

## **ELECTRICAL**

**VISITOR CENTER**

**LIGHTING CALCULATION**

# KARAK TOURISM DEVELOPMENT PROJECT

## VISITOR CENTER-MULTIPURPOSE HALL

Date: 12-07-2000  
Customer: THE MINISTRY OF TOURISM AND ANTIQUITIES  
Customer Representative: THE MINISTRY OF PLANNING  
Designer: S.M

The nominal values shown in this report are the result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination. In practice the values may vary due to tolerances on luminaires, luminaire positioning, reflection properties and electrical supply.

CONSOLIDATED CONSULTANTS  
AMMAN-JORDAN

Telephone: 4612377

CalcuLuX Indoor 2.0b

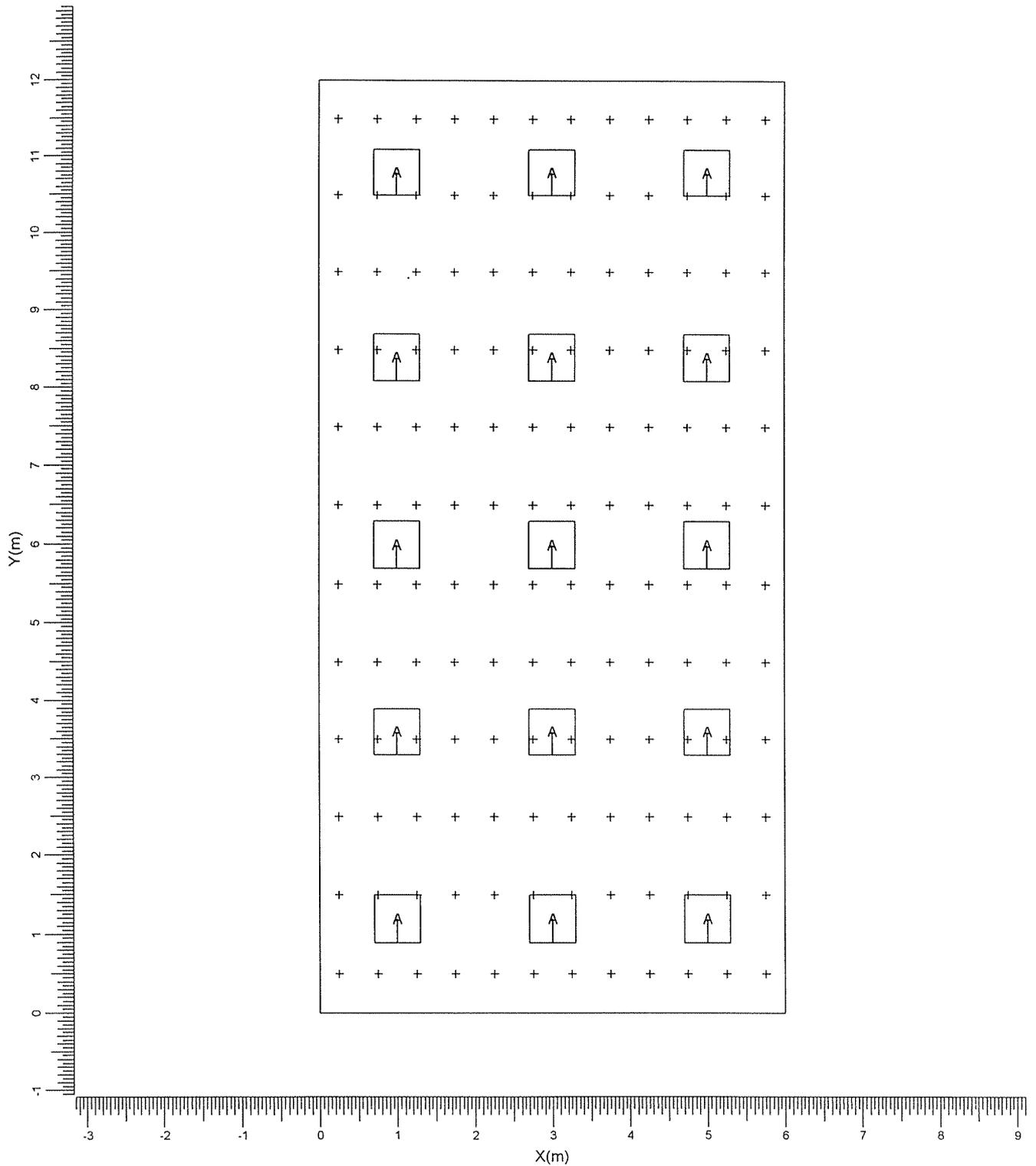
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# 1. Project Description

## 1.1 Top Project Overview



A  TBS 300/418 L

Width  
6.00 m

Length  
12.00 m

Height  
3.70 m

Working Plane Height  
0.80 m

Scale  
1:75

## 2. Summary

### 2.1 Room Summary

Room Dimensions			Surface	Reflectance
Width	6.00	m	Ceiling	0.50
Length	12.00	m	Left Wall	0.30
Height	3.70	m	Right Wall	0.30
Working Plane Height	0.80	m	Front Wall	0.30
			Back Wall	0.30
			Floor	0.10

#### Room Position (Front Bottom Left)

X	0.00	m
Y	0.00	m

#### Total Average Room Surface Luminance (cd/m<sup>2</sup>):

Ceiling	Left	Right	Front	Back	Floor
10.1	24.4	24.4	24.0	24.0	15.1

The overall maintenance factor used for this project is 1.00.

### 2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	15	TBS 300/418 L	4 * TL-D 18W	108.0	4 * 1350

The total installed power: 1.6 (kWatt)

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code	Power (kWatt)
RECEPTION	A 15	1.6

### 2.3 Calculation Results

(II)luminance Calculations:

Calculation	Type	Unit	Ave	Min/Ave	Min/Max	Result
Grid	Surface Illuminance	lux	537	0.59	0.47	Total

### 3. Calculation Results

#### 3.1 Grid: Textual Table

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total

X (m)	0.25	0.75	1.25	1.75	2.25	2.75	3.25	3.75	4.25	4.75	5.25	5.75
Y (m)												
11.50	316<	367	403	425	440	451	451	440	425	403	367	316<
10.50	387	454	502	530	550	563	563	550	530	502	454	387
9.50	428	503	557	590	613	628	628	613	590	557	503	428
8.50	453	532	590	625	650	666	666	650	625	590	532	453
7.50	457	536	594	630	655	670	670	655	630	594	536	457
6.50	462	543	602	637	662	679>	679	662	637	602	543	462
5.50	462	543	602	637	662	679	679	662	637	602	543	462
4.50	457	536	594	630	655	670	670	655	630	594	536	457
3.50	453	532	590	625	650	666	666	650	625	590	532	453
2.50	428	503	557	590	613	628	628	613	590	557	503	428
1.50	387	454	502	530	550	563	563	550	530	502	454	387
0.50	316	367	403	425	440	451	451	440	425	403	367	316

