



نگهداشت و افزایش تولید میدان نفتی بینک
 فعالیت های روزمینی در بسته های کاری تحت الارض
 عمومی و مشترک



شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

CALCULATION NOTE FOR LIGHTING SYSTEM OF WELL PADS
 SECURITY BUILDING

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه
D02	003	CN	EL	110	PEDCO	SSGRL	BK

شماره صفحه: ۱ از ۷

طرح نگهداشت و افزایش تولید ۲۷ مخزن

CALCULATION NOTE FOR LIGHTING SYSTEM OF WELL PADS SECURITY
 BUILDING

نگهداشت و افزایش تولید میدان نفتی بینک

D02	Jan. 2023	AFD	H.Shakiba	M.Fakharian	M.Mehrshad	
D01	Oct. 2022	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
D00	Apr. 2022	IFC	H.Shakiba	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 2

CLIENT Doc. Number: F0Z-707379

Status:

- IDC: Inter-Discipline Check
- IFC: Issued For Comment
- IFA: Issued For Approval
- AFD: Approved For Design
- AFC: Approved For Construction
- AFP: Approved For Purchase
- AFQ: Approved For Quotation
- IFI: Issued For Information
- AB-R: As-Built for CLIENT Review
- AB-A: As-Built -Approved



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D02	003	CN	EL	110	PEDCO	SSGRL	BK

شماره صفحه : ۲ از ۷

REVISION RECORD SHEET





PAGE	D00	D01	D02	D03	D04
1	X	X	X		
2	X	X	X		
3	X				
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37					
38					
39					
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41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

PAGE	D00	D01	D02	D03	D04
51					
52					
53					
54					
55					
56					
57					
58					
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 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک</p>																	
<p>شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴</p>	<p>CALCULATION NOTE FOR LIGHTING SYSTEM OF WELL PADS SECURITY BUILDING</p> <table border="1" data-bbox="389 398 1177 465"> <tr> <th>پروژه</th> <th>بسته کاری</th> <th>صادر کننده</th> <th>تسهیلات</th> <th>رشته</th> <th>نوع مدرک</th> <th>سریال</th> <th>نسخه</th> </tr> <tr> <td>BK</td> <td>SSGRL</td> <td>PEDCO</td> <td>110</td> <td>EL</td> <td>CN</td> <td>003</td> <td>D02</td> </tr> </table>	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	SSGRL	PEDCO	110	EL	CN	003	D02	<p>شماره صفحه : ۳ از ۷</p>
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	SSGRL	PEDCO	110	EL	CN	003	D02											

CONTENTS

1.0	INTRODUCTION	4
2.0	SCOPE	5
3.0	NORMATIVE REFERENCES.....	5
3.1	CODES AND STANDARDS	5
3.2	THE PROJECT REFERENCE DOCUMENTS.....	5
4.0	LANGUAGE AND SYSTEM OF UNITS.....	5
5.0	LIGHTING SYSTEM.....	5
6.0	DESIGN SOFTWARE	7
7.0	LIGHTING CALCULATION – DETAIL REPORT	7

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک</p>	  																
<p>شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴</p>	<p>CALCULATION NOTE FOR LIGHTING SYSTEM OF WELL PADS SECURITY BUILDING</p> <table border="1" data-bbox="395 398 1171 459"> <tr> <th>نسخه</th> <th>سریال</th> <th>نوع مدرک</th> <th>رشته</th> <th>تسهیلات</th> <th>صادر کننده</th> <th>بسته کاری</th> <th>پروژه</th> </tr> <tr> <td>D02</td> <td>003</td> <td>CN</td> <td>EL</td> <td>110</td> <td>PEDCO</td> <td>SSGRL</td> <td>BK</td> </tr> </table>	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه	D02	003	CN	EL	110	PEDCO	SSGRL	BK	<p>شماره صفحه : ۴ از ۷</p>
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه											
D02	003	CN	EL	110	PEDCO	SSGRL	BK											

1.0 INTRODUCTION



Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields Company (NISOC)
PROJECT:	Binak Oilfield Development – General Facilities
EPD/EPC CONTRACTOR(GC)	Petro Iran Development Company (PEDCO)
EPC CONTRACTOR:	Joint Venture of : Hirgan Energy – Design & Inspection(D&I) Companies
VENDOR:	The firm or person who will fabricate the equipment or material.
EXECUTOR:	Executor is the party which carries out all or part of construction and/or commissioning for the project.
THIRD PARTY INSPECTOR (TPI):	The firm appointed by EPD/EPC CONTRACTOR(GC) and approved by COMPANY (in writing) for the inspection of goods.
SHALL:	Is used where a provision is mandatory.
SHOULD:	Is used where a provision is advisory only.
WILL:	Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR.
MAY:	Is used where a provision is completely discretionary.

