

- 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

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

REVISION RECORD SHEET

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	BK	GCS	PEDCO	120	HV	CN	0004	D01	

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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
GENERAL 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 CLIENT (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.

2.0 SCOPE

The main purpose of this document is to define the HVAC system load calculation has been carried out by computer program (HAP software) as per ASHRAE method in order to evaluate cooling load (summer) and heating load (winter) and also to select HVAC equipment for the calculated cooling and heating load.

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3.0 NORMATIVE REFERENCES

3.1 LOCAL CODES AND STANDARDS

- IPS Iranian petroleum standards
- INBC Iranian National Building Code

3.2 INTERNATIONAL CODES AND STANDARDS

- ASTM American Society for Testing Materials Relevant Parts
- API 610 Centrifugal Pumps for General Refinery Service, 10th Edition
- ISO 15156 Petroleum and Natural Gas Industries. Materials for use in H2S Containing Environments in Oil and Gas Production
- AMCA Air Movement and Control Association
- ANSI American National Standards Institute.
- ASHRAE American Society of Heating, Refrigeration and Air-conditioning Engineer
- ASTM American Society for Testing and Material
- BOCA Building Officials and Code Administrators international
- BS British Standards
- CIBSE Chartered Institute of Building Services Engineers.
- NFPA National fire protection association
- SBCCI Southern Building Code Congress International
- SMACNA Sheet Metal and Air Conditioning Contractors' National Association
- AWWA American Water Works Association
- ASME The American Society of Mechanical Engineers

Note: The latest issued or revised edition of all above mentioned codes and standards shall be considered as reference.

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3.3 ENVIRONMENTAL DATA

- ▶ Latitude 29° 73' N
- ▶ Longitude 50° 35' E
- ▶ Elevation 10 m
- ▶ Summer dry bulb temperature : 41° C
- ▶ Summer wet bulb temperature : 30.5° C
- ▶ Summer daily range temperature : 15.0° C
- ▶ Winter dry bulb temperature : 6° C
- ▶ Winter relative humidity : 78%

Refer to "Process Basis of Design; Doc. No BK-GNRAL-PEDCO-000-PR-DB-0001.

4.0 HVAC CALCULATION

4.1 DESIGN WEATHER PARAMETERS:

Design Parameters:

City Name	Binak
Location	IRAN
Latitude	29.7 Deg.
Longitude	-50.4 Deg.
Elevation	10.0 m
Summer Design Dry-Bulb	41.0 °C
Summer Coincident Wet-Bulb	30.5 °C
Summer Daily Range	15.0 °K
Winter Design Dry-Bulb	6.0 °C
Winter Design Wet-Bulb	4.4 °C
Atmospheric Clearness Number	1.00
Average Ground Reflectance	0.20
Soil Conductivity	1.385 W/(m-°K)
Local Time Zone (GMT +/- N hours)	-3.5 hours
Consider Daylight Savings Time	No
Simulation Weather Data	noneN/A
Current Data is	User Modified
Design Cooling Months	January to December

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Design Day Maximum Solar Heat Gains

(The MSHG values are expressed in W/m²)

Month	N	NNE	NE	ENE	E	ESE	SE	SSE	S
January	77.5	77.5	95.1	360.4	561.2	730.9	794.1	786.3	762.3
February	89.1	89.1	206.7	484.1	668.9	760.8	782.0	718.9	671.9
March	101.4	120.5	367.4	576.2	723.5	759.6	702.5	590.8	520.1
April	113.0	252.7	487.2	636.6	705.1	688.3	568.6	408.7	322.0
May	124.3	351.1	551.9	666.3	679.9	619.4	469.6	279.8	199.5
June	161.0	389.1	570.0	664.8	662.8	586.8	421.4	228.9	165.7
July	128.9	355.9	541.6	644.7	671.3	606.9	452.1	270.2	196.1
August	118.3	256.1	470.7	606.2	686.0	663.8	546.8	395.4	311.9
September	104.3	109.2	354.3	538.8	681.8	728.9	670.0	569.4	503.5
October	91.2	91.2	226.5	441.2	642.7	746.9	748.8	692.4	650.8
November	78.1	78.1	103.7	341.8	572.3	707.9	785.7	774.1	747.8
December	71.9	71.9	71.9	306.4	524.4	699.0	788.1	799.2	780.7
Month	SSW	SW	WSW	W	WNW	NW	NNW	HOR	Mult
January	779.8	791.7	733.2	577.4	337.4	108.2	77.5	591.4	1.00
February	716.3	777.2	772.2	650.4	482.8	225.6	89.1	714.5	1.00
March	590.5	703.8	755.6	713.7	589.1	369.6	114.3	816.8	1.00
April	413.5	574.6	682.6	707.6	645.8	485.9	241.4	863.3	1.00
May	282.1	471.6	614.4	688.4	669.7	550.4	343.5	875.1	1.00
June	233.1	424.2	577.0	674.2	670.6	567.0	376.4	872.9	1.00
July	274.2	458.7	596.0	677.5	657.5	539.9	345.0	865.3	1.00
August	398.9	554.0	657.3	682.8	624.7	473.1	240.3	846.4	1.00
September	569.0	669.3	728.9	681.0	540.4	354.6	108.6	783.8	1.00
October	697.0	755.4	737.2	647.9	457.7	216.5	91.2	696.8	1.00
November	775.6	786.0	708.0	568.2	351.0	91.0	78.1	582.8	1.00
December	798.2	790.7	685.6	536.9	295.2	71.9	71.9	533.5	1.00

Mult. = User-defined solar multiplier factor.