Average  
537

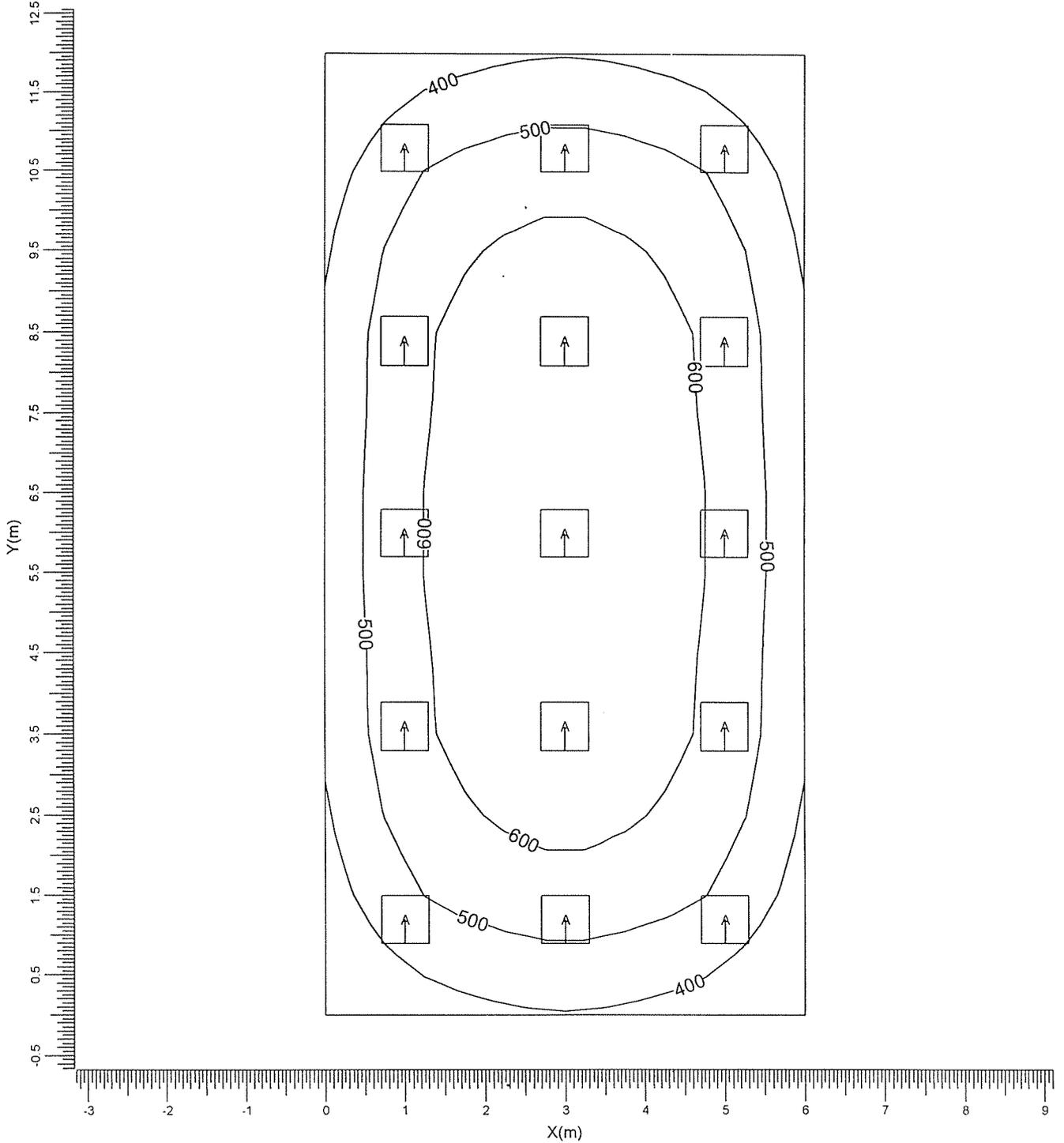
Min/Ave  
0.59

Min/Max  
0.47

Project maintenance factor  
1.00

3.2 Grid: Iso Contour

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total

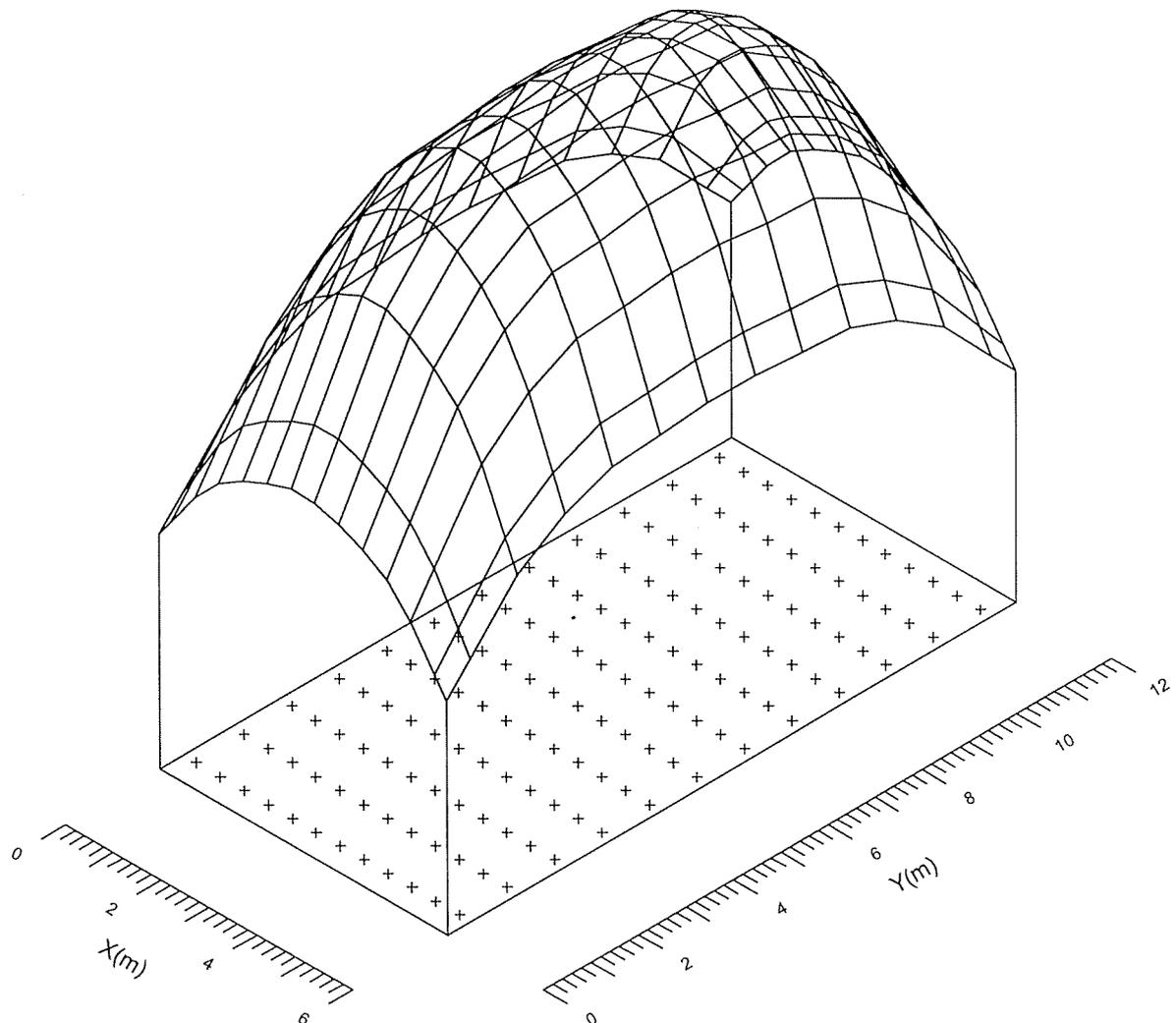


A  $\rightarrow$  TBS 300/418 L

Average 537	Min/Ave 0.59	Min/Max 0.47	Project maintenance factor 1.00	Scale 1:75
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3.3 Grid: Mountain Plot

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total



Average  
537

Min/Ave  
0.59

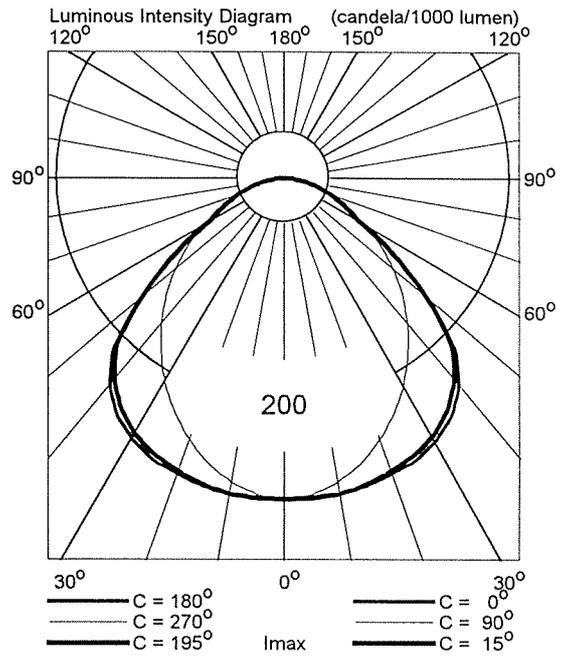
Min/Max  
0.47

Project maintenance factor  
1.00

## 4. Luminaire Details

### 4.1 Project Luminaires

Luminaire Name : TBS 300/418 L  
 Lamp name : TL-D 18W  
 Lamp Color : 840  
 Number of lamps/luminaire : 4  
 Lamp flux : 1350 lm  
 Ballast : Standard  
 Light output ratios  
     DLOR : 0.70  
     ULOR : 0.00  
     TLOR : 0.70  
 Luminaire wattage : 108.0 W  
 Measurement code : LVW0872600



# KARAK TOURISM DEVELOPMENT PROJECT

## VISITOR CENTER-RECEPTION

Date: 12-07-2000  
Customer: THE MINISTRY OF TOURISM AND ANTIQUITIES  
Customer Representative: THE MINISTRY OF PLANNING  
Designer: S.M

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CONSOLIDATED CONSULTANTS  
AMMAN-JORDAN

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CalcuLuX Indoor 2.0b

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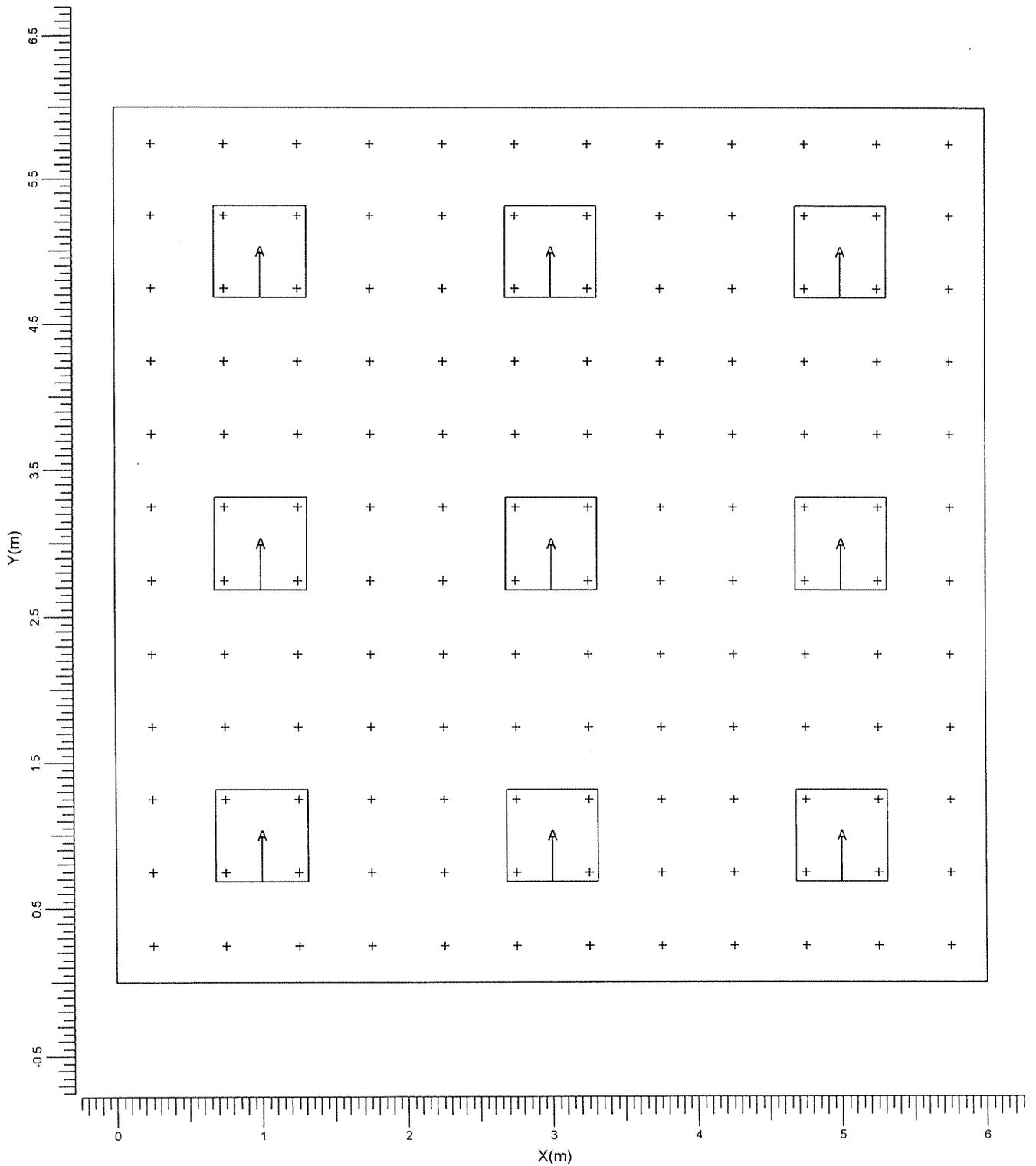
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4.1	Project Luminaires	8