 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی در بسته های کاری تحت الارض عمومی و مشترک</p>																	
<p>شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴</p>	<p>CALCULATION NOTE FOR LIGHTING SYSTEM OF WELL PADS SECURITY BUILDING</p> <table border="1" data-bbox="395 398 1171 459"> <thead> <tr> <th>پروژه</th> <th>بسته کاری</th> <th>صادر کننده</th> <th>تسهیلات</th> <th>رشته</th> <th>نوع مدرک</th> <th>سریال</th> <th>نسخه</th> </tr> </thead> <tbody> <tr> <td>BK</td> <td>SSGRL</td> <td>PEDCO</td> <td>110</td> <td>EL</td> <td>CN</td> <td>003</td> <td>D02</td> </tr> </tbody> </table>	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	SSGRL	PEDCO	110	EL	CN	003	D02	<p>شماره صفحه : ۵ از ۷</p>
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	SSGRL	PEDCO	110	EL	CN	003	D02											

2.0 SCOPE

This specification describes the practices that shall be employed and the Standards that will be required to be met for the Indoor Lightings Illumination

3.0 NORMATIVE REFERENCES

3.1 CODES AND STANDARDS

- IPS-E-EL-100 Engineering Standard For Electrical System Design (Industrial And Non-Industrial)

3.2 THE PROJECT REFERENCE DOCUMENTS

- BK-GNRAL-PEDCO-000-PR-DB-0001 Process Basis Of Design
- BK-GNRAL-PEDCO-000-EL-DC-0001 Electrical System Design Criteria
- BK-GNRAL-PEDCO-000-EL-SP-0007 Specification For Lighting & Small Power System
- BK-W046S-PEDCO-110-AR-DW-0004 Architectural Drawing For Security Building of Well Pads - W046S



4.0 LANGUAGE AND SYSTEM OF UNITS

All documentation, drawings, data, etc. furnished by the manufacturer shall be in English. SI metric system of measurement shall be used except for pipe and pipe fitting sizes, flange ratings and nozzle dimensions in which inch will be used.

5.0 LIGHTING SYSTEM

The lighting system will provide a uniform and adequate light distribution in all working areas, the minimum average illumination levels will be as per IPS-E-EL-100(1). Major areas indicated in the below table:



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۰۵۳ - ۰۷۳ - ۹۱۸۴

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D02	003	CN	EL	110	PEDCO	SSGRL	BK

شماره صفحه : ۶ از ۷

TABLE 15 - ILLUMINANCES LEVELS

AREA OR ACTIVITY	MINIMUM ILLUMINANCE LUX	ELEVATION MILLIMETER
I PROCESS AREAS		
A) General process units		
Pump rows, valves, manifolds	50	Ground
Heat exchangers	30	Ground
Maintenance platforms	10	Floor
Operating platforms	50	Floor
Cooling towers (equipment areas)	50	Ground
Furnaces	30	Ground
Ladders and stairs (inactive)	30	Floor
Ladders and stairs (active)	50	Floor
Gage glasses	50	Eye level
Instruments (on process units)	50	Eye level
Compressor houses	200	Floor
Separators	50	Top of bay
General area	10	Ground
B) Control rooms and houses		
Ordinary control house	300	Floor
Instrument panel	300	1700
Console	300	760
Back of panel	100	760
Central control house	500	Floor
Instrument	500	1700
Back of pane	100	900
C) Specialty process units		
Conveyors	20	Surface
Conveyor transfer points	50	Surface
II NONPROCESS AREA		
A) Loading, unloading, and cooling water pump houses, Pump area		
General control area	50	Ground
Control panel	150	Floor
	200	1100
B) Boiler and air compressor plants		
Indoor	200	Floor
Outdoor equipment 50	50	Ground
C) Tank fields (where lighting is required)		
Ladders and stairs	5	Floor
Gating area	10	Ground
Manifold area	5	Floor
D) Loading racks		
General area	50	Floor
Tank car	100	Point
Tank trucks, loading point	100	Point
E) Tanker dock facilities		
F) Electrical substations and switch yards		
Outdoor switch yards	20	Ground
General substation (outdoor)	20	Ground
Substation operating aisles	150	Floor
General substation (indoor)	50	Floor
Switch racks	50	1200
G) Plant road lighting (where lighting is required)		
Frequent use (trucking)	4	Ground
Infrequent use	2	Ground
H) Plant parking lots		
	1	Ground
I) Aircraft obstruction lighting		



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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	SSGRL	PEDCO	110	EL	CN	003	D02