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Cooling Design Temperature Profile

Location: Binak, IRAN

(Dry and Wet Bulb temperatures are expressed in °C)

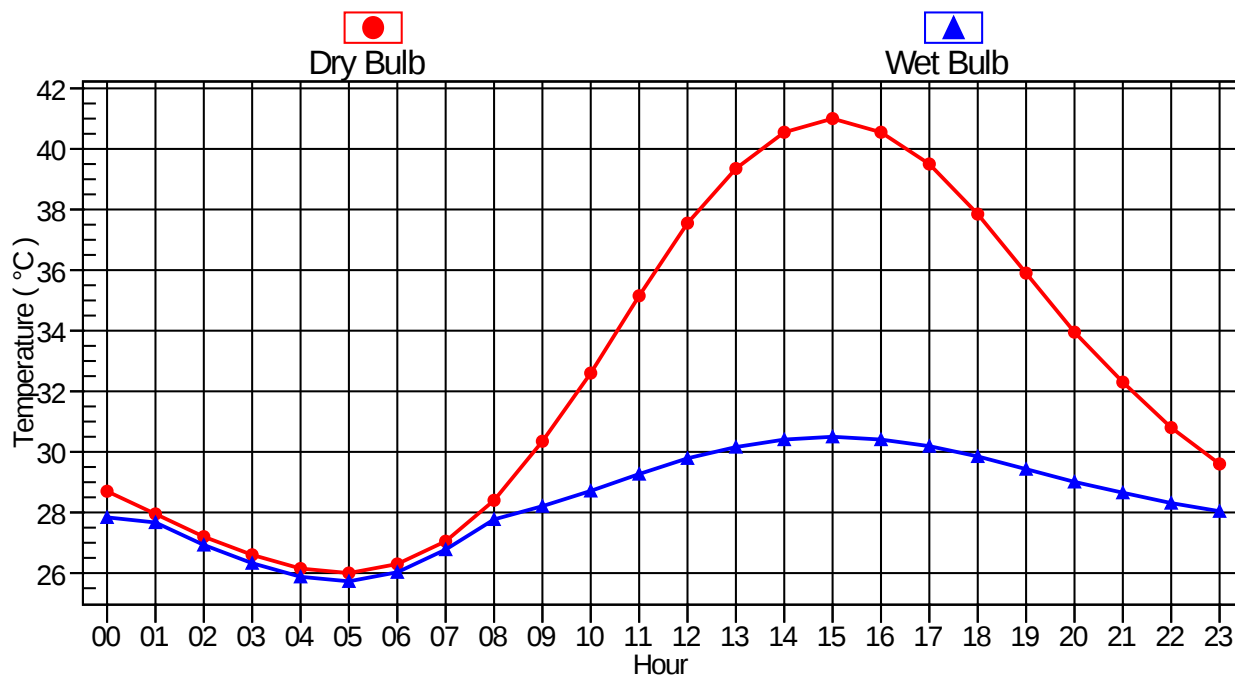
Hr	January		February		March		April		May		June	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	19.4	19.1	20.5	20.2	23.0	22.8	24.5	24.2	26.7	26.4	28.1	27.8
0100	18.6	18.3	19.7	19.5	22.3	22.0	23.7	23.5	26.0	25.7	27.4	27.1
0200	17.9	17.6	19.0	18.7	21.5	21.3	23.0	22.7	25.2	24.9	26.6	26.4
0300	17.3	17.0	18.4	18.1	20.9	20.7	22.4	22.1	24.6	24.3	26.0	25.8
0400	16.8	16.5	17.9	17.7	20.5	20.2	21.9	21.7	24.2	23.9	25.6	25.3
0500	16.7	16.4	17.8	17.5	20.3	20.1	21.8	21.5	24.0	23.7	25.4	25.2
0600	17.0	16.7	18.1	17.8	20.6	20.4	22.1	21.8	24.3	24.0	25.7	25.5
0700	17.7	17.4	18.8	18.6	21.4	21.1	22.8	22.6	25.1	24.8	26.5	26.2
0800	19.1	18.8	20.2	19.9	22.7	22.5	24.2	23.9	26.4	26.1	27.8	27.6
0900	21.0	20.7	22.1	21.9	24.7	24.4	26.1	25.9	28.4	27.0	29.8	28.2
1000	23.3	22.2	24.4	23.2	26.9	25.6	28.4	26.6	30.6	27.5	32.0	28.7
1100	25.8	22.9	26.9	23.9	29.5	26.2	30.9	27.2	33.2	28.1	34.6	29.3
1200	28.2	23.6	29.3	24.5	31.9	26.8	33.3	27.7	35.6	28.6	37.0	29.8
1300	30.0	24.1	31.1	25.0	33.7	27.2	35.1	28.1	37.4	29.0	38.8	30.2
1400	31.2	24.4	32.3	25.3	34.9	27.5	36.3	28.4	38.6	29.3	40.0	30.4
1500	31.7	24.5	32.8	25.4	35.3	27.6	36.8	28.5	39.0	29.4	40.4	30.5
1600	31.2	24.4	32.3	25.3	34.9	27.5	36.3	28.4	38.6	29.3	40.0	30.4
1700	30.2	24.1	31.3	25.0	33.8	27.3	35.3	28.2	37.5	29.1	38.9	30.2
1800	28.5	23.7	29.6	24.6	32.2	26.9	33.6	27.8	35.9	28.7	37.3	29.8
1900	26.6	23.1	27.7	24.1	30.2	26.4	31.7	27.3	33.9	28.3	35.3	29.4
2000	24.6	22.6	25.7	23.5	28.3	25.9	29.7	26.9	32.0	27.8	33.4	29.0
2100	23.0	22.1	24.1	23.1	26.6	25.5	28.1	26.5	30.3	27.4	31.7	28.6
2200	21.5	21.2	22.6	22.3	25.1	24.9	26.6	26.1	28.8	27.1	30.2	28.3
2300	20.3	20.0	21.4	21.1	23.9	23.7	25.4	25.1	27.6	26.8	29.0	28.0