# 1. Project Description

## 1.1 Top Project Overview



A TCS 314/418 L

Width  
6.00 m

Length  
6.00 m

Height  
3.70 m

Working Plane Height  
0.80 m

Scale  
1:40

## 2. Summary

### 2.1 Room Summary

Room Dimensions			Surface		Reflectance
Width	6.00	m	Ceiling		0.50
Length	6.00	m	Left Wall		0.30
Height	3.70	m	Right Wall		0.30
Working Plane Height	0.80	m	Front Wall		0.30
			Back Wall		0.30
			Floor		0.10

Room Position (Front Bottom Left)		
X	0.00	m
Y	0.00	m

Total Average Room Surface Luminance (cd/m2):					
Ceiling	Left	Right	Front	Back	Floor
11.9	27.3	27.3	29.0	29.0	15.5

The overall maintenance factor used for this project is 1.00.

### 2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	9	TCS 314/418 L	4 * TL-D 18W	108.0	4 * 1350

The total installed power: 1.0 (kWatt)

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code	Power (kWatt)
RECEPTION	A 9	1.0

### 2.3 Calculation Results

(II)luminance Calculations:

Calculation	Type	Unit	Ave	Min/Ave	Min/Max	Result
Grid	Surface Illuminance	lux	574	0.62	0.47	Total

### 3. Calculation Results

#### 3.1 Grid: Textual Table

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total

X (m)	0.25	0.75	1.25	1.75	2.25	2.75	3.25	3.75	4.25	4.75	5.25	5.75
Y (m)												
5.75	354	411	452	477	494	506	506	494	477	452	411	354
5.25	400	468	517	546	567	581	581	567	546	517	468	400
4.75	440	518	573	606	629	646	646	629	606	573	518	440
4.25	472	556	617	654	679	696	696	679	654	617	556	472
3.75	494	583	648	687	714	732	732	714	687	648	583	494
3.25	505	596	663	703	731	750	750	731	703	663	596	505
2.75	505	596	663	703	731	750	750>	731	703	663	596	505
2.25	494	583	648	687	714	732	732	714	687	648	583	494
1.75	472	556	617	654	679	696	696	679	654	617	556	472
1.25	440	518	573	606	629	646	646	629	606	573	518	440
0.75	400	468	517	546	567	581	581	567	546	517	468	400
0.25	354	411	452	477	494	506	506	494	477	452	411	354<

Average  
574

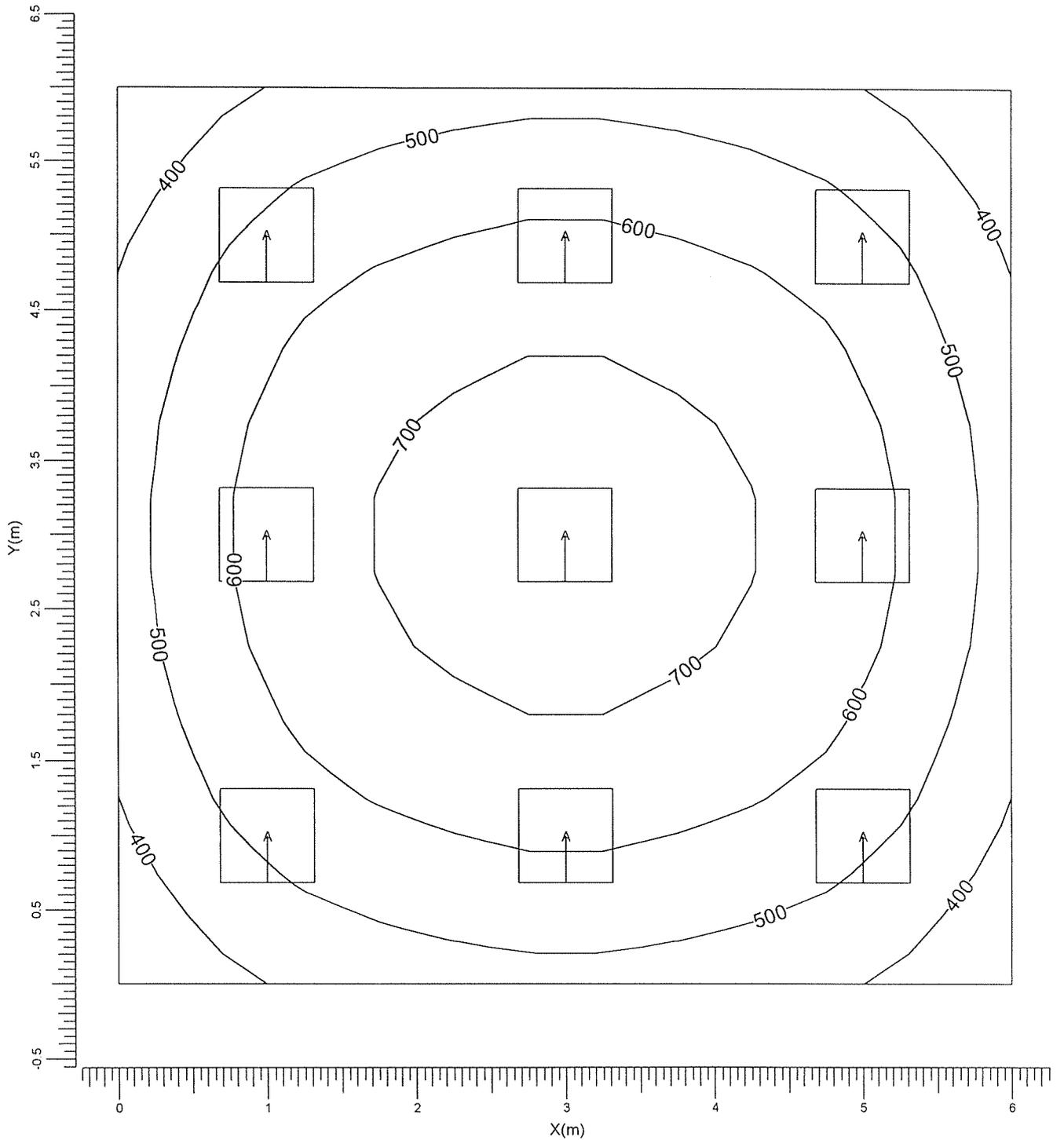
Min/Ave  
0.62

Min/Max  
0.47

Project maintenance factor  
1.00

3.2 Grid: Iso Contour

Grid : Grid at Z = 0.80 m  
 Calculation : Surface Illuminance (lux)  
 Result Type : Total



