9.4
w, ×		 	DIFFERENCE 18.7 XXX XXX XXX 9,6
SOLAR & TRANS GAIN-WALLS & ROOF		 	BLIND NON-EXISTENCE (OUTSIDE, MSIDE) L. M. D
WALL (5E) 23 23 m3 12,4 × 0,53	159		GLASS IORDINARY, THICK, ABSORBENT, . DOUBLE
WALL (SE) 23, - m·x Z(1 x 0.53	131	 	COLOR LIGHT, MEDIUM, DARK.
m'X X		 	WEIGHT kg/m*(FLOOR) kg/m*(WALL
		 	INTERNAL HEAT W m2 m2/PEOPLE
		 	INFILTRATION
7007 304 "/		ļ	SWINGING
MOOF SHADED IN F			REVOLVING DOORS PEOPLEX CMH/PER
TRANS. GAIN-EXCEPT WALLS & ROOF	279		OPEN DOORS DOORSX CHH/DOOR
GLASS 3,0 m'x 18,7 x 5,1		 	EXHAUST AIR
CER.NG 134,75 m'x q,1 x 7.52	3090	 	CRACK MX CMH/m
FLOOR 134.76 m'× 9.1 × 2.52	3090	 	INFILTRATION CMH
PARTITION (1) 50 0 0 1 × 1,51	688		VENTILATION
(Z) 20,88° × 9,1 × 1.69	322	 	7 PEOPLEX ZE CMH/PER 175
(3) 38.5 "× q.1 × 1.69	592	 	m'x GMH/m' Jb
DOOR (IN) 7.2 2 4.1 x 2.15	101	ļ	VENTEATION CMH ZO
INTERNAL HEAT	-077) i	SENSIBLE HEAT FACTOR
PEOPLE 7 PEOPLEX 41	287	 	<u> </u>
IVW	60	 	ESHF 12.970 (ERSH) 0.96 (12.6°C)
LIGHTS 134,75 x ZOWX 1	.08 2911	 	DEHUMIDIFIED AIR
APPLIANCES ETC.		 	1
		 	APPARATUS DEWPOINT 12.6 C
			12.970 (ERSH)
CREDIT FOR THERMAL STORAGE M'X deg X	<u>}</u>	 -	(24RM-126ADP)(1-BF)×0.29 4400 CMH
Sub To	TAU	 	1241111 12.000
SAFETY FACTOR	%	<u> </u>	INOTES 58.6+55×30=134.75
ROOM SENSIBLE HEAT SUB TOTAL	11690		ና
SUPPLY DUCT SUPPLY DUCT FAN			GLASS (SE): 1.0×1.5×2=3.0
HEAT GAN +LEAK LOSS +HP =1		ļ. <u> </u>	7 7 7 7 7 7 23
BYPASS OUTSIDE AR ZIO CMH > 18,2 000 0, B.F. NO.2		<u> </u>	WALL (SE) : 8.6 x 3.05-3.0 = 23.23
EFFECTIVE ROOM SENSIBLE HEAT	12970]	CEILING : SR
ROOM LATENT HEAT		}	CEICING
INFILTRATION CMHX g/kgX O	.72		FLOOR SR THE THE
PEOPLE 7 PEOPLE, 49	343	<u> </u>	PARTITION(1): 19.8 x 2.8 - 5.4 = 50.04
c valky F	40	, ((1) (0) -0 18 - 20 88

540

343

35

1,46

524 13/494

SUB TOTAL

10 %

kg/h×

deg x (1 - BF) x 0.29 g/kg x (1 - BF) x 0.72

ROOM LATENT HEAT SUB TOTAL

EFFECTIVE ROOM LATENT HEAT

EFFECTIVE ROOM TOTAL HEAT OUTSIDE AIR HEAT

GRAND TOTAL HEAT SUD TOTAL

U.S.R.T) GRAND TOTAL HEAT

RETURN DUCT RETURN DUCT PUMP PIPE HEAT GAIN LEAK GAIN H.P GAIN

BYPASS OUTSIDE ARTOMHX 9, 6 E/kg xo, BF x 0.72

STEAM

APPLIANCES ETC.

SUPPLY DUCT LEAKAGE LOSS

CMH×

CMHX

VAPOR TRANS.

SENSIBLE:

PARTITION(1): 19,8 x 2,8-5,4 = 50,04 (z):8,4×2,8 -1,8 = 20,88

(3) : 1375x2,8 = 38,5

DOOR(IN): 1.8x 7.0+ 0.9x 7.0x 7 = 7.2

S. EQUIPMENT LOAD

5 - 1 AHU-1

x Zea (100% STANBY)

(1) CONDITIONS

D.B

W.B

ENTHALPY

ROOM : 24.0 °C

17.1°C: 11.5 Kal/k8

OUTSIDE : 47.2°C 28.6°C 22.0 KCM/K8

R S. H : 59.011 Kal/H

S. H.F : 0.99

DEHUMIDIFIED AIR : 20.700 M/H

OUT AIR

250 m3/H

RETURN AIR

. zo.450

(2) REQUIRED COOLING CAPACITY

MIX POINT = 250 m/4 x 22.0 Kralks + 20450 m/4 11.5 Kral/ks 70700 m3/H = 11.6 Kal/K8