Hr	July		August		September		October		November		December	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	28.7	27.8	28.7	27.8	27.6	27.2	25.6	25.3	22.5	22.2	19.9	19.6
0100	28.0	27.7	28.0	27.7	26.8	26.6	24.8	24.6	21.7	21.5	19.2	18.9
0200	27.2	26.9	27.2	26.9	26.1	25.8	24.1	23.8	21.0	20.7	18.4	18.1
0300	26.6	26.3	26.6	26.3	25.5	25.2	23.5	23.2	20.4	20.1	17.8	17.5
0400	26.2	25.9	26.2	25.9	25.0	24.8	23.0	22.8	19.9	19.7	17.4	17.1
0500	26.0	25.7	26.0	25.7	24.9	24.6	22.9	22.6	19.8	19.5	17.2	16.9
0600	26.3	26.0	26.3	26.0	25.2	24.9	23.2	22.9	20.1	19.8	17.5	17.2
0700	27.1	26.8	27.1	26.8	25.9	25.7	23.9	23.7	20.8	20.6	18.3	18.0
0800	28.4	27.8	28.4	27.8	27.3	27.0	25.3	25.0	22.2	21.9	19.6	19.3
0900	30.4	28.2	30.4	28.2	29.2	27.6	27.2	26.4	24.1	23.9	21.6	21.3
1000	32.6	28.7	32.6	28.7	31.5	28.1	29.5	26.9	26.4	25.4	23.8	23.4
1100	35.2	29.3	35.2	29.3	34.0	28.7	32.0	27.5	28.9	26.0	26.4	24.1
1200	37.6	29.8	37.6	29.8	36.4	29.2	34.4	28.1	31.3	26.6	28.8	24.7
1300	39.4	30.2	39.4	30.2	38.2	29.6	36.2	28.5	33.1	27.0	30.6	25.2
1400	40.6	30.4	40.6	30.4	39.4	29.8	37.4	28.7	34.3	27.3	31.8	25.5
1500	41.0	30.5	41.0	30.5	39.9	29.9	37.9	28.8	34.8	27.4	32.2	25.6
1600	40.6	30.4	40.6	30.4	39.4	29.8	37.4	28.7	34.3	27.3	31.8	25.5
1700	39.5	30.2	39.5	30.2	38.4	29.6	36.4	28.5	33.3	27.0	30.7	25.2
1800	37.9	29.9	37.9	29.9	36.7	29.3	34.7	28.1	31.6	26.6	29.1	24.8
1900	35.9	29.4	35.9	29.4	34.8	28.9	32.8	27.7	29.7	26.2	27.1	24.3
2000	34.0	29.0	34.0	29.0	32.8	28.4	30.8	27.2	27.7	25.7	25.2	23.8
2100	32.3	28.7	32.3	28.7	31.2	28.0	29.2	26.8	26.1	25.3	23.5	23.2
2200	30.8	28.3	30.8	28.3	29.7	27.7	27.7	26.5	24.6	24.3	22.0	21.7
2300	29.6	28.0	29.6	28.0	28.5	27.4	26.5	26.2	23.4	23.1	20.8	20.5

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان:	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادرکننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه ۹: از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

Design Temperature Profile

Design Temperature Profiles for July



 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
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پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

4.2 CONSTRUCTIONS U-VALUE:

Wall (Anti acid ceramic tile)

Wall Details

Outside Surface Color Medium

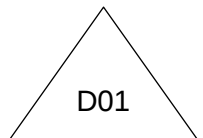
Absorptivity 0.675

Overall U-Value 1.870 W/(m²·°K)

U-value shall be follow INBC code 19

Wall Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m ³	Specific Ht. kJ / (kg - °K)	R-Value (m ² ·°K)/W	Weight kg/m ²
Inside surface resistance	0.000	0.0	0.00	0.12064	0.0
anti acid ceramic tile	12.500	1800.0	0.34	0.01812	22.5
cement plaster	20.000	750.0	0.30	0.06667	15.0
concrete wall	400.000	2300.0	2.30	0.17391	920.0
cement plaster	20.000	750.0	0.30	0.06667	15.0
face brick	30.000	2000.0	1.00	0.03000	60.0
Outside surface resistance	0.000	0.0	0.00	0.05864	0.0
Totals	482.500	-		0.53465	1032.5



Wall (Cement plaster)

Wall Details

Outside Surface Color Medium

Absorptivity 0.675

Overall U-Value 1.936 W/(m²·°K)

Wall Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m ³	Specific Ht. kJ / (kg - °K)	R-Value (m ² ·°K)/W	Weight kg/m ²
Inside surface resistance	0.000	0.0	0.00	0.12064	0.0
cement plaster	1.667	750.0	0.30	0.06667	15.0
concrete wall	33.333	2300.0	2.30	0.17391	920.0
cement plaster	1.667	750.0	0.30	0.06670	15.0
face brick	2.500	2000.0	1.00	0.03000	60.0
Outside surface resistance	0.000	0.0	0.00	0.05864	0.0
Totals	39.167	-		0.51656	1010.0

A large part of the building is existing and it is not possible to change the detail of the wall.