A —> TCS 314/418 L

Average  
574

Min/Ave  
0.62

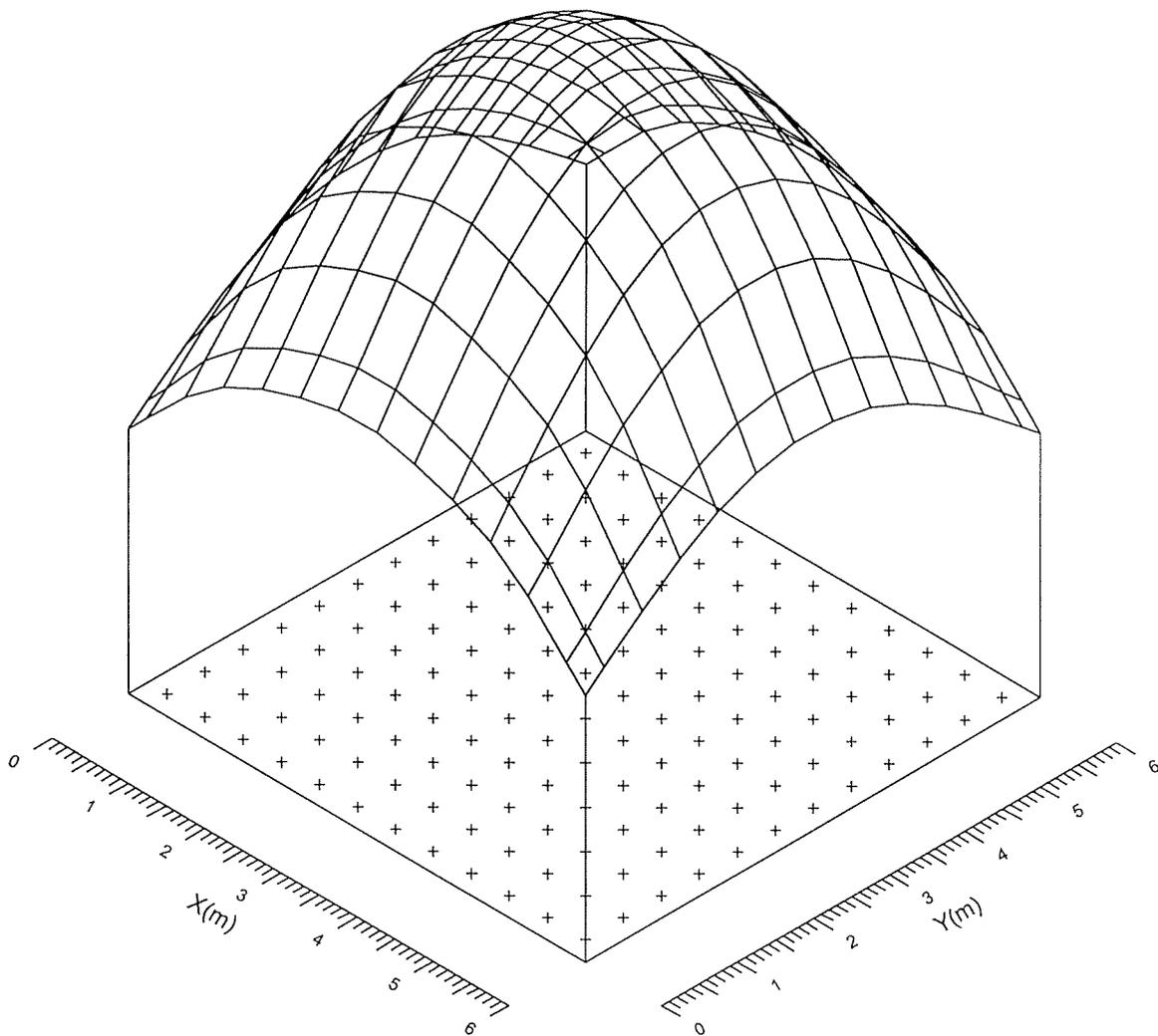
Min/Max  
0.47

Project maintenance factor  
1.00

Scale  
1:40

3.3 Grid: Mountain Plot

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total



Average  
574

Min/Ave  
0.62

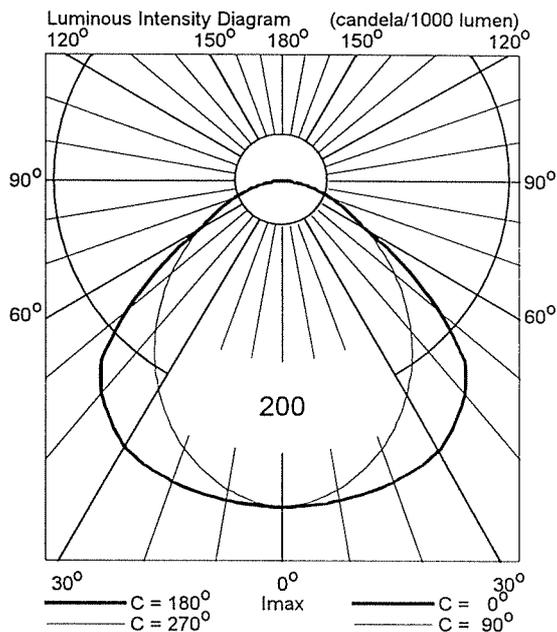
Min/Max  
0.47

Project maintenance factor  
1.00

## 4. Luminaire Details

### 4.1 Project Luminaires

Luminaire Name : TCS 314/418 L  
Lamp name : TL-D 18W  
Lamp Color : 840  
Number of lamps/luminaire : 4  
Lamp flux : 1350 lm  
Ballast : Standard  
Light output ratios  
DLOR : 0.72  
ULOR : 0.00  
TLOR : 0.72  
Luminaire wattage : 108.0 W  
Measurement code : LVW0846500



# KARAK TOURISM DEVELOPMENT PROJECT

## VISITOR CENTER-KITCHEN

Date: 12-07-2000  
Customer: THE MINISTRY OF TOURISM AND ANTIQUITIES  
Customer Representative: THE MINISTRY OF PLANNING  
Designer: S.M

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AMMAN-JORDAN

Telephone: 4612377

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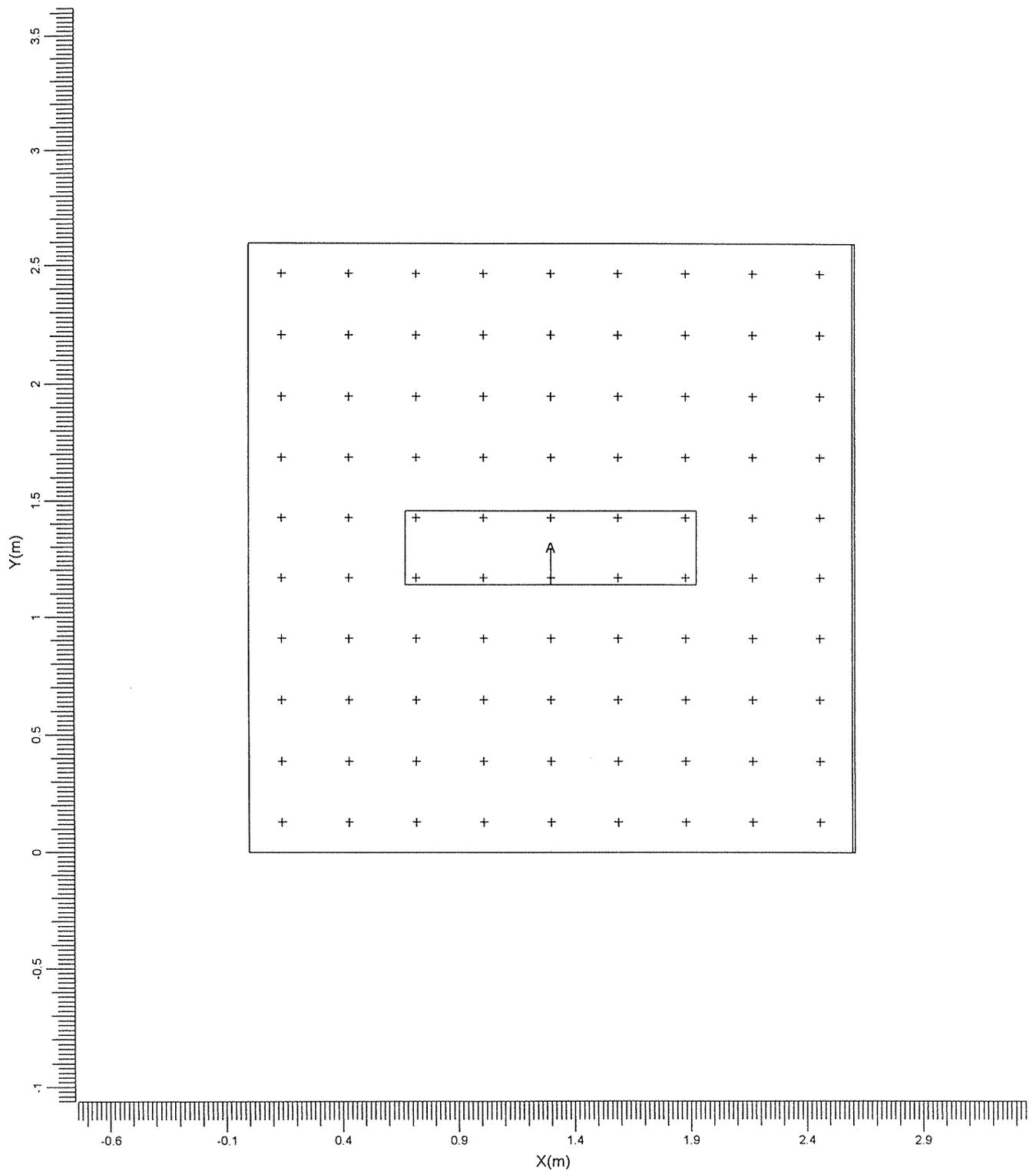
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3.3	Grid: Mountain Plot	7
<b>4.</b>	<b>Luminaire Details</b>	<b>8</b>
4.1	Project Luminaires	8

# 1. Project Description

## 1.1 Top Project Overview



A ———▷ TCS 314/236 P3

Width  
2.60 m

Length  
2.60 m

Height  
3.70 m

Working Plane Height  
0.80 m

Scale  
1:25

## 2. Summary

### 2.1 Room Summary

Room Dimensions			Surface		Reflectance
Width	2.60	m	Ceiling		0.50
Length	2.60	m	Left Wall		0.30
Height	3.70	m	Right Wall		0.30
Working Plane Height	0.80	m	Front Wall		0.30
			Back Wall		0.30
			Floor		0.10

#### Room Position (Front Bottom Left)

X	0.00	m
Y	0.00	m

#### Total Average Room Surface Luminance (cd/m2):

Ceiling	Left	Right	Front	Back	Floor
5.4	11.7	11.7	11.6	11.6	4.7

The overall maintenance factor used for this project is 1.00.

### 2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	1	TCS 314/236 P3	2 * TL-D 36W	88.2	2 * 3350

The total installed power: 0.1 (kWatt)

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code	Power (kWatt)
KITCHEN	A 1	0.1

### 2.3 Calculation Results

(II)luminance Calculations:

Calculation	Type	Unit	Ave	Min/Ave	Min/Max	Result
Grid	Surface Illuminance	lux	201	0.78	0.65	Total

### 3. Calculation Results

#### 3.1 Grid: Textual Table

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total

X (m)	0.14	0.43	0.72	1.01	1.30	1.59	1.88	2.17	2.46
Y (m)	2.47	156<	171	183	191	193	191	183	171
	2.21	168	185	198	207	210	207	198	185
	1.95	178	196	211	221	224	221	211	196
	1.69	185	204	220	231	234	231	220	204
	1.43	188	209	225	236	240>	236	225	209
	1.17	188	209	225	236	240>	236	225	209
	0.91	185	204	220	231	234	231	220	204
	0.65	178	196	211	221	224	221	211	196
	0.39	168	185	198	207	210	207	198	185
	0.13	156	171	183	191	193	191	183	171