:. [Z0.700 " × 1.2 kg/m × (11.6 - 8.7) × (1-0.1) × 1.05 = 68 000 K cal/H

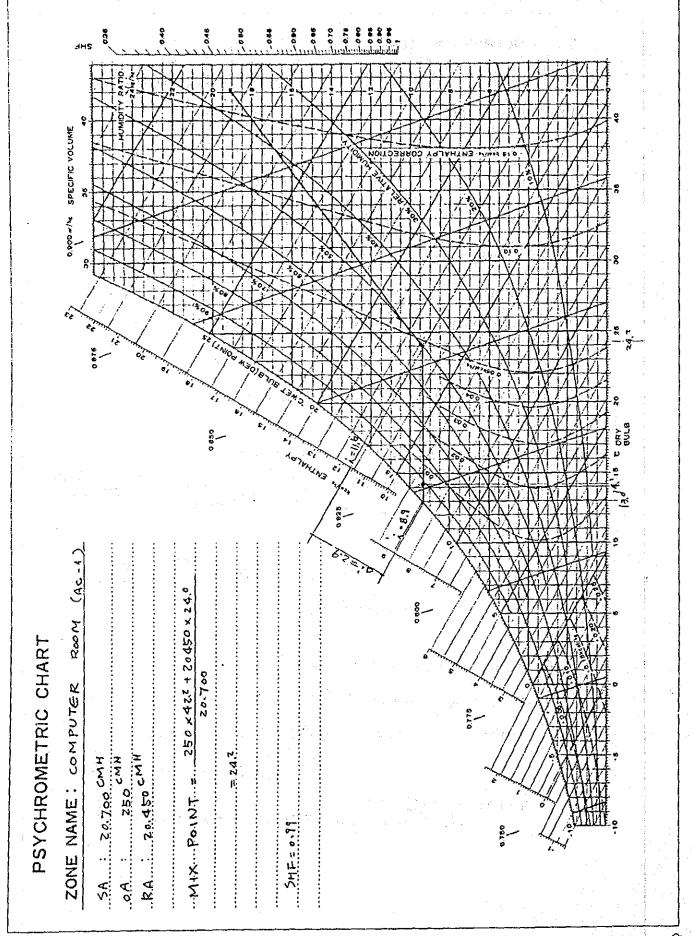
OPEAK LOAD (PM 3:00)

E.R.T.H : 59.725 Kal/H

OUTSIDE AIR HEAT: 750 -18, x (1-0.1) x 0.29 = 1.188 Kcal/n. ()

250 × 9,6 × (1-0.1) × 0.72 = 1.556 ... 6

TOTAL = 0+3+3 =(59.725 + 1.188 + 1556) × 1.05 = 66.000 Kal/s



5 - 7 AHU - 2

xzea (50% xz)

(1) CONDITIONS

D.B

W.B

ENTHALPY

ROOM :

74.0 °C

17.1°C 11.5 Kal/48

OUTSIDE :

47,200

28.6°C 27.0 KCW/KS

R S. H: 67.893 Kal/H/2=33.947 Kenl/H

S. H.F

0.9

DEHUMIDIFIED AIR : 23000 M/A/Z=11500 M/A

OUT AIR

1.650 m/H /Z = 825

RETURN AIR

21.350 m/H/2=10675

(2) REQUIRED COOLING CAPACITY

MIX POINT = 825 mil x 22.0 xcalks + 10675 mil x 11.5 kcal/kg = 12.3 Kcl/x-8

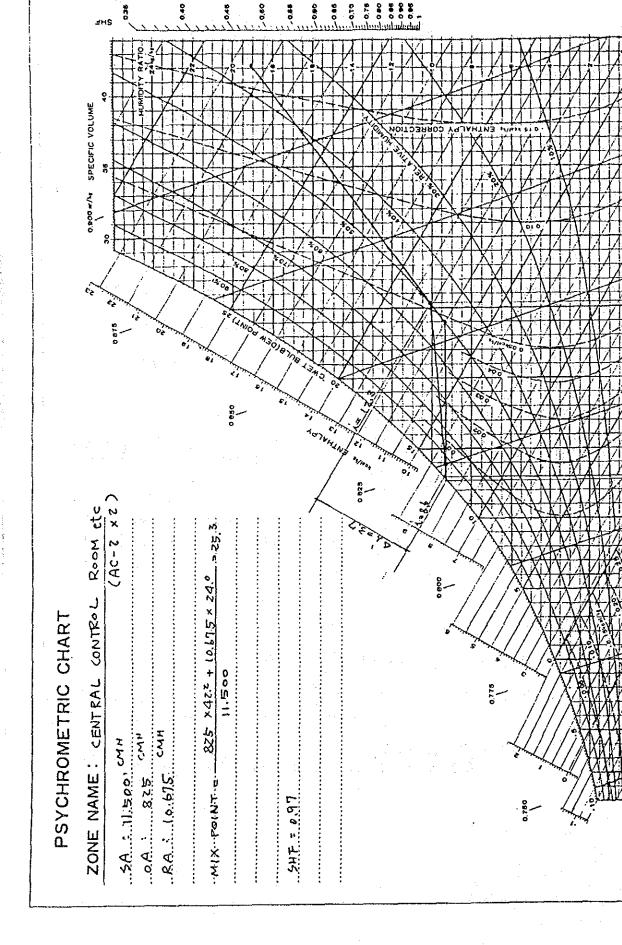
Kcal/K8 : [11500 mg/ x 1.2 kg/mx (12.3 - 8.6) x (1-0.1) x 1.05 = 48,000 wal/H

@ PEAK LOAD (PM 3:00)

E.R.T. H : 70/152 Kcal/H ... 1

OUTSIDE AIR HEAT: 1650 x 182 x (1-0.1) x0,29 = 7.838 100 1650 × 9.6 × (1-0.1) × 0.72 = 10.265 Krofi 3

TOTAL = 0 + 10 + 3 = (70452+7838+10265) × 1.05/2=47.000 kal/A



x 2ea (50% x2)