Wall (General)

Wall Details

Outside Surface Color Medium

Absorptivity 0.675

Overall U-Value 1.813 W/(m²·°K)

Wall Layers Details (Inside to Outside)

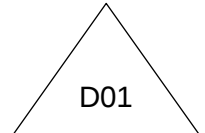
Layers	Thickness mm	Density kg/m ³	Specific Ht. kJ / (kg - °K)	R-Value (m ² ·°K)/W	Weight kg/m ²
Inside surface resistance	0.000	0.0	0.00	0.12064	0.0
gypsum plaster	20.000	1200.0	0.57	0.03509	24.0
cement plaster	20.000	750.0	0.30	0.06667	15.0
concrete wall	400.000	2300.0	2.30	0.17391	920.0
cement plaster	20.000	750.0	0.30	0.06667	15.0
face brick	30.000	2000.0	1.00	0.03000	60.0
Outside surface resistance	0.000	0.0	0.00	0.05864	0.0
Totals	490.000	-		0.55162	1034.0

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادرکننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۱۱ از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

Roof

Roof Details

Outside Surface Color Medium
Absorptivity 0.675
Overall U-Value 0.484 W/(m²-°K)



Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m ³	Specific Ht. kJ / (kg - °K)	R-Value (m ² -°K)/W	Weight kg/m ²
Inside surface resistance	0.000	0.0	0.00	0.12064	0.0
Concrete roof-P210-19 INBR	300.000	2300.0	0.84	0.13043	690.0
HDPU-P218-19 INBR	50.000	50.0	0.84	1.21951	2.5
Cement plaster-P210-19 INBR	100.000	750.0	0.84	0.33333	75.0
Waterproofing layer-P219-19 INBR	4.000	1100.0	1.67	0.01739	4.4
Cement plaster-P210-19 INBR	50.000	750.0	0.80	0.16667	37.5
Terrazzo tile-P212-19 INBR	25.000	2000.0	0.84	0.01852	50.0
Outside surface resistance	0.000	0.0	0.00	0.05864	0.0
Totals	529.000	-		2.06513	859.4

B.P.D.-1

Door Details:

Gross Area 2.6 m²
Door U-Value 3.000 W/(m²-°K)

Glass Details:

Glass Area 0.0 m²
Glass U-Value 3.293 W/(m²-°K)
Glass Shade Coefficient 0.880
Glass Shaded All Day? No

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۱۲ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.3 SPACE INPUT DATA:

00-Conference Room

1. General Details:

Floor Area 38.4 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 10.0 L/s/person
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 13.20 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 100.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	13.1	0	0	0
SSE	26.5	0	0	0

3.1. Construction Types for Exposure WSW

Wall Type Wall (General)

3.2. Construction Types for Exposure SSE

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	38.4	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

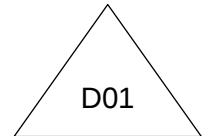
Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 38.4 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 13.2 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان:	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۱۳ از ۶۶
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

01-Management Room

1. General Details:

Floor Area 20.6 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 10.0 L/s/person
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 11.90 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 150.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	14.2	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	20.6	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 20.6 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 4.7 m
Edge Insulation R-Value 0.00 (m²-°K)/W

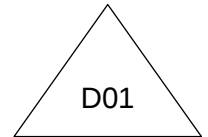
7. Partitions:

7.1. 1st Partition Details:

Partition Type Wall Partition
Area 5.7 m²
U-Value 1.260 W/(m²-°K)
Uncondit. Space Max Temp 35.0 °C
Ambient at Space Max Temp 41.0 °C
Uncondit. Space Min Temp 12.8 °C
Ambient at Space Min Temp 6.0 °C

7.2. 2nd Partition Details:

(No partition data).



2.4. People:

Occupancy 5.0 People
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																									
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HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING																										
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	HV	CN	0004	D01																			

02-Entrance

1. General Details:

Floor Area 15.8 m²
Avg. Ceiling Height 2.5 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 10.0 L/s/person
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 7.10 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 200.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	15.8	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 15.8 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 4.7 m
Edge Insulation R-Value 0.00 (m²-°K)/W

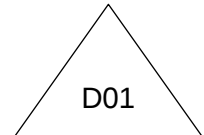
7. Partitions:

7.1. 1st Partition Details:

Partition Type Wall Partition
Area 8.9 m²
U-Value 1.260 W/(m²-°K)
Uncondit. Space Max Temp 35.0 °C
Ambient at Space Max Temp 41.0 °C
Uncondit. Space Min Temp 12.8 °C
Ambient at Space Min Temp 6.0 °C

7.2. 2nd Partition Details:

(No partition data).



2.4. People:

Occupancy 2.0 People
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک	 شماره صفحه: ۱۵ از ۶۶																
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

03-Archive

1. General Details:

Floor Area 12.5 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 10.0 L/s/person
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 11.90 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 100.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	8.8	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	12.5	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 12.5 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 2.9 m
Edge Insulation R-Value 0.00 (m²-°K)/W

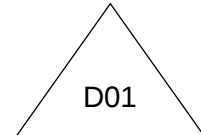
7. Partitions:

7.1. 1st Partition Details:

Partition Type Wall Partition
Area 5.7 m²
U-Value 1.260 W/(m²-°K)
Uncondit. Space Max Temp 35.0 °C
Ambient at Space Max Temp 41.0 °C
Uncondit. Space Min Temp 12.8 °C
Ambient at Space Min Temp 6.0 °C

7.2. 2nd Partition Details:

(No partition data).