Average  
201

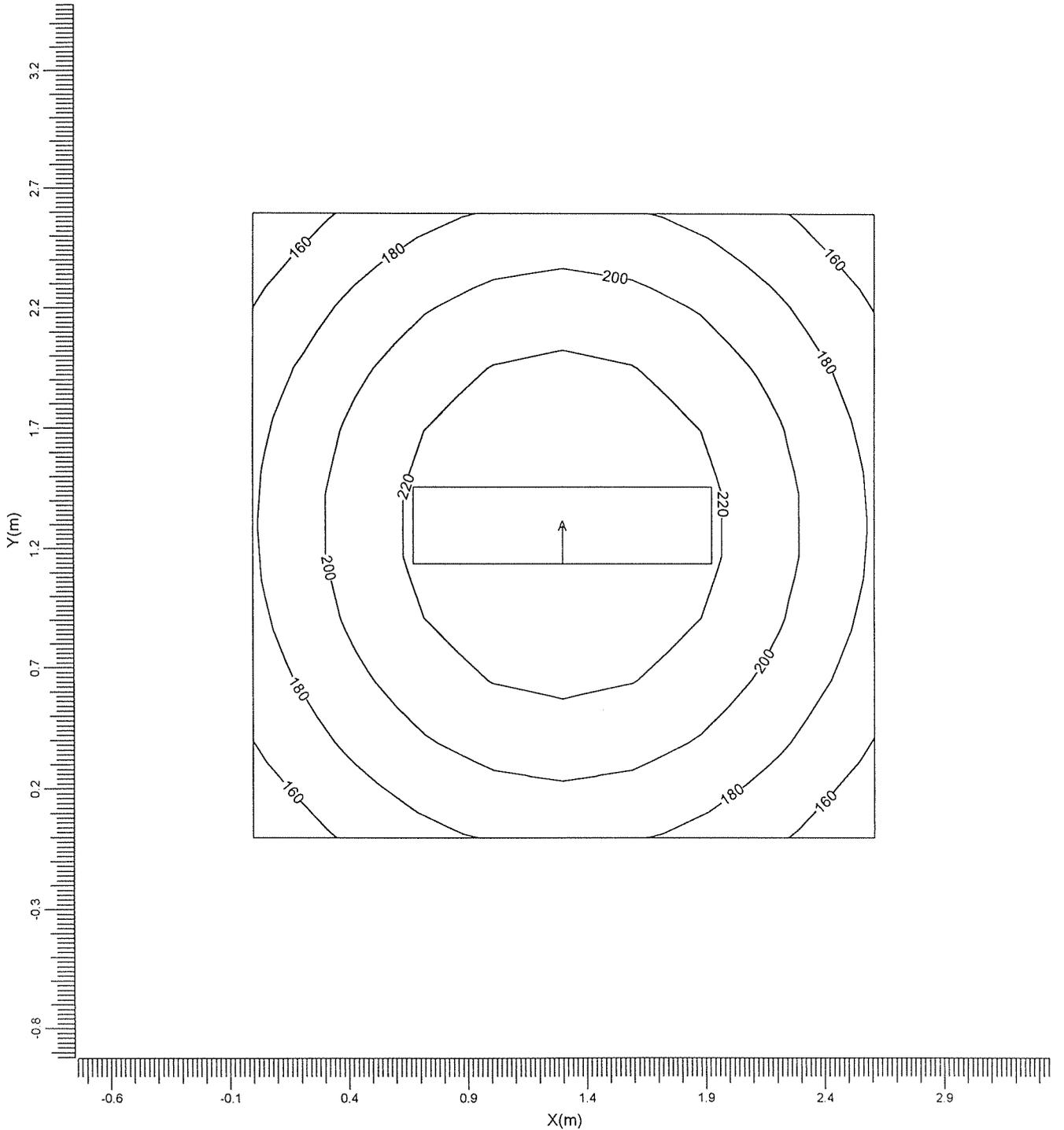
Min/Ave  
0.78

Min/Max  
0.65

Project maintenance factor  
1.00

3.2 Grid: Iso Contour

Grid : Grid at Z = 0.80 m  
 Calculation : Surface Illuminance (lux)  
 Result Type : Total

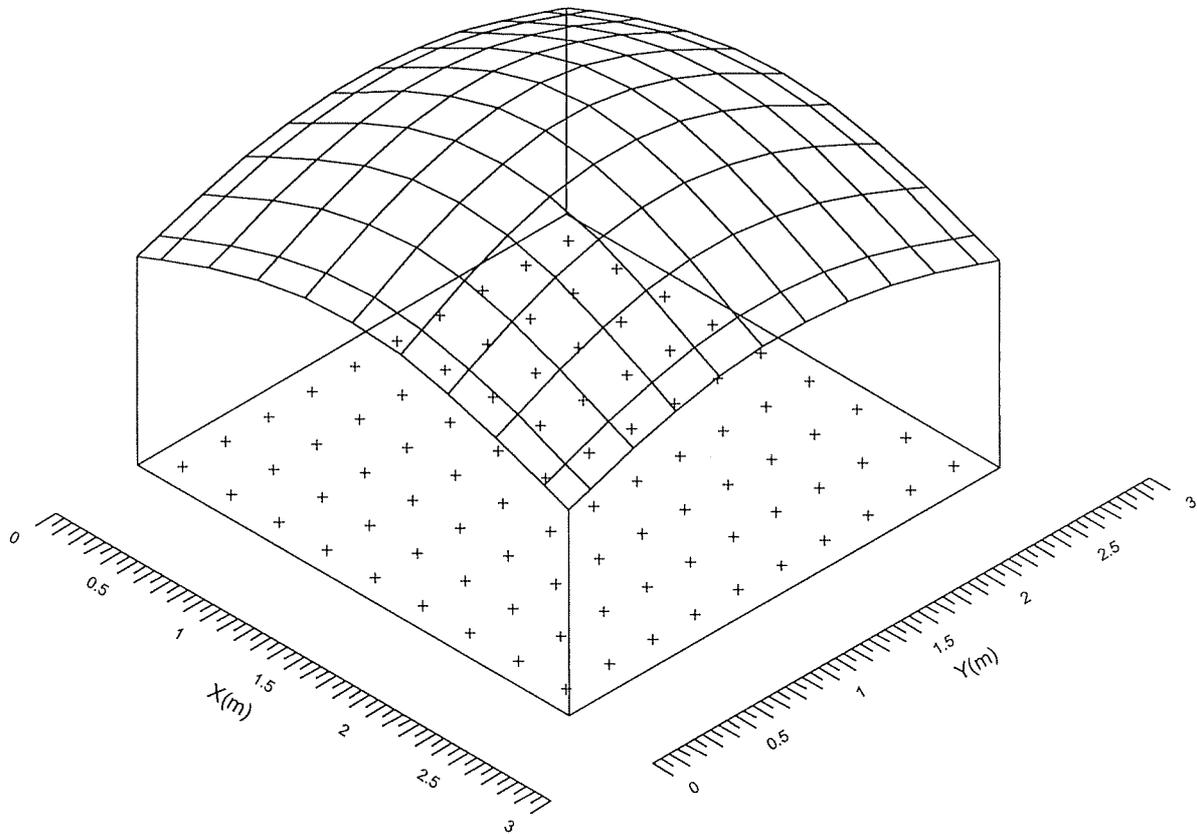


A —> TCS 314/236 P3

Average 201	Min/Ave 0.78	Min/Max 0.65	Project maintenance factor 1.00	Scale 1:25
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### 3.3 Grid: Mountain Plot

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total



Average  
201

Min/Ave  
0.78

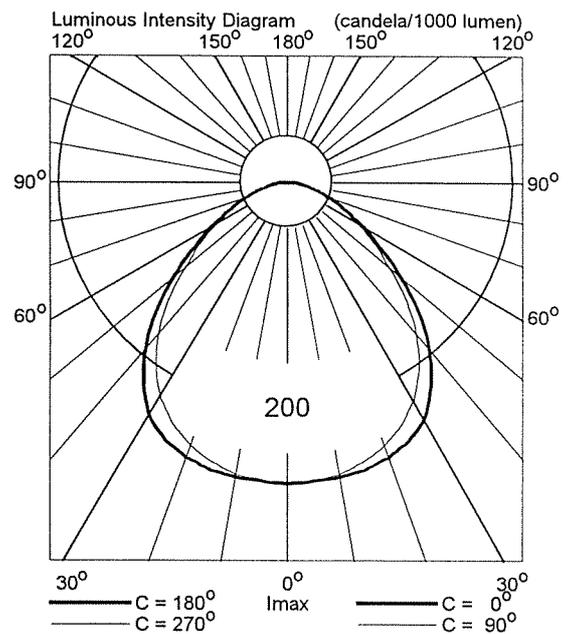
Min/Max  
0.65

Project maintenance factor  
1.00

## 4. Luminaire Details

### 4.1 Project Luminaires

Luminaire Name : TCS 314/236 P3  
Lamp name : TL-D 36W  
Lamp Color : 840  
Number of lamps/luminaire : 2  
Lamp flux : 3350 lm  
Ballast : Standard  
Light output ratios  
DLOR : 0.63  
ULOR : 0.00  
TLOR : 0.63  
Luminaire wattage : 88.2 W  
Measurement code : LVW0844900



# KARAK TOURISM DEVELOPMENT PROJECT

## VISITOR CENTER-MANAGER OFFICE

Date: 12-07-2000  
Customer: THE MINISTRY OF TOURISM AND ANTIQUITIES  
Customer Representative: THE MINISTRY OF PLANNING  
Designer: S.M