(1) CONDITIONS

D.B

W.B ENTHALPY

ROOM : 24.0°C

17.1°C. 11.5 Kal/k8

OUTSIDE : 42.2°C 78.6°C 22.0 KCM/K8

R S. H : 41.733 Kal/H/z = 20.867 Kal/H

0.99 S. H. F :

DEHUMIDIFIED AIR : 14.600 m/H /2 = 7300 m/4

OUT AIR

150 m /H /z=75

RETURN AIR

14.450 m3/4 /z= 7.225

(2) REQUIRED COOLING CAPACITY

$$\therefore \left(7.300 \, \frac{34}{1.2} \times 1.2^{\frac{1}{10}} \times \left(11.6 - 8.7 \right) \times \left(1 - 0.1 \right) \times 1.05 \right) = 24.000 \, \text{Kal/H}.$$

OPEAK LOAD (PM 3:00)

OUTSIDE AIR HEAT: 150 x 18,2 x(1-0.1) x 0,29 = 713 K call @ 150 x 9.6 x (1-0.1) x 0,72 = 934 Kall @

x zea (50% x 2)

(1) CONDITIONS

D.B

W B ENTHALPY

R∞M

74.0°C

17:11 C. 11.5 Kal/k8

OUTSIDE : 42.2°C 28.6°C 22.0 KCal/Kg

R s.H :

19.735 Kal/H/2= 9.618 Kal/H

S. H. F : 0.96

DEHUMIDIFIED AIR : 6.600 m2/4 /2= 3.300

OUT AIR

: 310 m/H/2= 155

RETURN AIR : 6.790 m3/4 /2 = 3.145

(2) REQUIRED COOLING CAPACITY

MIX POINT = 155 mil x 77.0 + 3.145 mil x 11.5 Kral/48 = 12.0 Kcal/rg

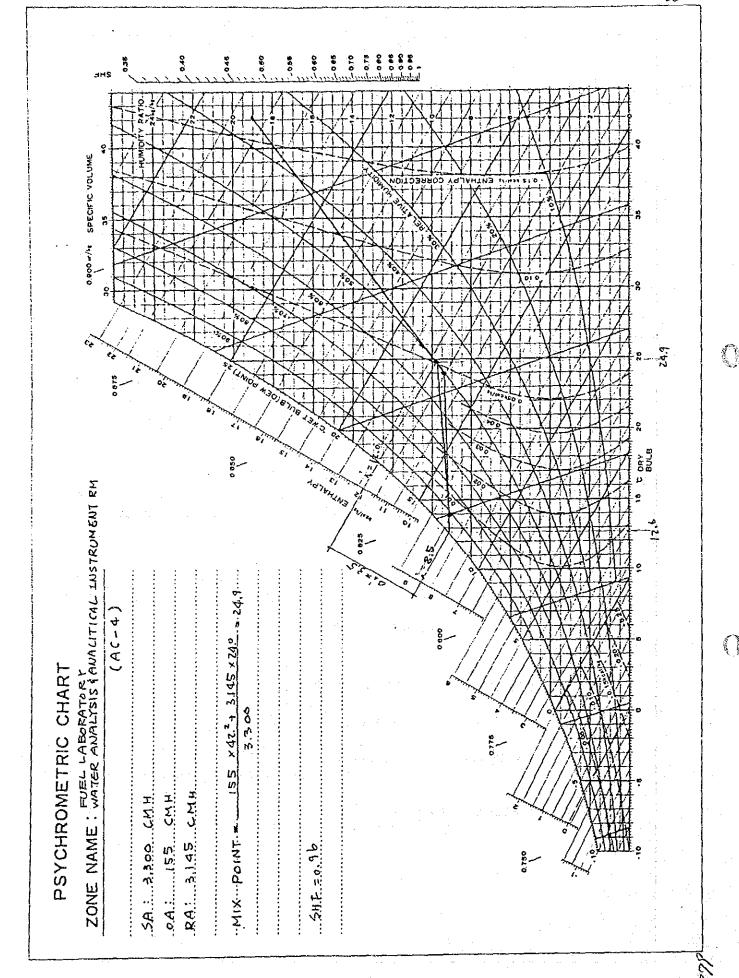
.. [3.300 m/ x 1.2 kg/m x (12.0 - 8.5) x (1-0.1) x 1.05 = 13.000 Kal/H

@ PEAK LOAD (PM 3:00)

E.R.T. H = 20.069 KM/4 ... @

OUTSIDE AIR HEAT: 310 x 18.2 x (1-0.1) x 0.29 = 1.473 2 310 x 9.6 x (1-0.1) x 0.72 = 1.979 3

TOTAL = 0 + 0 + 0 = (20.069 + 1473 + 1.929) × 1.05/2= 13.000 Kal/4



20

6. SELECTION OF COOLING EQUIPMENT 6-1. TOTAL LOAD SAMMARY

AHU-1 66.000 Kcal/H/z (REHEAT ZO.000 Kal/H

AHU-Z. 94 000 Kal/H/2

AHU-3 46 000 Kral /1/2

AHU-4 26,000 Kal/4/2

TOTAL 116.000 KCAP/H RT-2 (50% x Zea)

· CAPACITY , CHILLED WATER .

()

RT-1. FOR AHU-1
66.000 Kal/H/3024 = ZZRT
66.000 Kal/H/5×60 = ZZOL/min.

RT-2 FOR AHU-1~4.

116.000 Kal/A/3024 = 39 RT

116.000 Kal/A/5x60 = 387 l/min.

6-2 EQUIPMENT.

(1) AIR COOLED

PACKAGED, LIQUID CHILLER UNIT

COOLING LOAD CAPACITY

: 66,000 Kcal/Hr (ZZ RT)

CHILLED WATER

WATER TEMP.

: IN /Z - OUT

WATER FLOW RATE

720 lit/min

:

WATER FRICTION LOSS

o.8 m (COIL SECTION)

CONNECTION PIPE DIA.