2.4. People:

Occupancy 3.0 People
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تسهیلات</th><th>صادرکننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>D01</td><td>0004</td><td>CN</td><td>HV</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	D01	0004	CN	HV	120	PEDCO	GCS	BK	شماره صفحه ۱۶ از ۶۶
HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0004	CN	HV	120	PEDCO	GCS	BK																			

04-Locker

1. General Details:

Floor Area 16.7 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 83.5 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 11.50 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 50.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	11.8	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.7	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

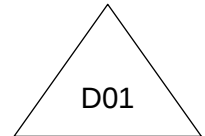
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 16.7 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 3.9 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 5.0 People
Activity Level Medium Work
Sensible 86.5 W/person
Latent 133.3 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تسهیلات</th><th>صادرکننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>D01</td><td>0004</td><td>CN</td><td>HV</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	D01	0004	CN	HV	120	PEDCO	GCS	BK	شماره صفحه: ۱۷ از ۶۶
HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0004	CN	HV	120	PEDCO	GCS	BK																			

05-Prayer Room

1. General Details:

Floor Area 16.7 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 83.5 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 11.50 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 0.0 Watts
Schedule None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	11.8	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	16.7	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 16.7 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 3.9 m
Edge Insulation R-Value 0.00 (m²-°K)/W

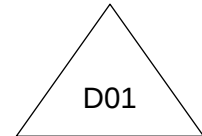
7. Partitions:

7.1. 1st Partition Details:

Partition Type Wall Partition
Area 12.7 m²
U-Value 1.260 W/(m²-°K)
Uncondit. Space Max Temp 35.0 °C
Ambient at Space Max Temp 41.0 °C
Uncondit. Space Min Temp 12.8 °C
Ambient at Space Min Temp 6.0 °C

7.2. 2nd Partition Details:

(No partition data).



2.4. People:

Occupancy 15.0 People
Activity Level Sedentary Work
Sensible 82.1 W/person
Latent 79.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان:	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادرکننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه ۱۸ از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

06-Corridor

1. General Details:

Floor Area 15.2 m²
Avg. Ceiling Height 2.5 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 10.0 L/s/person
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 7.10 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 0.0 Watts
Schedule None

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	15.2	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 15.2 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 4.7 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type Wall Partition
Area 3.4 m²
U-Value 1.260 W/(m²-°K)
Uncondit. Space Max Temp 35.0 °C
Ambient at Space Max Temp 41.0 °C
Uncondit. Space Min Temp 12.8 °C
Ambient at Space Min Temp 6.0 °C

7.2. 2nd Partition Details:

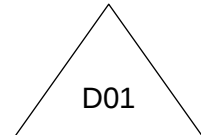
(No partition data).

2.4. People:

Occupancy 2.0 People
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None



 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک	 شماره صفحه: ۱۹ از ۶۶																
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

07-Battery Room

1. General Details:

Floor Area 46.8 m²
Avg. Ceiling Height 4.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 519.8 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 20.00 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 1000.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	19.4	0	0	0
ENE	39.0	0	0	0
SSE	19.4	0	0	1

3.1. Construction Types for Exposure NNW

Wall Type Wall (Anti acid ceramic tile)

3.2. Construction Types for Exposure ENE

Wall Type Wall (Anti acid ceramic tile)

3.3. Construction Types for Exposure SSE

Wall Type Wall (Anti acid ceramic tile)

Door Type B.P.D.-1

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	46.8	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

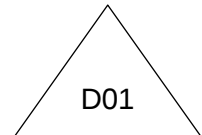
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 46.8 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 19.4 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 0.0 Person
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule None

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه ۲۰: از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

08-UPS

1. General Details:

Floor Area 33.5 m²
Avg. Ceiling Height 4.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 37.2 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 20.00 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 4000.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	13.8	0	0	0
WSW	9.5	0	0	0
SSE	13.8	0	0	1

3.1. Construction Types for Exposure NNW

Wall Type Wall (Cement plaster)

3.2. Construction Types for Exposure WSW

Wall Type Wall (Cement plaster)

3.3. Construction Types for Exposure SSE

Wall Type Wall (Cement plaster)
Door Type B.P.D.-1

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	33.5	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

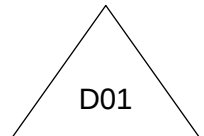
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 33.5 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 9.3 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 0.0 Person
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule None

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table border="1"> <tr> <th>نسخه</th> <th>سریال</th> <th>نوع مدرک</th> <th>رشته</th> <th>تسهیلات</th> <th>صادرکننده</th> <th>بسته کاری</th> <th>پروژه</th> </tr> <tr> <td>D01</td> <td>0004</td> <td>CN</td> <td>HV</td> <td>120</td> <td>PEDCO</td> <td>GCS</td> <td>BK</td> </tr> </table>	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	D01	0004	CN	HV	120	PEDCO	GCS	BK	شماره صفحه: ۲۱ از ۶۶
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه											
D01	0004	CN	HV	120	PEDCO	GCS	BK											

09-E.X. C.R. (Rack R.1)

1. General Details:

Floor Area 43.0 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 35.8 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 20.00 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 1000.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	13.2	0	0	0
WSW	7.6	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type Wall (General)

3.2. Construction Types for Exposure WSW

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	43.0	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

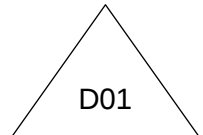
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 43.0 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 6.9 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 2.0 People
Activity Level Sedentary Work
Sensible 82.1 W/person
Latent 79.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table border="1"> <tr> <th>پروژه</th> <th>بسته کاری</th> <th>صادرکننده</th> <th>تسهیلات</th> <th>رشته</th> <th>نوع مدرک</th> <th>سریال</th> <th>نسخه</th> </tr> <tr> <td>BK</td> <td>GCS</td> <td>PEDCO</td> <td>120</td> <td>HV</td> <td>CN</td> <td>0004</td> <td>D01</td> </tr> </table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۲۲ از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