شماره صفحه : ۷ از ۷

III Buildings		
A) Offices	500	
B) Laboratories		
Qualitative, quantitative and physical test		900
Research, experimental	500	900
Pilot plant, process and specialty	500	900
Glassware, washrooms	300	Floor
Fume hoods	300	900
Stock rooms	300	900
	150	Floor
C) Warehouses and stock rooms		
Indoor bulk storage		Floor
Outdoor bulk storage	50	Ground
Large bin storage	5	
Small bin storage	50	760
Small parts storage	100	760
Counter tops	200	760
	300	1200
D) Repair shop		
Large fabrication		Floor
Bench and machine work	200	760
Crane way, aisles	500	760
Small machine	150	Floor
Sheet metal	300	760
Electrical	200	760
Instrument	200	760
	300	760
E) Change housed		
Locker room, shower		Floor
Lavatory	100	Floor
	100	
F) Clock house and entrance gatehouse		
Card rack and clock area	100	Floor
Entrance gate, inspection	150	Floor
General	50	Floor
G) Cafeteria		
Eating	300	760
Serving area	300	900
Food preparation	300	900
General, halls, etc.	100	Floor
H) Garage and firehouse		
Storage and minor repairs	100	Floor
I) First aid roomed		
	700	760

D02

According to above table, the required luminance shall be about 100 LUX, while based on calculation, Eav is 338 lux on both work plane & floor in Guard Room. In addition Eav is 251 lux on both work plane & floor in Resting Area.

6.0 DESIGN SOFTWARE

Calculation is performed with version 4.13 of DIALUX Software.

7.0 LIGHTING CALCULATION – DETAIL REPORT

DIALUX report has been attached in “Attachment”

BINAK OILFIELD DEVELOPMENT

SECURITY ROOM

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 01.01.2023
Operator:



Operator
Telephone
Fax
e-Mail

Table of contents

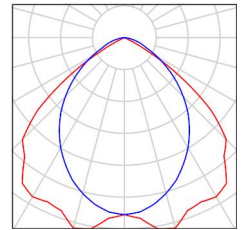
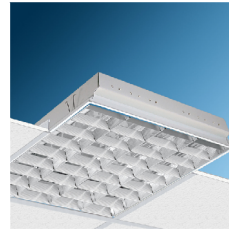
BINAK OILFIELD DEVELOPMENT	
Project Cover	1
Table of contents	2
Luminaire parts list	3
SECURITY GUARD ROOM	
Summary	4
3D Rendering	5
False Color Rendering	6
Room Surfaces	
Workplane	
Isolines (E)	7
Value Chart (E)	8
RESTING AREA & PANTRY	
Summary	9
3D Rendering	10
False Color Rendering	11
Room Surfaces	
Workplane	
Isolines (E)	12
Value Chart (E)	13



Operator
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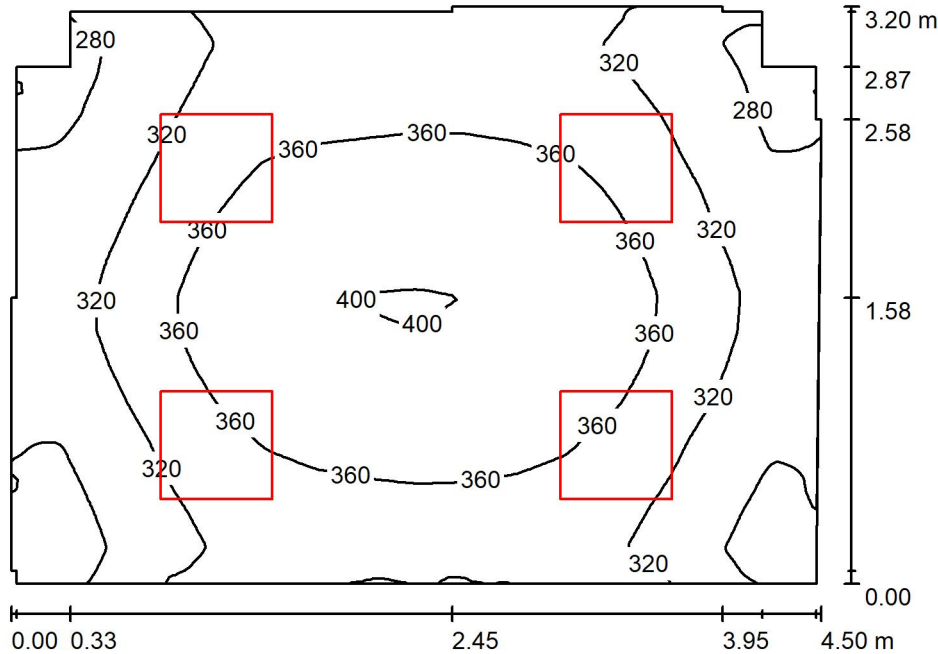
BINAK OILFIELD DEVELOPMENT / Luminaire parts list

7 Pieces MAZINOOR M525X418A 4x18 W JUPITER
Recessed Fl. Luminaire with Bright Anodized
Aluminium Louvre for 60x60 Modular False
Ceiling
Article No.: M525X418A
Luminous flux (Luminaire): 3041 lm
Luminous flux (Lamps): 4800 lm
Luminaire Wattage: 108.0 W
Luminaire classification according to CIE: 100
CIE flux code: 61 93 99 100 63
Fitting: 4 x 18 W T8 Fluorescent Lamp with G13
Base (26mm Tube Diameter) (Correction Factor
1.000).