65 (GAS STEEL PIPE)

REFRIGERANT TYPE

R- 22

ELECTRIC POWER (OUTPUT)

COMPRESSOR

30 $(3\phi -$ Κw

FAN

0.75メ3 Κw -do-

-do-Kw

(-do-Kw

DIMENSION

: W 3.300 X D_{1.200} X H 2000 (mm)

Kg (OPERATING 1.810 Kg)

Mfr. MODEL NO : 30AE040

(or equal)

(CARRIER)

NOTE: TON IS REFGIGERATION(U.S) IS 3,024 Kcal/Hr.

AIR COOLED PACKAGED LIQUID CHILLER UNIT

R-2 x 2 ea

COOLING LOAD CAPACITY

CHILLED WATER

WATER TEMP.

: IN /Z - OUT 7 °C

WATER FLOW RATE

387 lit/min

: Z./ m (COIL SECTION)

WATER FRICTION LOSS CONNECTION PIPE DIA.

\$ 80 (GAS STEEL PIPE)

//6.000 Kcal/Hr (39 RT)

REFRIGERANT TYPE

R- 22

ELECTRIC POWER (OUTPUT)

COMPRESSOR

: 30 x z Kw

 $(3\phi - 380 V)$

FAN

0.75 × 6 Κw

-do-

Κw --qo-

-do-

: W 3.690 x D Z.000 x H Z.300 (mm)

WEIGHT Kg (OPERATING 2.810 Kg)

Mfr. MODEL NO : 30AE 080

(or equal)

Κw

(CARRIER)

NOTE : TON IS REFGIGERATION(U.S) IS 3,024 Kcal/Hr.

(2) PUMP

PUMP / VOLUTE CWP - 1 x ZPA

```
WATER RATE FLOW
                                         220
   WATER FLOW PIPE DIA.
                                              m/sec
  WATER FLOW SPEED
   PIPE FRICTION LOSS(R)
                                              mmAg/m
                                          40
PIPE EQUIVALENT LENGTH (Le)
               STRAIGHT PIPE :
                 ELBOW
                                  ea x
                 GATE VALVE
                                           m/ea=
                                   ea x
                                          m/ea= | 0.5
                 CHECK VALVE :
                                  ea x
                 OTHERS
                      TOTAL (Le)
                               :(Le) 225 \text{ m x}(R)0.04 =
   PIPE HEAD LOSS(*1)
   LIFT HEAD(*2)
   EQUIPMENT or OTHERS HEAD LOSS
                 1. R-1 Gil :
                 2. AHU COIJ
                 3. Reheater
                                      48 m
                      TOTAL (*3)
   TOTAL PIPE HEAD LOSS :(*1)+(*2)+(*3)= /8,0 m x 10%
   SELECTION OF PUMP
```

TYPE

:(VOLUTE) / TURBINE / IN LINE

: \$ 50×40

WATER FLOW RATE

220 lit/min

POWER OUTPUT

Kw (Ø 3 - 380 V) Z. Z

NUMBER

WEIGHT

Mfr. MODEL NO.

: 50x40F\$4T57.7 or equal

(EBARA)

NOTE:

```
387 lit/min
 WATER RATE FLOW
 WATER FLOW PIPE DIA.
 WATER FLOW SPEED
 PIPE FRICTION LOSS(R)
                                     40 mmAq/m
 PIPE EQUIVALENT LENGTH (Le)
                                   160 m
            STRAIGHT PIPE :
                                      m/ea=)
              ELBOW
                              ea x
              GATE VALVE
                                      m/ea = 1/60
                              еа х
                                    m/ea= | ois
              CHECK VALVE : ea x
              OTHERS
                 TOTAL (Le)
                     :(Le) 240 \text{ m x}(R)0.04 =
 PIPE HEAD LOSS(*1)
 LIFT HEAD(*2)
 EQUIPMENT or OTHERS HEAD LOSS
             1. R-1 Coll
                                  2,1
             2. AHU COIL :
                  TOTAL (*3)
                                   41
 TOTAL PIPE HEAD LOSS :(*1)+(*2)+(*3)= /8,7 m x 10%
                                  = 20 \text{ m}
 SELECTION OF PUMP
                        :VOLUTE / TURBINE / IN_LINE
        TYPE
                         : $ 65×50
        DIA.
        WATER FLOW RATE
                          : 387 lit/min
                               3.7
                                      Kw ($ 3 - 380 V)
        POWER OUTPUT
        NUMBER
                                   z ea
                          : /30 Kg
        WEIGHT
        Mfr. MODEL NO. : 65x50FS4J53.7 or equal
                            (FBARA)
NOTE:
```

PUMP / VOLUTE

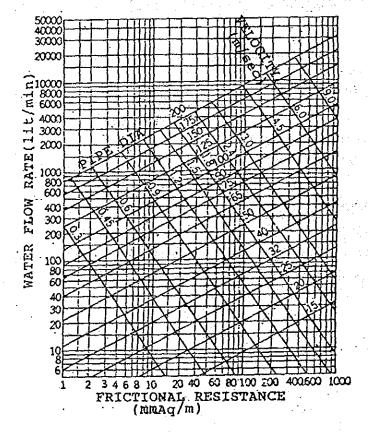
2 PAN

* EQUIVALENT LENGTH OF PIPE FITTINGS & VALVES

DIA	90°ELBOW	90°TEE	GATE VALVE	GLOVE VALVE	CHECK VALVE
20	0.75	1.2	0.15	6.0	1.6
25	0.9	1.5	0.18	7.5	2.0
32	1.2	1.8	0.24	10.5	2.5
40	1.5	2.1	0.3	13.5	3.1
50	2.1	3.0	0.39	16.5	4.0
65	2.4	3.6	0.48	19.5	4.6
80	3.0	4.5	0.63	24.0	5.7
100	4.2	6.3	0.81	37.5	7.6
125	5.1	7.5	0.99	42.0	10.0
150	6.0	9.0	1.20	49.5	12.0
200	6.5	14.0	1.40	70.0	15.0
250	8.0	20.0	1.70	90.0	19.0