10-EXI. Control Room

1. General Details:

Floor Area 114.6 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 10 % of supply air
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 20.00 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 4000.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	47.4	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	114.6	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

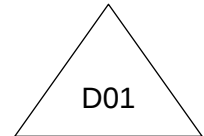
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 114.6 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 15.8 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 15.0 People
Activity Level Sedentary Work
Sensible 82.1 W/person
Latent 79.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																									
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HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING																										
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرک	سريال	نسخه																			
BK	GCS	PEDCO	120	HV	CN	0004	D01																			

11-EXI. UPS

1. General Details:

Floor Area 13.2 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 11.0 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 20.00 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 1000.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	13.2	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 13.2 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 0.0 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

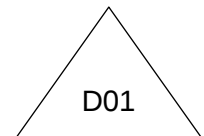
(No partition data).

2.4. People:

Occupancy 0.0 Person
Activity Level Sedentary Work
Sensible 82.1 W/person
Latent 79.1 W/person
Schedule None

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None



	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان:	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادرکننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۲۴ از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

12-EXI. Battery Room

1. General Details:

Floor Area 10.7 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 89.2 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 20.00 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 500.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	7.8	0	0	1

3.1. Construction Types for Exposure NNW

Wall Type Wall (Anti acid ceramic tile)
Door Type B.P.D.-1

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	10.7	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

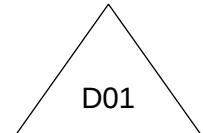
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 10.7 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 2.6 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 0.0 Person
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule None

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه: ۲۵ از ۶۶
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	HV	CN	0004	D01

13-EXI. Lavatory & Shower

1. General Details:

Floor Area 21.3 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 266.3 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 7.10 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 0.0 Watts
Schedule None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	15.3	0	0	0
WSW	15.0	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type Wall (Anti acid ceramic tile)

3.2. Construction Types for Exposure WSW

Wall Type Wall (Anti acid ceramic tile)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	21.3	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

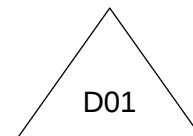
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 21.3 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 10.1 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 4.0 People
Activity Level Sedentary Work
Sensible 82.1 W/person
Latent 79.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک	 شماره صفحه: ۲۶ از ۶۶																
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادرکننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

14-EXI. Locker Room

1. General Details:

Floor Area 6.7 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 33.5 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 11.50 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 0.0 Watts
Schedule None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	10.1	0	0	0

3.1. Construction Types for Exposure WSW

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	6.7	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

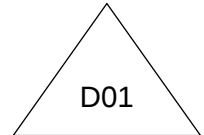
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 6.7 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 3.4 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 1.0 Person
Activity Level Medium Work
Sensible 86.5 W/person
Latent 133.3 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table border="1"> <tr> <th>پروژه</th> <th>بسته کاری</th> <th>صادرکننده</th> <th>تسهیلات</th> <th>رشته</th> <th>نوع مدرک</th> <th>سریال</th> <th>نسخه</th> </tr> <tr> <td>BK</td> <td>GCS</td> <td>PEDCO</td> <td>120</td> <td>HV</td> <td>CN</td> <td>0004</td> <td>D01</td> </tr> </table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۲۷ از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

15-EXI. HVAC Room

1. General Details:

Floor Area 22.1 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 6.2 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 7.10 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 500.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	18.5	0	0	2

3.1. Construction Types for Exposure WSW

Wall Type Wall (Cement plaster)
Door Type B.P.D.-1

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	22.1	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

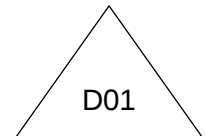
Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 22.1 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 6.2 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

(No partition data).



2.4. People:

Occupancy 1.0 Person
Activity Level Heavy Work
Sensible 153.9 W/person
Latent 271.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان:	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۲۸ از ۶۶
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

16-Pantry & Dining Room

1. General Details:

Floor Area 57.3 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 286.5 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 13.20 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 500.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	57.3	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 57.3 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 0.0 m
Edge Insulation R-Value 0.00 (m²-°K)/W

7. Partitions:

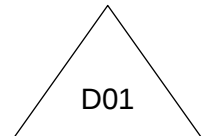
(No partition data).

2.4. People:

Occupancy 20.0 People
Activity Level Sedentary Work
Sensible 82.1 W/person
Latent 79.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 400 W
Schedule People
Latent 800 W
Schedule People



 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان:	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۲۹ از ۶۶
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

17-E.X. C.R. (Rack R.2)

1. General Details:

Floor Area 40.3 m²
Avg. Ceiling Height 3.0 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 33.7 L/s
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 20.00 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 1000.0 Watts
Schedule Electrical Eq.

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m ²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
ENE	8.0	0	0	0

3.1. Construction Types for Exposure ENE

Wall Type Wall (General)

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	40.3	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 ACH
Design Heating 0.00 ACH
Energy Analysis 0.00 ACH

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 40.3 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 2.7 m
Edge Insulation R-Value 0.00 (m²-°K)/W

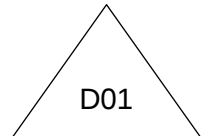
7. Partitions:

7.1. 1st Partition Details:

Partition Type Wall Partition
Area 3.3 m²
U-Value 1.260 W/(m²-°K)
Uncondit. Space Max Temp 35.0 °C
Ambient at Space Max Temp 41.0 °C
Uncondit. Space Min Temp 12.8 °C
Ambient at Space Min Temp 6.0 °C

7.2. 2nd Partition Details:

(No partition data).