Operator
Telephone
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SECURITY GUARD ROOM / Summary



Height of Room: 3.200 m, Mounting Height: 3.290 m, Light loss factor: 0.80

Values in Lux, Scale 1:42

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0
Workplane	/	338	248	403	0.734
Floor	20	338	252	403	0.744
Ceiling	80	87	62	122	0.718
Walls (19)	50	220	65	547	/

Workplane:

Height: 0.000 m
Grid: 128 x 128 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.650, Ceiling / Working Plane: 0.256.

Luminaire Parts List

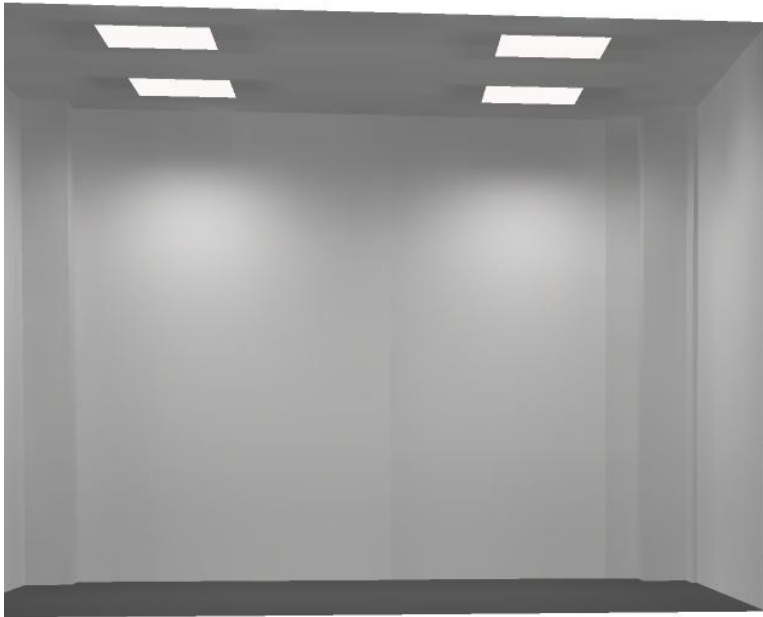
No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	4	MAZINOOR M525X418A 4x18 W JUPITER Recessed FI. Luminaire with Bright Anodized Aluminium Louvre for 60x60 Modular False Ceiling (1.000)	3041	4800	108.0
Total:			12165	19200	432.0

Specific connected load: 30.81 W/m² = 9.12 W/m²/100 lx (Ground area: 14.02 m²)



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SECURITY GUARD ROOM / 3D Rendering





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SECURITY GUARD ROOM / False Color Rendering