* FRICTIONAL RESISTANCE CHART OF PIPING

(at GALVANIZED STEEL PIPE)



200

(3) AIR HANDLING UNIT

AHU-1 x 2er (one tot stand by)
AIR FLOW RATE : ZO. TOO M'H (345 m3/min)

: 66.000 KCA/H (REHEAT LOAD : 70.000 COOLING LOAD

FAN MOTOR

EXTERNAL STATIC PRES.: 70 mm Aq

AIR INLET : 24.7°C DB , 17.7°C WB , 11.6 Kcal/Kg

OUTLET 14. °C DB , 13.4 °C WB , 9.0 Kcal/Kg

CHILLED WATER : 270 lit/min (66.000 /5×60)

: VERTICAL TYPE

: Zo.700 M3/H AIR FLOW RATE

1 x 76 COOLING COIL

11 KW REHEATER : 24KW FAN MOTOR

Ø3-380,50Hz POWER

: CHILLED WATER 65 Ax2, DRAIN 70 A TAPPING SIZE

: 3000 x 845 x 1.930 (mm) DIMENSION

1.660 Kg : 447. 41 WEIGHT

MODEL: 39 ACT II (CARRIER)

AIR HANDLING UNIT

AHU-2 X 2 CO.

AIR FLOW RATE : 11,500 m3/4 (192 m3/min)

COOLING LOAD

: 47.000 Kal/H

FAN MOTOR

3.7 KW

EXTERNAL STATIC PRES.: 60 mm A &

AIR INLET

: 253°C DB , 17,3°C WB , 12,3 Kcal/Kg

OUTLET

13.9°C DB , 13.4°C WB , 9.° Kcal/Kg

CHILLED WATER : 157 lit/min (47.000/6×60)

TYPE

VERTICAL

AIR FLOW RATE : 11.500 m3/H

COOLING COIL

22 X J :

FAN MOTOR

: 3.7 KW

POWER

: \$3-38° ,50Hz

TAPPING SIZE

: CHILLED WATER 40 Ax2, DRAIN 70 A

DIMENSION

: 2090 x 780 x 1.790 (mm)

WEIGHT

1.060 Kg

MODEL : 39 ACT 9 (CARRIER)

AIR HANDLING UNIT

AHU-3 X Z EQ

AIR FLOW RATE

7.300 m3/4 (122 m3/min)

COOLING LOAD

23.000 Kcal/H

FAN MOTOR

7.2KW

EXTERNAL STATIC PRES .: 60 mm / 8

AIR INLET

: 24.2°C DB , 17.2°C WB , 11.6 Kcal/Kg

OUTLET

14.1 °C DB:, 13.4 °C WB , 9.0 Kcal/Kg

CHILLED WATER

: 77 lit/min (23,000 /5×60)

TYPE.

VERTICAL

AIR FLOW RATE

7.300 m3/H

COOLING COIL

1 × 2 Z

FAN MOTOR

Z.Z Kw

POWER

Ø3-380^V,50Hz

TAPPING SIZE

CHILLED WATER 40 Ax2, DRAIN 20 A

DIMENSION

1.580 X 780 X 1.790" (mm)

WEIGHT

810 Kg

8 (CARRIER) MODEL : 39 ACT

AIR HANDLING UNIT

AHU-4 x 2 ea

: 3.300 m3/H (55 m3/min) AIR FLOW RATE

13,000 Kcal /H. COOLING LOAD

1,5 KW FAN MOTOR

EXTERNAL STATIC PRES.: 60 mm/8

: 243°C DB , 177°C WB , 12.0 Kcal/Kg AIR INLET

13.8 °C DB -, 13.1 °C WB , 8.8 Kcal/Kg

: 44 lit/min (13.000 /5×60) CHILLED WATER

: VERTICAL TYPE.

: 3,300 m3/H AIR FLOW RATE

1 × 16 COOLING COIL

1.5 KW FAN MOTOR

Ø3-380V,50Hz POWER

CHILLED WATER 32 Ax2, DRAIN ZO A TAPPING SIZE

/./25 x 670 x 1.550 (mm) DIMENSION

360 Kg WEIGHT

(CARRIER) MODEL : 39 ACT 6

7.7 换 氛

7. VENTILATION SYSTEM

7-1ESTIMATE OF VENTILATION AIR VOLUME

	·	<i>.</i>	•					39
FLOOR	ROOH NAME	AREA (m ²)	VOL.	AIR CHANGE (T/Hr)	AIR FLOW (m ³ /Hr)	EXHAUST AIR (m³/Hr)	SUPPLY AIR (m³/Hr)	
MEZZANIN	<u> </u>					*		
	STORAGE ROOM	146	40.9	5	705	210.		(III) VF-4
, , <u>, , , , , , , , , , , , , , , , , </u>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		404.6	5 10	4046	<u>.</u>		(I)
<u> </u>	BATTERY ROOM	144,-	404.	35 ^{m²} /m²	5058*	5060	5060	OAGT
	CUP TOTAL					5.270	5060	EF-3
	4UB TOTAL							
CABLE TREATMEN FLOOR	CABLE TREATMENT AREA	628.9	1509	10	15090	[51 <i>0</i> 0	15100	0F-1 (I) EF-1
	SUB TOTAL	-	•			15,100		
OPERATIN								
FLOOR	KITCHEN	5.4	16.2	10	162	170		瓜) VF-5
	LAVATORY	19.1	573	10	573	600	650	(亚) VF-Z
	TAN	7.3	٤.٩	5	35	50*-		CE) VF-77
	SUB TOTAL					820		
							to en il 1811 t	
FORTH	LOCKER ROOM	224	62.7.	10	627	4 630 —	1000	(五) VF-1
FLOOR		5 ³	148		148	150		① VF-6
	KITCHEN		6.4	10	37.	* 50		
	JAN	2.3		5		*		(U) VF-7
	LAVATORY	11,5	37.2	10	322	320 -		<u>(正) VF-3</u>
 	AIR CONDITIONING MACHINE ROOM	G 310	1500	10	15000	15000		(四) EF-2
	SUB TOTAL					16.150		
ROOF	TURBINE ROOM		χω ×0 × 0.0 29 × 5	× 860°	=355.862 =356.000 /10	= 77 200 /		(D) RF-1
NOOF	TONDING KNO	۷۶۶ ≠ ۲۲،۰ ۱۰٫۰ +		5 i	305.450			