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CalcuLuX Indoor 2.0b

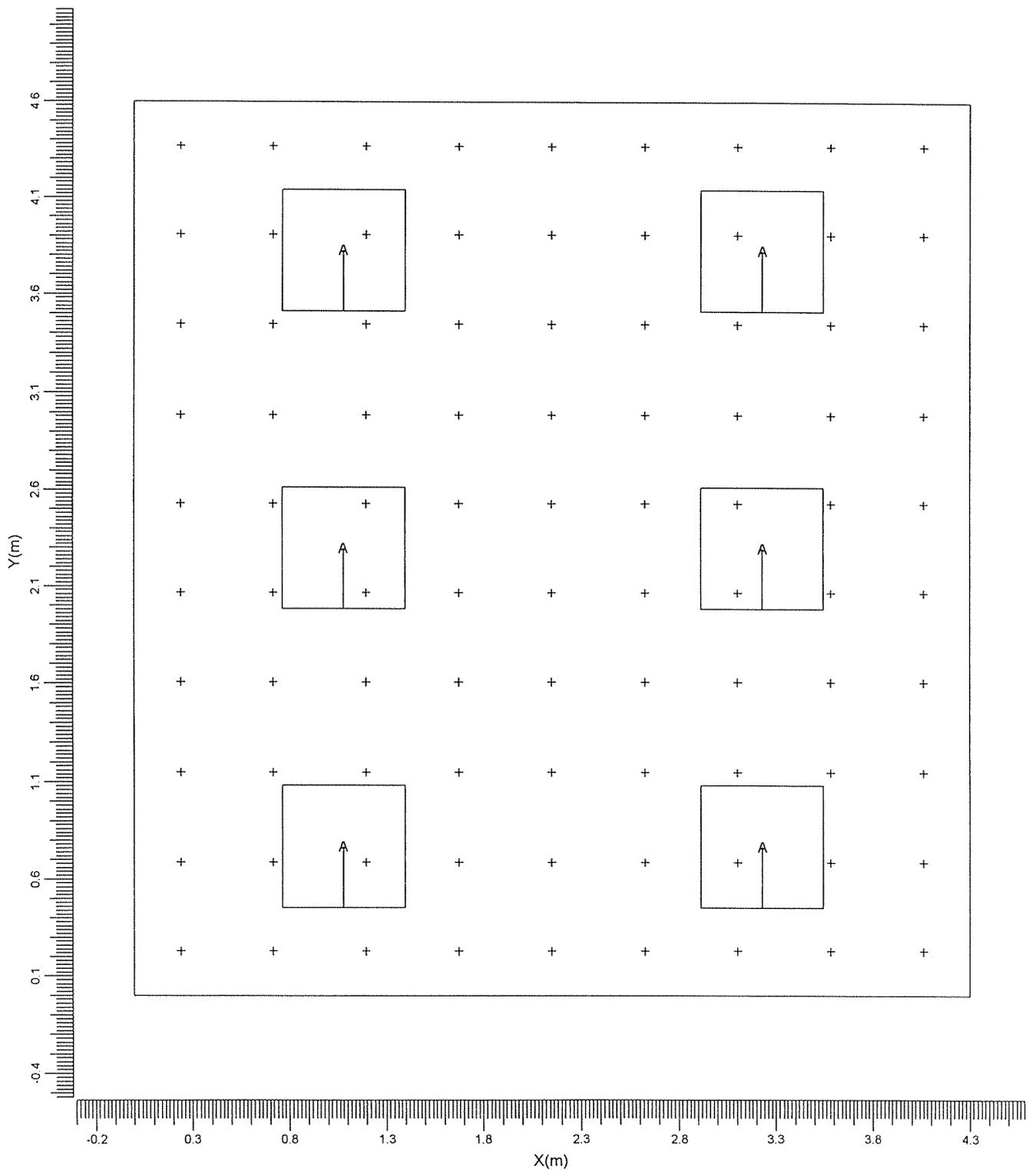
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<b>4.</b>	<b>Luminaire Details</b>	<b>8</b>
4.1	Project Luminaires	8

# 1. Project Description

## 1.1 Top Project Overview



A ———> TCS 314/418 L

Width  
4.30 m

Length  
4.60 m

Height  
3.70 m

Working Plane Height  
0.80 m

Scale  
1:30

## 2. Summary

### 2.1 Room Summary

Room Dimensions			Surface		Reflectance
Width	4.30	m	Ceiling		0.50
Length	4.60	m	Left Wall		0.30
Height	3.70	m	Right Wall		0.30
Working Plane Height	0.80	m	Front Wall		0.30
			Back Wall		0.30
			Floor		0.10

#### Room Position (Front Bottom Left)

X	0.00	m
Y	0.00	m

#### Total Average Room Surface Luminance (cd/m2):

Ceiling	Left	Right	Front	Back	Floor
13.2	28.8	28.9	32.0	32.0	14.7

The overall maintenance factor used for this project is 1.00.

### 2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	6	TCS 314/418 L	4 * TL-D 18W	108.0	4 * 1350

The total installed power: 0.6 (kWatt)

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code	Power (kWatt)
MANAGER OFFICE	A 6	0.6

### 2.3 Calculation Results

(II)luminance Calculations:

Calculation	Type	Unit	Ave	Min/Ave	Min/Max	Result
Grid	Surface Illuminance	lux	569	0.69	0.55	Total

### 3. Calculation Results

#### 3.1 Grid: Textual Table

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total

X (m)	0.24	0.72	1.19	1.67	2.15	2.63	3.10	3.58	4.06
Y (m)	4.37	392<	454	497	517	522	517	498	455
	3.91	438	513	564	587	592	587	565	514
	3.45	477	561	618	643	650	644	619	562
	2.99	503	593	655	683	689	683	656	594
	2.53	517	611	675	703	710>	703	676	613
	2.07	517	611	675	703	710	703	676	613
	1.61	503	593	655	683	689	683	656	594
	1.15	477	561	618	643	650	644	619	562
	0.69	438	513	564	587	592	587	565	514
	0.23	392	454	497	517	522	517	498	455

Average  
569

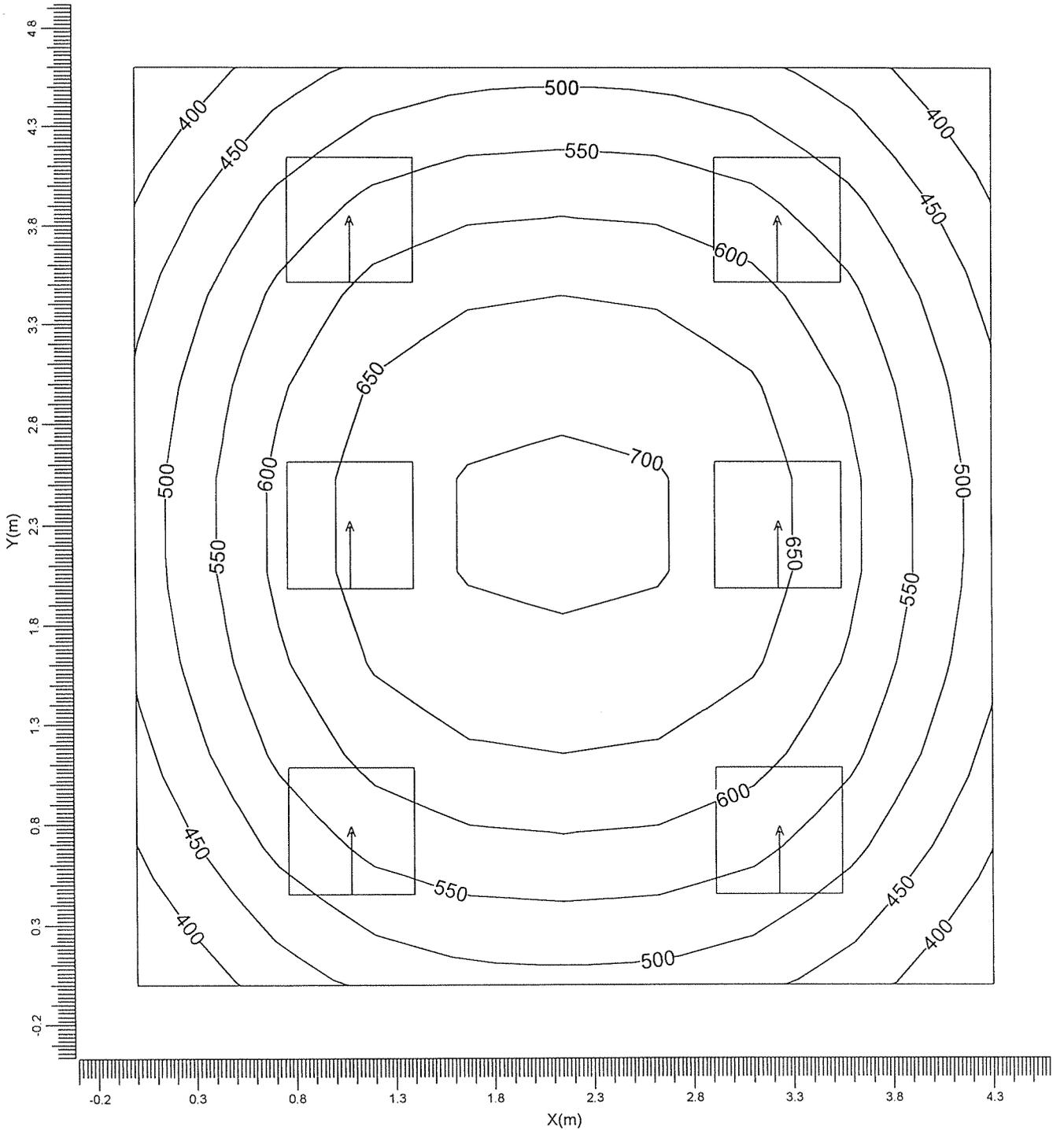
Min/Ave  
0.69

Min/Max  
0.55

Project maintenance factor  
1.00

3.2 Grid: Iso Contour

Grid : Grid at Z = 0.80 m  
 Calculation : Surface Illuminance (lux)  
 Result Type : Total