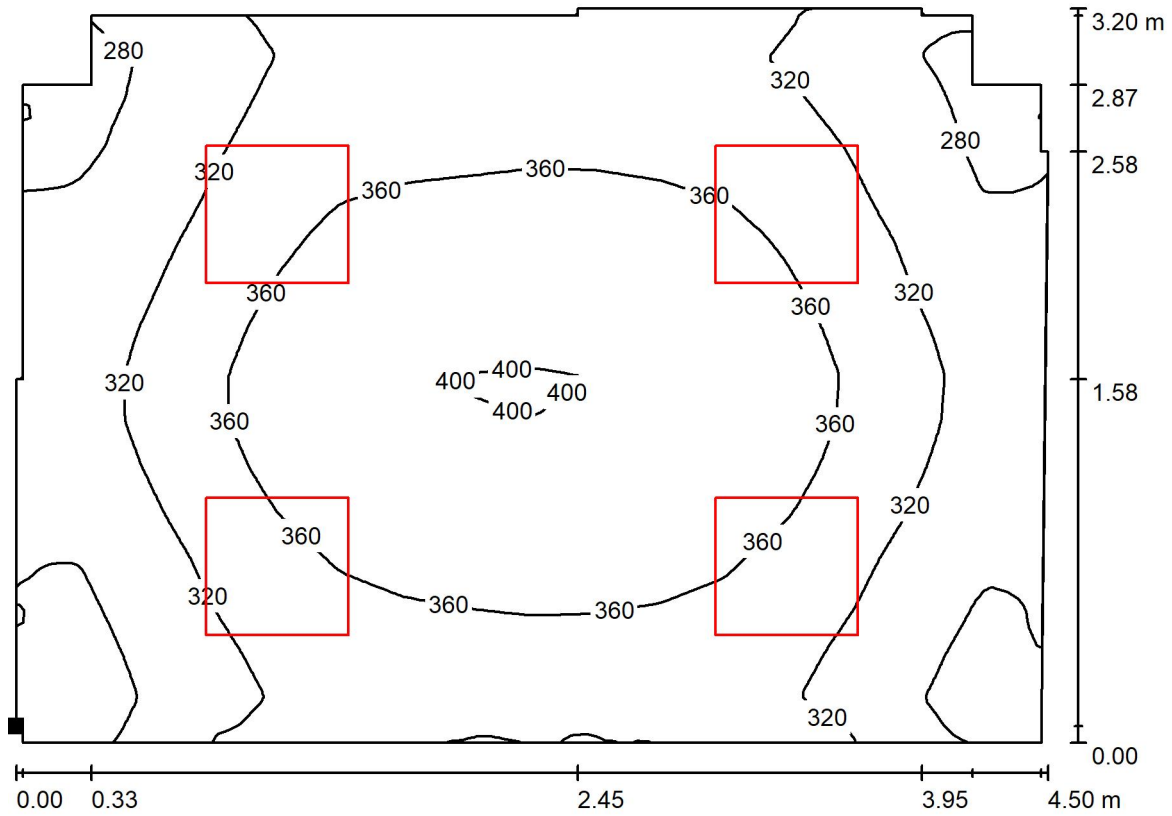


0 10 20 30 40 50 60 70 80 lx



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SECURITY GUARD ROOM / Workplane / Isolines (E)



Values in Lux, Scale 1 : 33

Position of surface in room:
Marked point:
(1.040 m, 5.101 m, 0.000 m)



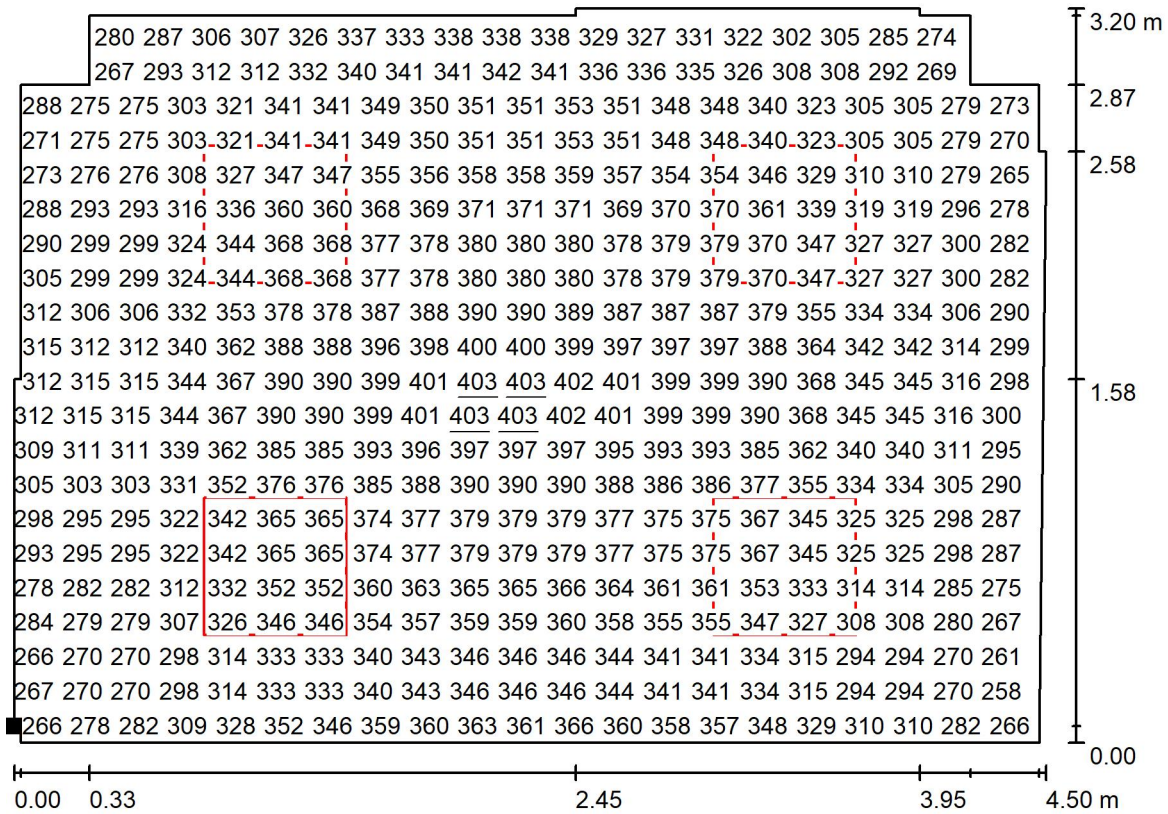
Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
338	248	403	0.734	0.615



Operator
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SECURITY GUARD ROOM / Workplane / Value Chart (E)



Values in Lux, Scale 1 : 33

Not all calculated values could be displayed.