2/6

()

7-2 SELECTION OF VENTILATION EQUIPMENT

MEZZANINE FLOOR STORAGE ROOM

MACHINE NO VF - 4

TYPE OF VENTILATOR : CEILING

x 1 ea

AIR FLOW RATE

210 m3/Hr x 8 mag

FAN MOTOR

or 35 w

POWER

SIZE

308 X 308 X ZZ6" (mm)

ACCESSORY

: 1504 VENT CAP

BATTERY ROOM MEZZANINE FLOOR

MACHINE NO EF- Z

55#Z1/2

TYPE OF VENTILATOR

CENTIFUGAL X / ea

AIR FLOW RATE

5060 m3/Hr x 25 mm/3 8

FAN MOTOR

1.5 KW or

POWER

16-220- / 36 580 v (50/60 Hz)

SIZE

960 x 360 x 805 H (mm)

ACCESSORY

CABLE TREATMENT AREA

MACHINE NO FF-1 (0F-1) SS #4

TYPE OF VENTILATOR

: DITTO

AIR FLOW RATE

15100 m3/Hr x 25 mm/8

FAN MOTOR

37 KW or

POWER

14 220v / 30 380 v (50/60 Hz)

SIZE

: 1540 x 545 X 1.140 (mm)

ACCESSORY

V - 4

OPERATING FLOOR : KITCHEN

MACHINE NO VF-5

TYPE OF VENTILATOR : CEILING x / ea

AIR FLOW RATE : 170 m³/Hr × 8 mma⁹

FAN MOTOR : - WW or 35 w

POWER : 10 220v / 30 (50/60 Hz)

SIZE : 308 x 308 x 226" (mm)

ACCESSORY : 150 VENT CAP

v - 5

OPERATING FLOOR LAUATORY

MACHINE NO VF - Z

TYPE OF VENTILATOR : CEILING x / ea

AIR FLOW RATE : 600 m³/Hr × 8 mm³/8

FAN MOTOR : WWW or q5 W

POWER : 10 220v / 30 v (50/60 Hz)

SIZE : $464 \times 464 \times 278^{H}$ (mm)

ACCESSORY : 1504 VENT CAP

V - /

OPERATING FLOOR JAN (= FORTH FLOOR JAN)

MACHINE NO VF - 7

TYPE OF VENTILATOR : CEILING X Z ea

AIR FLOW RATE : 50 m³/Hr × 6 mr-48

FAN MOTOR : ## or 18 w

POWER : 16 220v / 36 (50/60 Hz)

SIZE x 223 x 223 x 165,5 (mm)

ACCESSORY AND AND THE TOP VENT CAP

V - 7

FOR TH FLOOR LOCKER ROOM

MACHINE NO VF - |

TYPE OF VENTILATOR : ŒILING X | ea

AIR FLOW RATE : 630 m³/Hr x8 mm h

FAN MOTOR : mm or 95 w

POWER : 16 220v / 36 mm (50/60 Hz)

SIZE : 464 x 464 x 278 H (mm)

ACCESSORY : 150 VENT CAP

v _ &

KITCHEN FORTH FLOOR MACHINE NO VF - 6 x / ea : CEILING TYPE OF VENTILATOR : 150 m3/HI x 8 mm/28 AIR FLOW RATE ₩ or 35 w FAN MOTOR : 1¢ 220v / 3 (50/60 Hz) POWER : 308 x 308 x 743 (mm) SIZE : 150 + VENT CAP ACCESSORY

V - 9

TORTH FLOOR LAVATORY

MACHINE NO VF - 3

TYPE OF VENTILATOR : CEILING x | ea

AIR FLOW RATE : 370 m³/Hr x 7 mm²?

FAN MOTOR : 220 v / 36 v (50/60 Hz)

SIZE : 345 x 345 x 243" (mm)

ACCESSORY : 150 VENT CAP

33

V - 10

FORTH FLOOR AIR CONDITIONING MACHINE ROOM

MACHINE NO EF-3

TYPE OF VENTILATOR : AXIAL. x 1 ea

AIR FLOW RATE : 15.000 m3/Hr x 15 mmAg

FAN MOTOR

POWER

: ZZ KW or wester

: 15-220v / 3ø 380v (50/60 Hz)

SIZE

x x

(mm)

ACCESSORY

TURBINE ROOM ROOF

MACHINE NO RF-1

TYPE OF VENTILATOR : ROOF VENTILATOR x 16 ea

AIR FLOW RATE : 22.300 m3/Hr x 10 mm 18 (41200)

: 37 KW or

FAN MOTOR

: 16 220v / 36 380 v (50/60 Hz)

SIZE

: 2.250 x 2.250 x 1520H. (mm)

ACCESSORY

POWER

MACHINE NO

TYPE OF VENTILATOR :

AIR FLOW RATE :

FAN MOTOR

KW or

POWER COMPANY OF THE PARTY OF T

16 220v / 36

v (50/60 Hz)

SIZE

x X

ACCESSORY

()

V - 12.