Average  
569

Min/Ave  
0.69

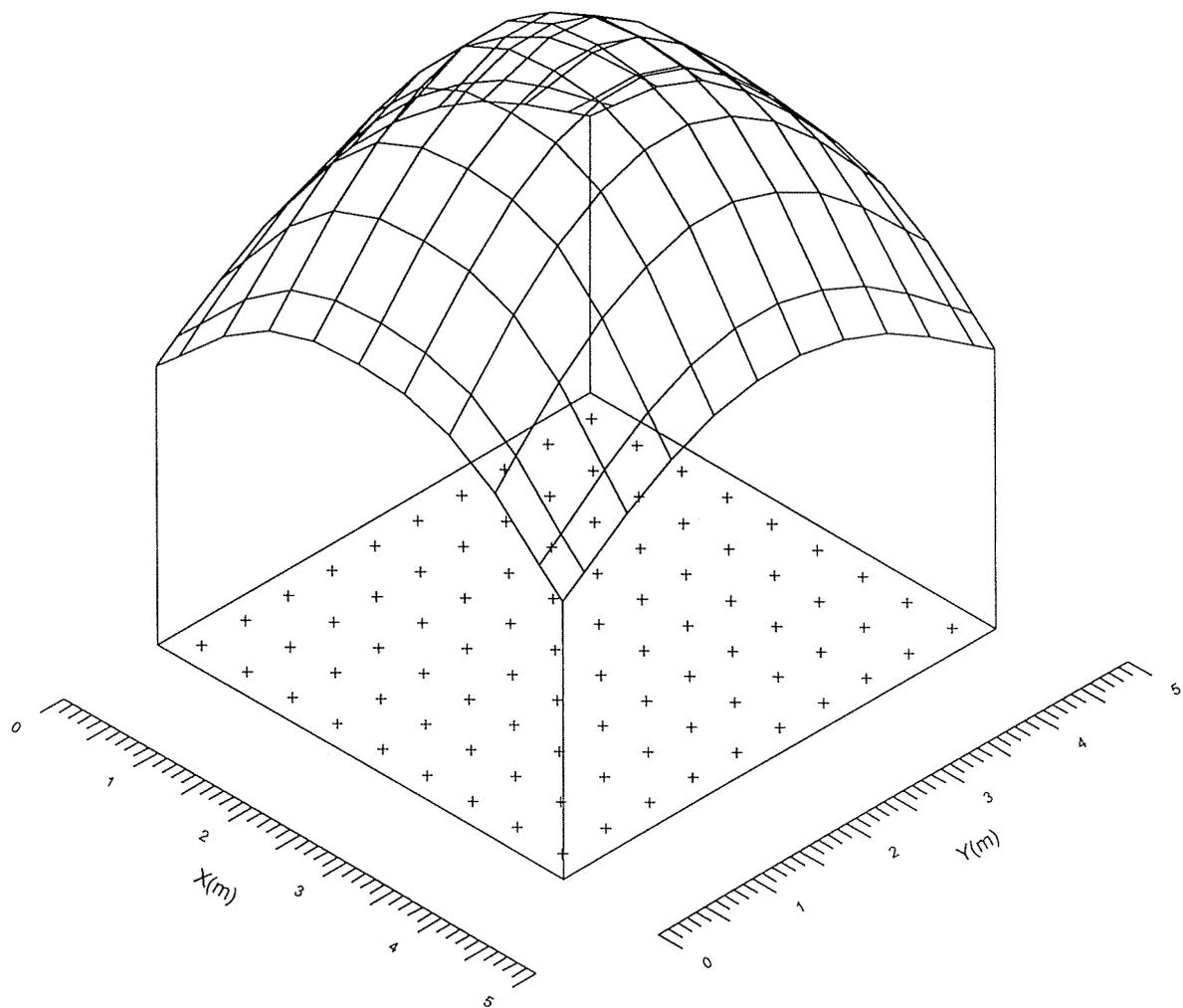
Min/Max  
0.55

Project maintenance factor  
1.00

Scale  
1:30

### 3.3 Grid: Mountain Plot

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total



Average  
569

Min/Ave  
0.69

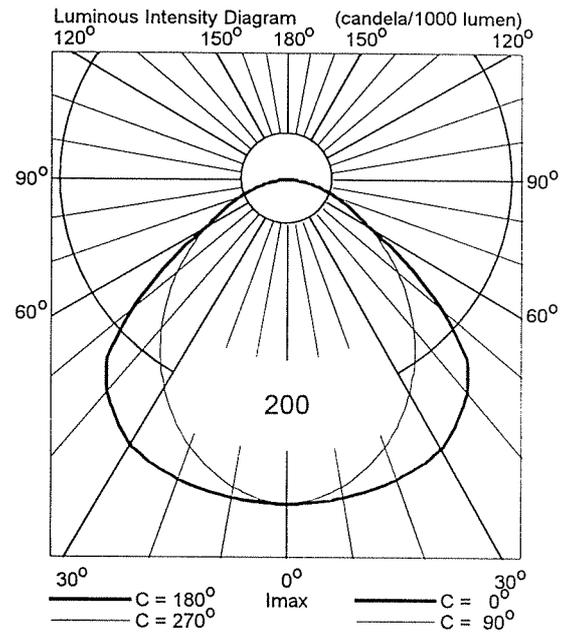
Min/Max  
0.55

Project maintenance factor  
1.00

## 4. Luminaire Details

### 4.1 Project Luminaires

Luminaire Name : TCS 314/418 L  
Lamp name : TL-D 18W  
Lamp Color : 840  
Number of lamps/luminaire : 4  
Lamp flux : 1350 lm  
Ballast : Standard  
Light output ratios  
DLOR : 0.72  
ULOR : 0.00  
TLOR : 0.72  
Luminaire wattage : 108.0 W  
Measurement code : LVW0846500



# KARAK TOURISM DEVELOPMENT PROJECT

## VISITOR CENTER-OFFICE

Date: 12-07-2000  
Customer: THE MINISTRY OF TOURISM AND ANTIQUITIES  
Customer Representative: THE MINISTRY OF PLANNING  
Designer: S.M

The nominal values shown in this report are the result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination. In practice the values may vary due to tolerances on luminaires, luminaire positioning, reflection properties and electrical supply.

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CalcuLuX Indoor 2.0b

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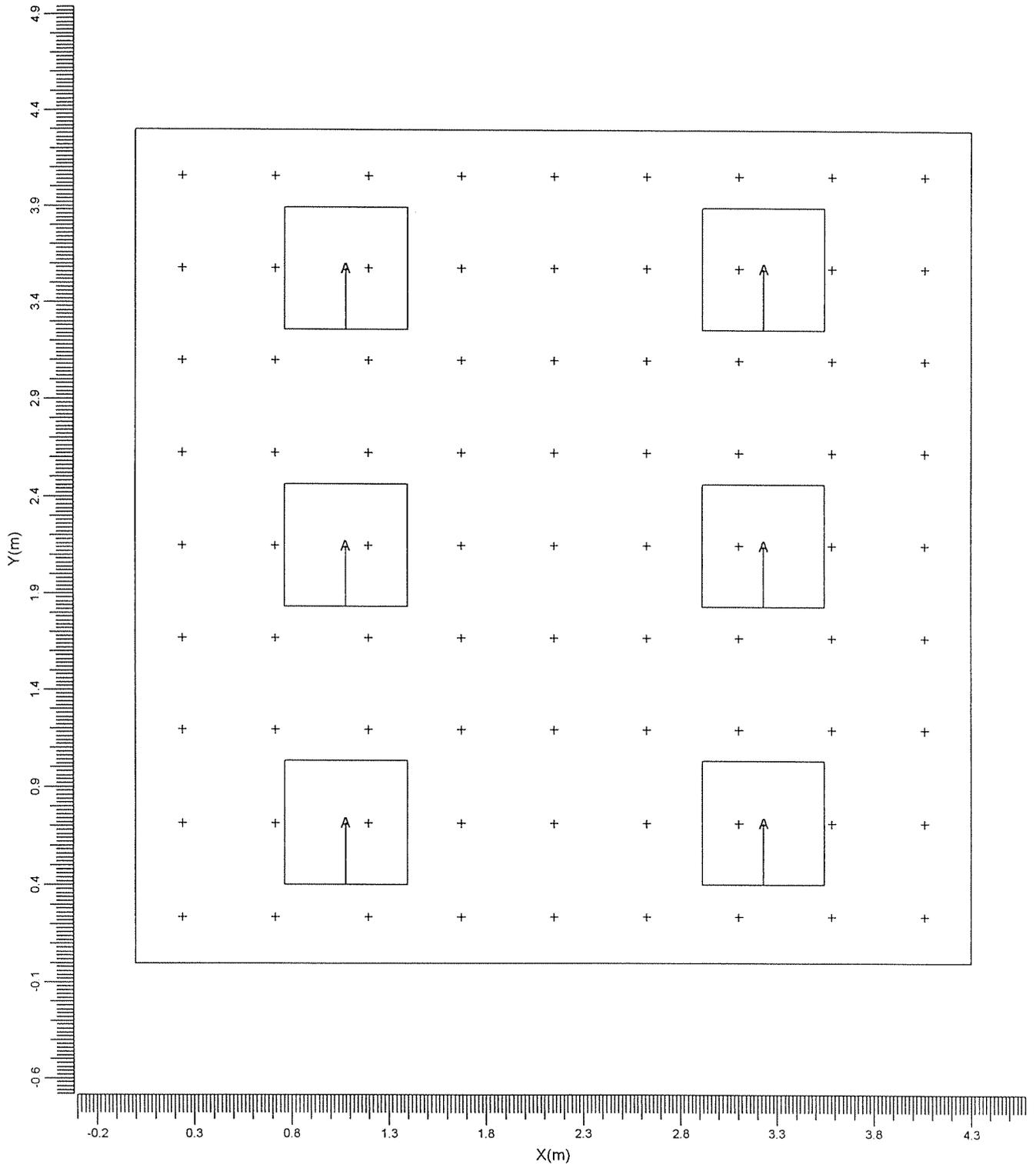
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# 1. Project Description

## 1.1 Top Project Overview



A ———> TCS 314/418 L

Width  
4.30 m

Length  
4.30 m

Height  
3.70 m

Working Plane Height  
0.80 m

Scale  
1:30

## 2. Summary

### 2.1 Room Summary

Room Dimensions			Surface		Reflectance
Width	4.30	m	Ceiling		0.50
Length	4.30	m	Left Wall		0.30
Height	3.70	m	Right Wall		0.30
Working Plane Height	0.80	m	Front Wall		0.30
			Back Wall		0.30
			Floor		0.10

#### Room Position (Front Bottom Left)

X	0.00	m
Y	0.00	m

#### Total Average Room Surface Luminance (cd/m2):

Ceiling	Left	Right	Front	Back	Floor
14.0	30.2	30.3	33.9	33.9	15.1

The overall maintenance factor used for this project is 1.00.