Position of surface in room:
Marked point:
(1.040 m, 5.101 m, 0.000 m)



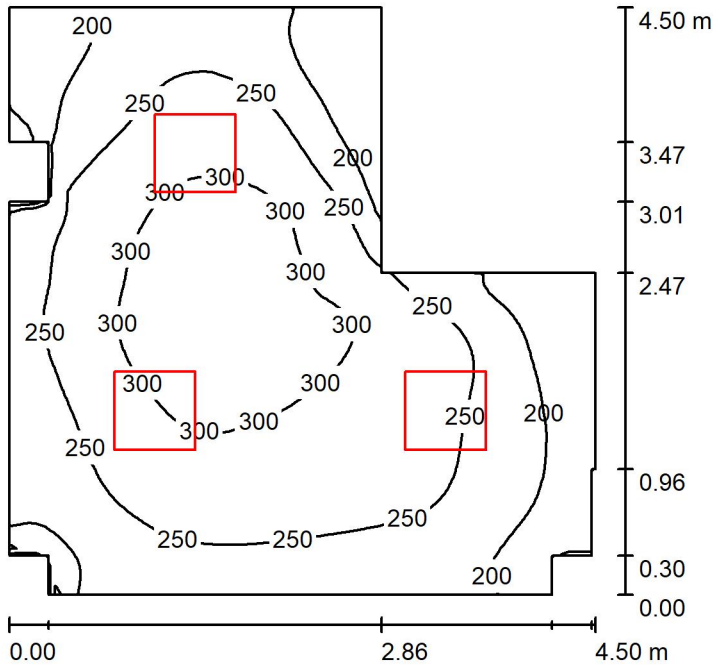
Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
338	248	403	0.734	0.615



Operator
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RESTING AREA & PANTRY / Summary



Height of Room: 2.900 m, Mounting Height: 2.990 m, Light loss factor: 0.80

Values in Lux, Scale 1:58

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0
Workplane	/	251	114	332	0.453
Floor	20	251	103	331	0.410
Ceiling	80	53	35	84	0.651
Walls (16)	50	133	38	317	/

Workplane:

Height: 0.000 m
Grid: 64 x 64 Points
Boundary Zone: 0.000 m

Illuminance Quotient (according to LG7): Walls / Working Plane: 0.532, Ceiling / Working Plane: 0.213.

Luminaire Parts List

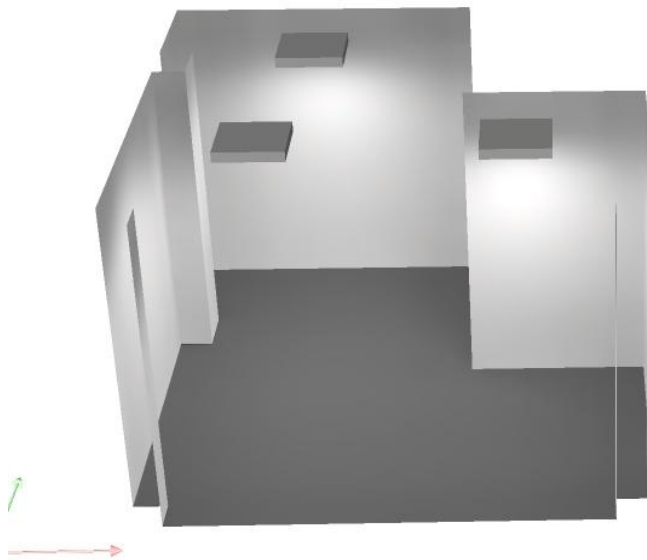
No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	3	MAZINOOR M525X418A 4x18 W JUPITER Recessed FI. Luminaire with Bright Anodized Aluminium Louvre for 60x60 Modular False Ceiling (1.000)	3041	4800	108.0
Total:			9123	14400	324.0

Specific connected load: $19.55 \text{ W/m}^2 = 7.80 \text{ W/m}^2/100 \text{ lx}$ (Ground area: 16.57 m^2)