FORTH FLOOR: AIR CONDITIONING MACHINE ROOM

MACHINE NO EF-K (FOR AHU-17

TYPE OF VENTILATOR : AXIAL x | ea

AIR FLOW RATE : 250 m3/Hr × 10 mm4 8

FAN MOTOR : #W or 80 W

POWER : 1¢ 220v / 36 (50/60 Hz)

SIZE : 375 × 320 × (mm)

ACCESSORY :

V - 13

MACHINE NO EF -5 <FOR AHU-3 >

TYPE OF VENTILATOR : AXIAL x / ea

AIR FLOW RATE : 150 m³/Hr x10 mmA8

FAN MOTOR : WWW or 12 www.

POWER : 16 220v / 36 (50/60 Hz)

SIZE : 250 × 220 × 274 (mm)

ACCESSORY :

V - 14

MACHINE NO EF-6 (FOR ANO-4)

TYPE OF VENTILATOR : AXAL

AIR FLOW RATE : 100 m3/Hr x 7 mm A8

FAN MOTOR : XX or 12 W

POWER : 10 220v / 30 (50/60 Hz)

SIZE : 250 x 270 x 274 (mm)

ACCESSORY :

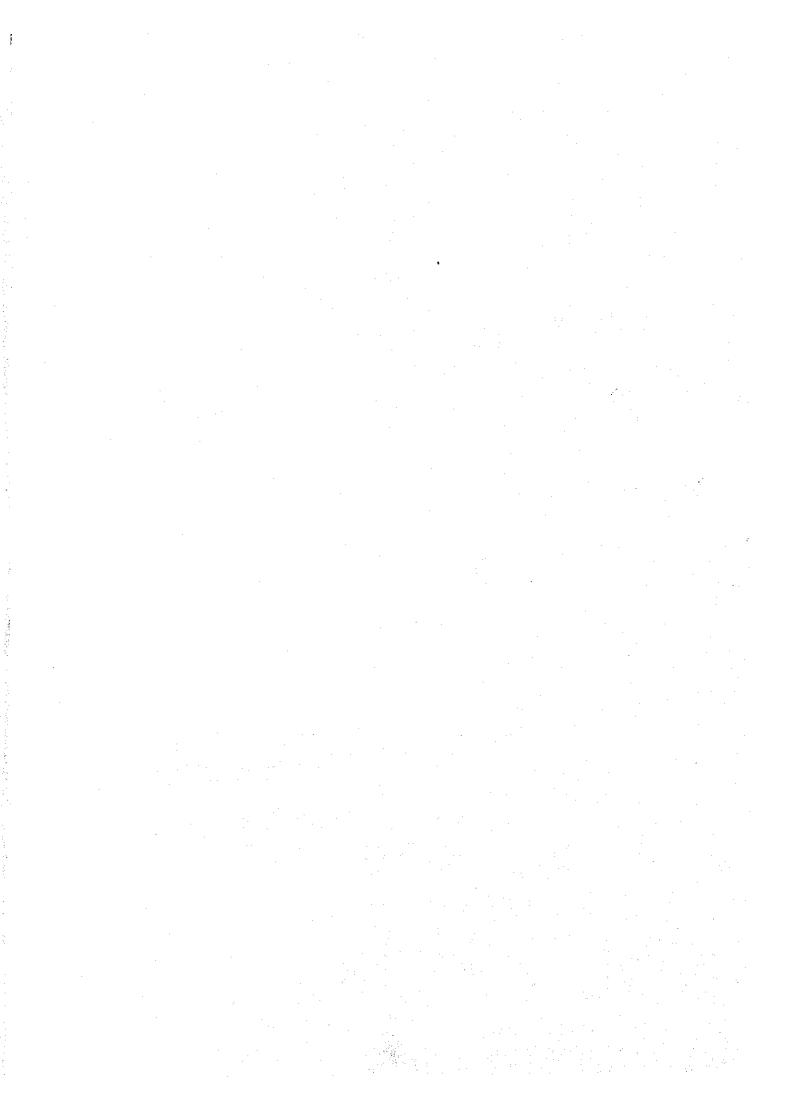
AR-8. Calculation Sheets For Air Conditioning and Ventilation System

For Administration Building



C O N T E N T S

1.	DESIGN CRITERIA		1
		•	
2, .	DATA		2
3.	HEAT TRANSMISSION		4
4.	ROOM LOAD SUMMRY		6
			-
5.	EQUIPMENT LOAD	· · · · · · · · · · · · · · · · · · ·	43
· .			
6.	SELECTION OF		
	COOLING EQUIPMENT	US 25-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	4 7
7.	VENTILATION		4.9



- 1 1 DESIGN CONDITION
 - 1) For air conditioning system
 - (a) Outdoor air

Summer : 42.2°C DB, 28.6°C WB, 37%RH

(b) Room

Summer : 24°C+2°C DB, 50%RH

Winter : Not more than the condition in summer

3) Lighting 20 W/m^2

4) People

Refer to "Cooling and dehumidifying estimate sheets"

5) LOcation

25.4°(N), 68.3°(E)

2.DATA

Data used for load estimation is based on Carrier, s Design Manual of the newest condition.

2 - 1 Outdoor air

Dry Bulb 1)

Time Dry Bulb	8	9	10	11	12	13	14	15	16	17	18
°C	28.2	30.3	32.8	35.7	38.4	40.4	41.7	42.2	41.7	40.5	38.7

2) HUmidity Ratio

Time Humidity Ratio	8	9	10	11	12	13	14	15	16	17	18
д/Кд	19.1	19.0	19.0	19.2	18.9	19.0	18.8	19.0	18.8	18.9	18.8

2 - 2 Solar heat gain

1) Peak solar heat gain thru ordinary glass

EXPOSORE NL HEAT	NE	SE :	SW	NW	HORIZONTAL	SHADE	
Kcal/h m ²	366	252	252	366	674	47	

2) Solar gain correction factors

for steel sash : 1/0.85

for dew point :

0.94

3) Load storage factors , solar heat gain thru ordinary glass

EXP	TIN OSURE	Œ	8	9	10	11	12	13	14	15	16	17	18
	NE		0.57	0.46	0.30	0.24	0.20	0.19	0.17	0.16	0.15	0.13.	0.11
	SE		0.47	0.61	0.67	0.65	0.57	0.44	0.29	0.24	0.21	0.18	0.15
	sw		0.08	0.08	0.10	0.24	0.40	0.55	0.66	0.70	0.64	0.50	0.26
	NW		0.09	0.09	0.10	0.10	0.10	0.10	0.16	0.34	0.52	0.65	0.64

NOTE: Venetian blind to be located on the inside of glass.