### 2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	6	TCS 314/418 L	4 * TL-D 18W	108.0	4 * 1350

The total installed power: 0.6 (kWatt)

#### Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code	Power (kWatt)
office	A 6	0.6

### 2.3 Calculation Results

#### (II)luminance Calculations:

Calculation	Type	Unit	Ave	Min/Ave	Min/Max	Result
Grid	Surface Illuminance	lux	591	0.70	0.57	Total

### 3. Calculation Results

#### 3.1 Grid: Textual Table

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total

X (m)	0.24	0.72	1.19	1.67	2.15	2.63	3.10	3.58	4.06
Y (m)	4.06	415<	482	528	549	554	550	529	483
	482	465	544	599	623	628	623	599	545
	545	502	591	652	679	685	679	653	593
	593	526	621	686	715	721	715	687	623
	623	535	631	697	727	733>	727	698	633
	633	526	621	686	715	721	715	687	623
	623	502	591	652	679	685	679	653	593
	593	465	544	599	623	628	623	599	545
	545	415	482	528	549	554	550	529	483
	483								

Average  
591

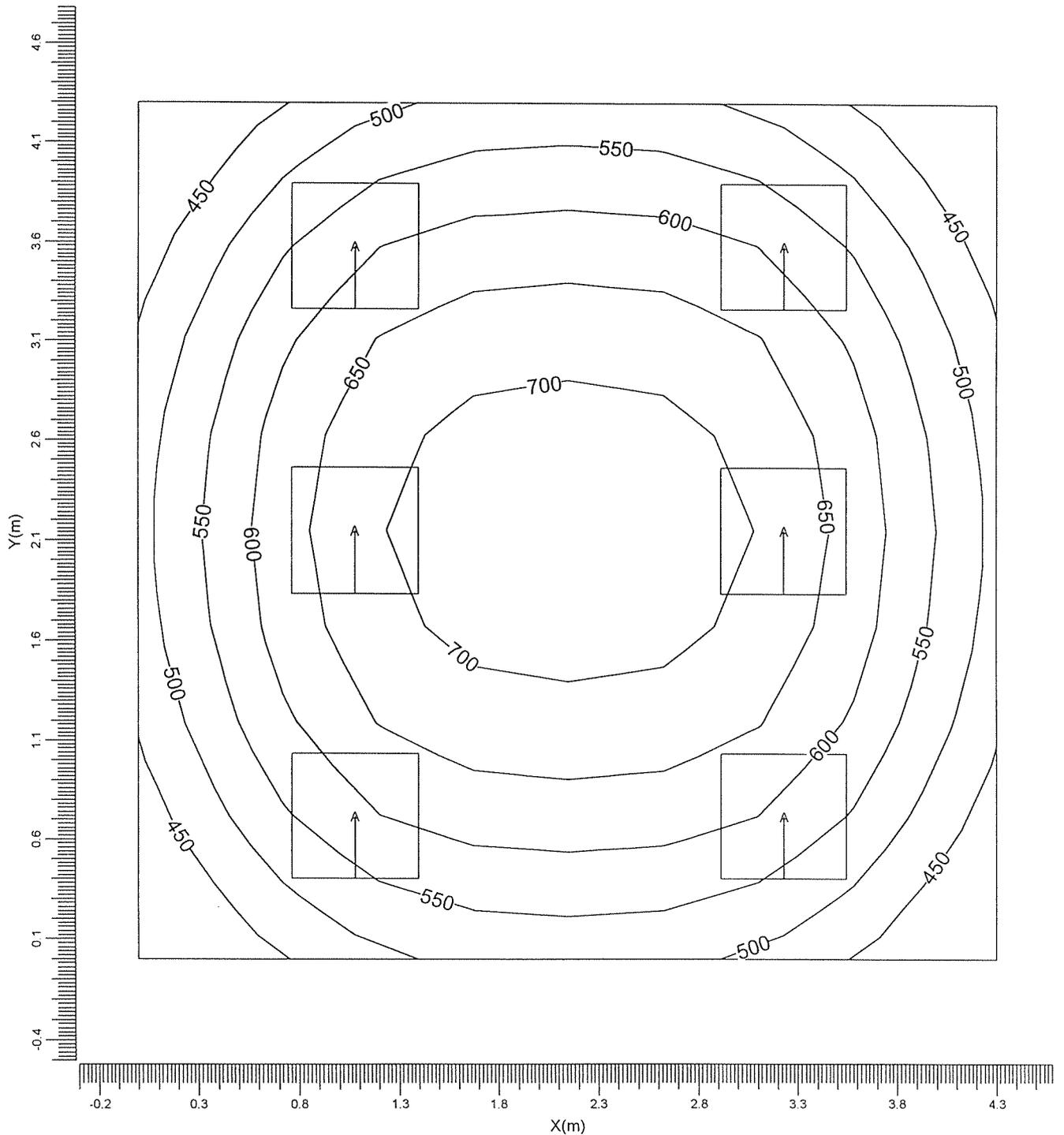
Min/Ave  
0.70

Min/Max  
0.57

Project maintenance factor  
1.00

3.2 Grid: Iso Contour

Grid : Grid at Z = 0.80 m  
 Calculation : Surface Illuminance (lux)  
 Result Type : Total



A —> TCS 314/418 L

Average  
591

Min/Ave  
0.70

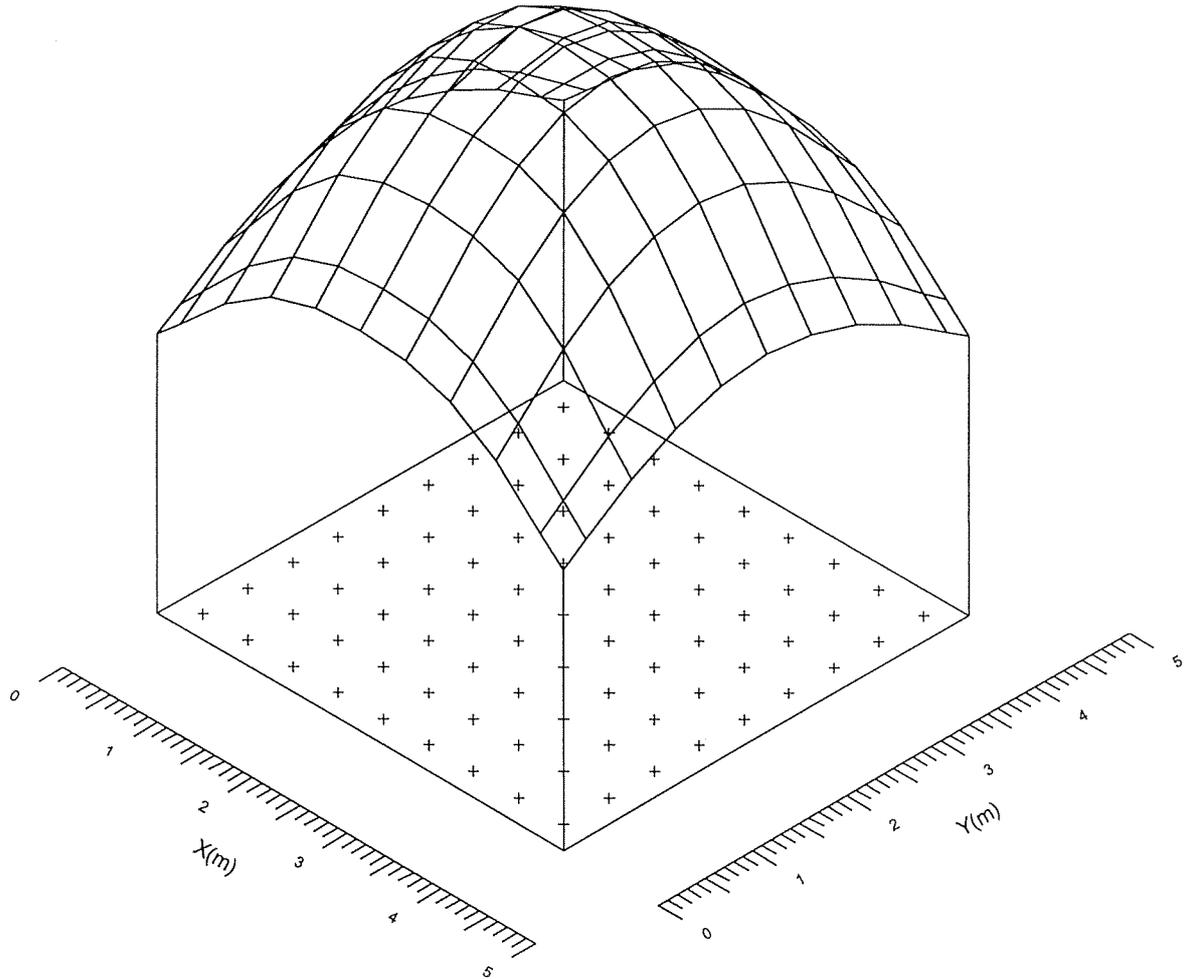
Min/Max  
0.57

Project maintenance factor  
1.00

Scale  
1:30

### 3.3 Grid: Mountain Plot

Grid : Grid at Z = 0.80 m  
Calculation : Surface Illuminance (lux)  
Result Type : Total



Average  
591

Min/Ave  
0.70

Min/Max  
0.57

Project maintenance factor  
1.00

## 4. Luminaire Details

### 4.1 Project Luminaires

Luminaire Name : TCS 314/418 L  
Lamp name : TL-D 18W  
Lamp Color : 840  
Number of lamps/luminaire : 4  
Lamp flux : 1350 lm  
Ballast : Standard  
Light output ratios  
DLOR : 0.72  
ULOR : 0.00  
TLOR : 0.72  
Luminaire wattage : 108.0 W  
Measurement code : LVW0846500