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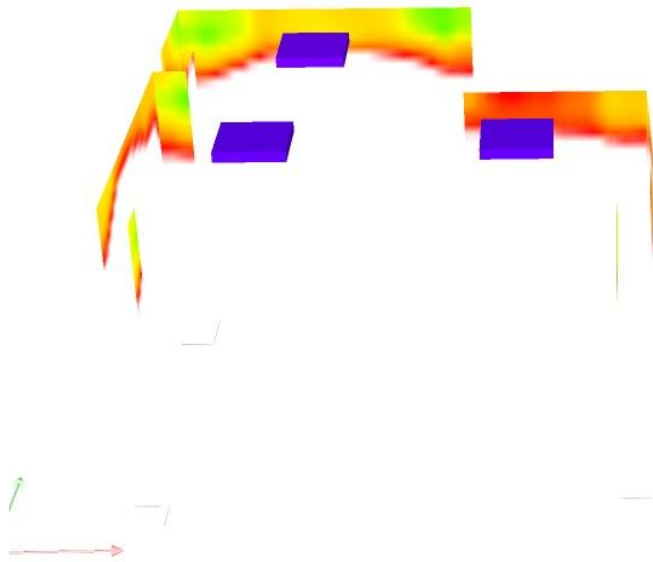
RESTING AREA & PANTRY / 3D Rendering





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e-Mail

RESTING AREA & PANTRY / False Color Rendering

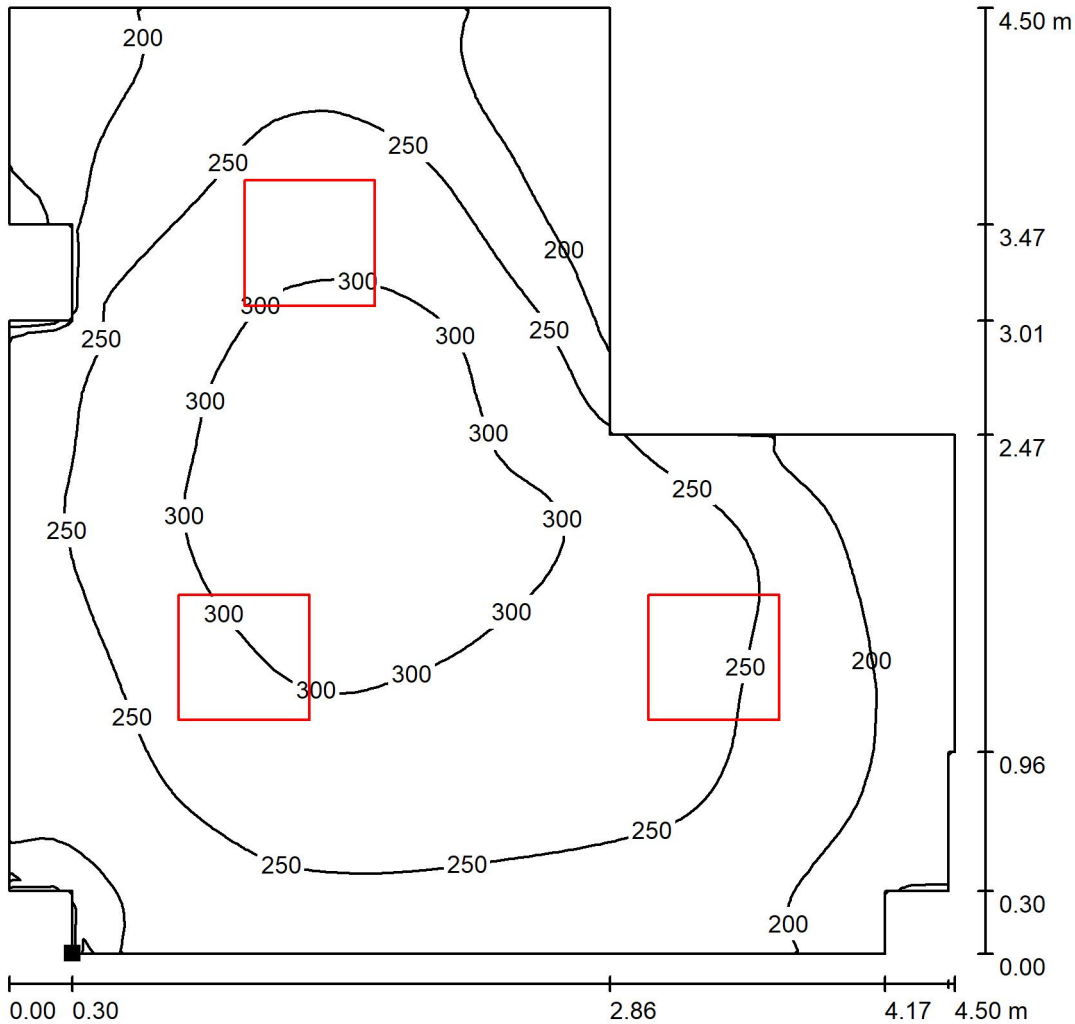


0 10 20 30 40 50 60 70 80 lx



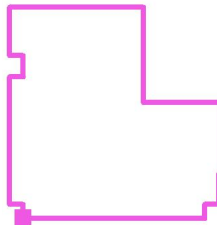
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RESTING AREA & PANTRY / Workplane / Isolines (E)