(Overall factor is 0.65)

2 - 3 Equivalent temperature difference

1) For wall

TIME EXPOSURE	8	9	10	11	12	13	14	15	16	17	18
NE	4.6	7. 9	16.8	16.0	15.3	13.3	11.3	11.9	12.6	13.0	13.5
SE	5.4	8.6	11,1	12.4	13.6	13.8	13.9	12.9	12.4	11.8	11,5
SW	2.6	3.1	3.7	5.0	5.9	9.8	12.1	15.8	18.6	19.2.	19.5
NW	3.7	4.5	5.3	6.6	7.9	10.1	11.3	13.5	15.4	19.5	23.2

These figures are basing on medium color, outside air temperature at 42.2°C DB, inside air temperature at 24°C DB daily range of 16.7°C and specific weight of wall 200Kg/m².

2) For roof

	TIME For r∞f	8 9	10	11	12	13	14	15	16 17	18
i.	°C	10.3 10.2	10.8	12.4	14.9	18.0	21.2	24.0	26.2 27.8	28.5

These figures are basing on medium color, outside air temperature at 42.2°C DB, inside air temperature at 24°C DB daily range of 16.7°C and specific weight of wall 300Kg/m^2 .

TYPE OF STRUCTURE	MATERIALS	THICKNESS	RESISTANCE	AIR FILM	K-Value
	,	(mm)	(m ² H°C/Kcal)	(m ² H°C/Kcal)	(Kcal/m ² H°C
WALL					
	A 45 45 15		0.616	70=0.05	
_ TRAIT	DCEMENT	10	0.818		and the second second
0-1	PLASTER	150	0.283		
0-17	@BRICK		0.283		
3	O CEMENT		0.01.6		
	PLAS TER			r) = 0.133	
				1	2,008 → 7,1
•				(0.498)	2.00 5 2,1
				3.1	
PARTITION 1.				71=0.133	
	O.CEMENT		0.016		
	PLASTER				
DITTO	@ BRICK	150	0.283		
	3 CEMENT	10	0.016		
	PLASTER			W. F. 6. (133	1.722 × 1.8
			سندو والسنيات المالة كالأليب	(0.581)	<u> </u>
PARTITION Z				7 0.133	
	O CEMENT		0,016	· · · · · · · · · · · · · · · · · · ·	
	PLASTER			<u> </u>	<u></u>
	@ CONCRETE	150	0.107	<u> </u>	
0	3 CEMENT	10	0.016	1	
3	PLASTER			ri= 0.133	45
				(0.405)	747 => 7.5
DOOR (IN)				Yi= 01133	
المال	DWOOD	12	590.0		
	@ AIR SPACE		0,200		
0+1 H@	3 WOOD	12	5000		<u> </u>
				ri=0.123	
اللهائل				(0.650)	1,539 -> 1,6
	ļ <u></u>				
WINDOW (OUT)					
W HO DO W COLLY	ORDINARY	3		<u> </u>	5.1
	GLASS				
			•		
WINDOW (IN)	<u></u>				- -
	PRDINARY	3			3.8
	GLASS				
					
4 5					
•					

ADMINISTRATION		lue	•		5
TYPE OF STRUCTURE	1	THICKNESS	RESISTANCE	AIR FILM	K-Value
Title of Billografia		(mm)	(m ² H°C/Kcal)	(m ² H°C/Kcal)	(Kcal/m ² H°C)
Roof/				Y0=0.05	
000	OBLICK TILE	10	0.019	70-0.05	
	3) SAND	30	0,057		
- V. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3) POLYETHYLENE		0.034		·
4 6 6	FILM				
	1 ROOFING	10	0.112		
	@CONCRETE	150	0.107		
	@CEMENT	25	0.040		
	PLASTER				
				ri = 0.189	
				(0.608)	1,645 ⇒ 1,7
				(0,600)	177. 3.17
ROOFZ				Yo = 0.05	
	OBLICK THE	10	0.019	10	
0000	2 SAND	30	0.057		
	3) POLYETHYLENE		0.034		
	FILM				
	1 ROOFING	10	0.112		
	D'CONCRETE.	150	0,107	. 5	
	DAIR SPACE		0.200		
	- 1	12	0 (187		
	(T) ACOUSTICAL		<u> </u>		<u> </u>
	TILE BOARD			$\gamma_{i} = 0.189$	
	ļ			(0.955)	1048 > 1.1
				(0.755)	
	 			ri= 0.189	
CEILING 1	OTE BEATT	30	0070	11-0001	
	1) TERRAZZO		0.070		
 	3 MORTAR_	40	0.031		
	O CONCRETE.	150	0,107		
((⊕	AIR SPACE		0.700		
	DALUM SHEET	2		~!	
			<u> </u>	71 = 0.189	1.359 -> 1.4
				(0.736)	1,351917
Fros 1				Y4 = 0,125	
P '	5 100-5	<u></u>			1,45 > 1.7
DITTO	DITTO	DITTO	DITTO	(0.608)	7 11

1002

CEILINGZ

FLOOR Z

DITTO

O TERRAZZO

D MORTAR DONCRETE 30

40

150

0.020

0.031

0.107

vi = 0.189

(0.536)

 $\gamma i = 0.125$ (0.403) $z.482 \Rightarrow 2.5$

1.866 - 1.9