Values in Lux, Scale 1 : 36

Position of surface in room:
Marked point:
(1.372 m, 0.330 m, 0.000 m)

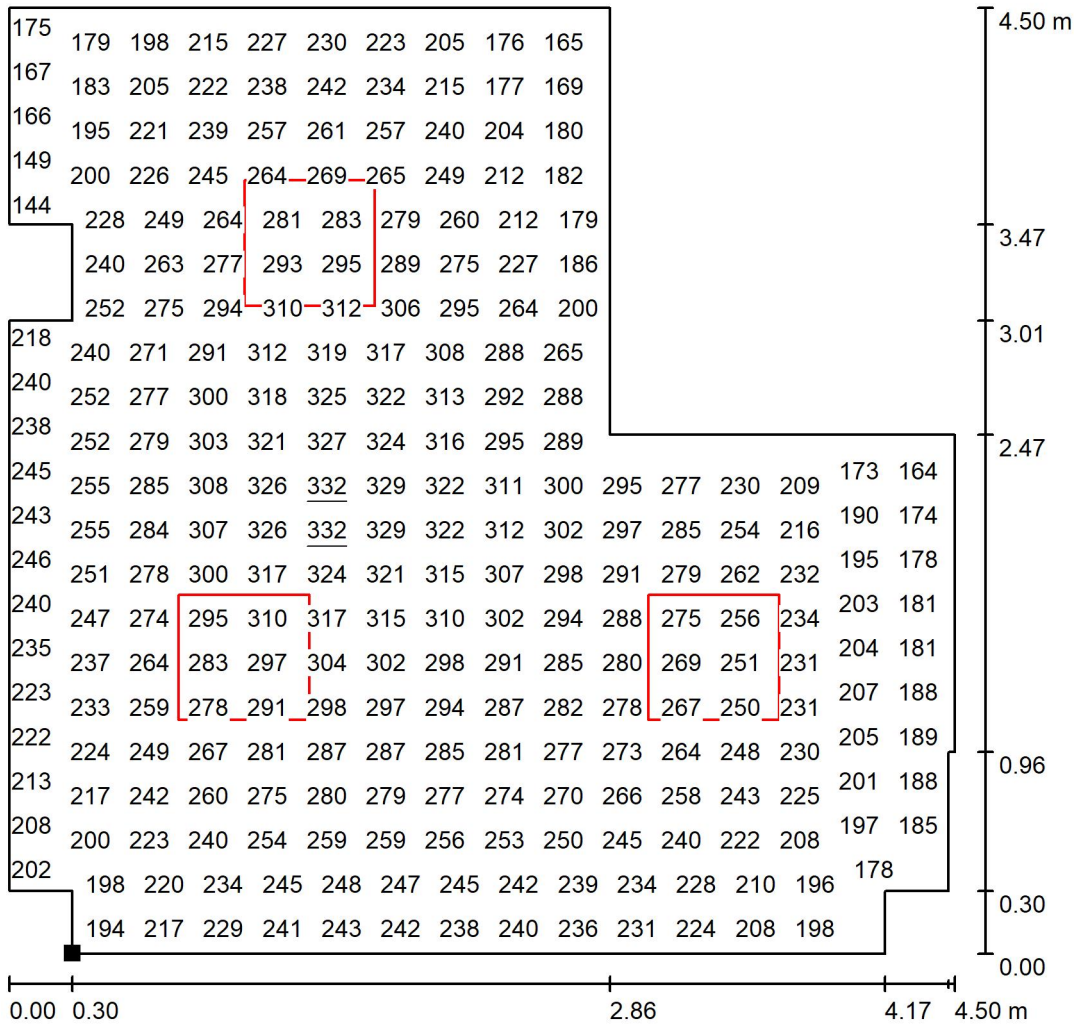


Grid: 64 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min} / E_{max}
251	114	332	0.453	0.342

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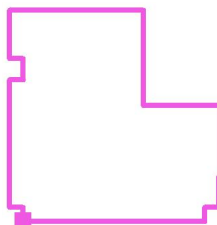
RESTING AREA & PANTRY / Workplane / Value Chart (E)



Values in Lux, Scale 1 : 36

Not all calculated values could be displayed.

Position of surface in room:
Marked point:
(1.372 m, 0.330 m, 0.000 m)



Grid: 64 x 64 Points

E_{av} [lx]
251

E_{min} [lx]
114

E_{max} [lx]
332

u_0
0.453

E_{min} / E_{max}
0.342