2.4. People:

Occupancy 2.0 People
Activity Level Sedentary Work
Sensible 82.1 W/person
Latent 79.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان:	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table><tr><td>پروژه</td><td>بسته کاری</td><td>صادرکننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>HV</td><td>CN</td><td>0004</td><td>D01</td></tr></table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه ۳۰: از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											
۰۵۳ - ۰۷۳ - ۹۱۸۴																		

18-EX. Corridor

1. General Details:

Floor Area 63.7 m²
Avg. Ceiling Height 2.5 m
Building Weight 634.7 kg/m²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 10.0 L/s/person
OA Requirement 2 0.00 L/(s-m²)
Space Usage Defaults . ASHRAE Standard 62.1-2010

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 7.10 W/m²
Ballast Multiplier 1.00
Schedule Lighting

2.2. Task Lighting:

Wattage 0.00 W/m²
Schedule None

2.3. Electrical Equipment:

Wattage 0.0 Watts
Schedule None

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m ²)	Roof Slope (deg.)	Skylight Qty.
H	63.7	0	0

4.1. Construction Types for Exposure H

Roof Type Roof

5. Infiltration:

Design Cooling 0.00 L/s
Design Heating 0.00 L/s
Energy Analysis 0.00 L/s

Infiltration occurs at all hours.

6. Floors:

Type Slab Floor On Grade
Floor Area 63.7 m²
Total Floor U-Value 0.568 W/(m²-°K)
Exposed Perimeter 0.0 m
Edge Insulation R-Value 0.00 (m²-°K)/W

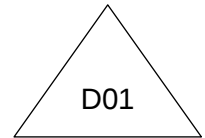
7. Partitions:

7.1. 1st Partition Details:

Partition Type Wall Partition
Area 6.0 m²
U-Value 1.260 W/(m²-°K)
Uncondit. Space Max Temp 35.0 °C
Ambient at Space Max Temp 41.0 °C
Uncondit. Space Min Temp 12.8 °C
Ambient at Space Min Temp 6.0 °C

7.2. 2nd Partition Details:

(No partition data).



2.4. People:

Occupancy 5.0 People
Activity Level Office Work
Sensible 71.8 W/person
Latent 60.1 W/person
Schedule People

2.5. Miscellaneous Loads:

Sensible 0 W
Schedule None
Latent 0 W
Schedule None

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۳۱ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.4 SYSTEM INPUT DATA

1. General Details:

Air System Name Package Unit
Equipment Type Packaged Rooftop Units
Air System Type 2-Deck Multi zone
Number of zones 3

2. Ventilation System Components:

Ventilation Air Data:

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

Central Cooling Data:

Supply Air Temperature 14.4 °C
Coil Bypass Factor 0.100
Cooling Source Air-Cooled DX
Schedule JFMAMJJASOND
Capacity Control Constant Temperature - Fan On

Central Heating Data:

Supply Temperature 35.0 °C
Heating Source Electric Resistance
Schedule JFMAMJJASOND
Capacity Control Constant Temperature - Fan On

Supply Fan Data:

Fan Type Forward Curved
Configuration Blow-thru
Fan Performance 0 Pa
Overall Efficiency 54 %

Duct System Data:

Supply Duct Data:
Duct Heat Gain 0 %
Duct Leakage 0 %

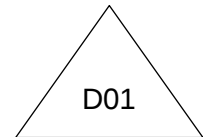
Return Duct or Plenum Data:

Return Air Via Ducted Return

3. Zone Components:

Space Assignments:

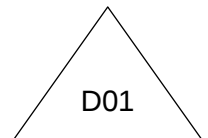
Zone 1: Zone 1	
00-Conference Room	x1
01-Management Room	x1
02-Entrance	x1
03-Archive	x1
04-Locker	x1
05-Prayer Room	x1
06-Corridor	x1
08-UPS	x1
09-E.X. C.R. (Rack R.1)	x1
10-EXI. Control Room	x1
11-EXI. UPS	x1
13-EXI. Lavatory & Shower	x1
14-EXI. Locker Room	x1
16-Pantry & Dining Room	x1
17-E.X. C.R. (Rack R.2)	x1
18-EX. Corridor	x1
Zone 2: Zone 2	
07-Battery Room	x1
12-EXI. Battery Room	x1
Zone 3: Zone 3	
15-EXI. HVAC Room	x1



	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک																	
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING <table border="1"> <tr> <td>پروژه</td> <td>بسته کاری</td> <td>صادرکننده</td> <td>تسهیلات</td> <td>رشته</td> <td>نوع مدرک</td> <td>سریال</td> <td>نسخه</td> </tr> <tr> <td>BK</td> <td>GCS</td> <td>PEDCO</td> <td>120</td> <td>HV</td> <td>CN</td> <td>0004</td> <td>D01</td> </tr> </table>	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	HV	CN	0004	D01	شماره صفحه: ۳۲ از ۶۶
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه											
BK	GCS	PEDCO	120	HV	CN	0004	D01											

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	24.0	28.0	22.0	18.0	0.83	100	0.0	0.0
2	28.0	32.0	18.0	14.0	0.83	100	0.0	0.0
3	30.0	34.0	10.0	6.0	0.83	100	0.0	0.0



Thermostat Schedule Fan
Unoccupied Cooling is Available

Supply Terminals Data:

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

Zone Heating Units:

Zone All
Zone Heating Unit Type None
Zone Unit Heat Source Electric Resistance
Zone Heating Unit Schedule JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Safety Factors:

Cooling Sensible 10 %
Cooling Latent 10 %
Heating 10 %

Zone Sizing Data:

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

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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.5 AIR SYSTEM SIZING SUMMARAIR

Air System Information

Air System Name Package Unit
Equipment Class PKG ROOF
Air System Type 2DMZ

Number of zones 3
Floor Area 609.1 m²
Location Binak, IRAN

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated

Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 159.0 kW
Sensible coil load 81.1 kW
Coil L/s at Jul 1500 3803 L/s
Max block L/s 4488 L/s
Sum of peak zone L/s 4488 L/s
Sensible heat ratio 0.510
m²/kW 3.8
W/m² 261.0
Water flow @ 5.6 °K rise N/A

Load occurs at Jul 1500
OA DB / WB 41.0 / 30.5 °C
Entering DB / WB 32.1 / 24.8 °C
Leaving DB / WB 14.4 / 14.0 °C
Coil ADP 12.4 °C
Bypass Factor 0.100
Resulting RH 57 %
Design supply temp. 14.4 °C
Zone T-stat Check 3 of 3 OK
Max zone temperature deviation 0.0 °K

Central Heating Coil Sizing Data

Max coil load 52.4 kW
Coil L/s at Des Htg 2118 L/s
Max coil L/s 2118 L/s
Water flow @ 11.1 °K drop N/A

Load occurs at Des Htg
W/m² 86.0
Ent. DB / Lvg DB 14.5 / 35.0 °C

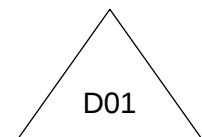
Supply Fan Sizing Data

Actual max L/s 4488 L/s
Standard L/s 4482 L/s
Actual max L/(s-m²) 7.37 L/(s-m²)

Fan motor BHP 0.00 BHP
Fan motor kW 0.00 kW
Fan static 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s 1938 L/s
L/(s-m²) 3.18 L/(s-m²)
L/s/person 19.00 L/s/person



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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.6 VENTILATION SIZING SUMMARY

Air System Information

Air System Name Package Unit
 Equipment Class PKG ROOF
 Air System Type 2DMZ

Number of zones 3
 Floor Area 609.1 m²
 Location Binak, IRAN

Sizing Calculation Information

Calculation Months Jan to Dec
 Sizing Data Calculated

Zone L/s Sizing Sum of space airflow rates
 Space L/s Sizing Individual peak space loads

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Airflow (L/s)	Minimum Airflow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m ²)	Zone L/(s-m ²)
Zone 1	39.6	3746	3746	Jul 0800	14.1	529.5	7.07
Zone 2	4.5	609	609	Jul 0800	2.7	57.5	10.59
Zone 3	2.5	133	133	Aug 1700	0.2	22.1	6.00

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

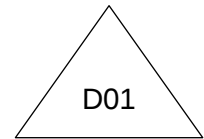
Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 1							
00-Conference Room	1	3.5	Aug 0800	303	1.7	38.4	7.89
01-Management Room	1	1.3	Aug 0800	115	0.8	20.6	5.58
02-Entrance	1	0.7	Jul 0800	56	0.3	15.8	3.55
03-Archive	1	0.8	Aug 0800	72	0.5	12.5	5.75
04-Locker	1	1.1	Aug 0800	98	0.6	16.7	5.88
05-Prayer Room	1	2.0	Aug 0800	175	0.7	16.7	10.48
06-Corridor	1	0.4	Jul 0800	34	0.2	15.2	2.24
08-UPS	1	8.6	Jul 1700	739	1.7	33.5	22.06
09-E.X. C.R. (Rack R.1)	1	2.8	Jul 0800	243	1.1	43.0	5.64
10-EXI. Control Room	1	9.5	Jul 0800	822	2.8	114.6	7.17
11-EXI. UPS	1	1.4	Jul 0800	120	0.1	13.2	9.13
13-EXI. Lavatory & Shower	1	1.5	Jul 0800	266	1.3	21.3	12.50
14-EXI. Locker Room	1	0.5	Jul 0800	45	0.4	6.7	6.66
16-Pantry & Dining Room	1	3.8	Jul 0800	331	0.5	57.3	5.78
17-E.X. C.R. (Rack R.2)	1	2.4	Jul 0800	211	0.7	40.3	5.23
18-EX. Corridor	1	1.3	Jul 0800	116	0.6	63.7	1.82
Zone 2							
07-Battery Room	1	3.6	Jul 0800	520	2.4	46.8	11.11
12-EXI. Battery Room	1	0.9	Jul 0800	89	0.3	10.7	8.34
Zone 3							
15-EXI. HVAC Room	1	2.5	Aug 1700	133	0.2	22.1	6.00

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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.7 VENTILATION SIZING SUMMARY:

1. Summary

Ventilation Sizing Method Sum of Space OA Airflows
Design Ventilation Airflow Rate 1938 L/s



2. Space Ventilation Analysis Table

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s-m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
Zone 1									
00-Conference Room	1	38.4	20.0	302.9	10.00	0.00	0.0	0.0	200.0
01-Management Room	1	20.6	5.0	115.0	10.00	0.00	0.0	0.0	50.0
02-Entrance	1	15.8	2.0	56.2	10.00	0.00	0.0	0.0	20.0
03-Archive	1	12.5	3.0	71.9	10.00	0.00	0.0	0.0	30.0
04-Locker	1	16.7	5.0	98.2	0.00	0.00	83.5	0.0	83.5
05-Prayer Room	1	16.7	15.0	174.9	0.00	0.00	83.5	0.0	83.5
06-Corridor	1	15.2	2.0	34.0	10.00	0.00	0.0	0.0	20.0
08-UPS	1	33.5	0.0	739.1	0.00	0.00	37.2	0.0	37.2
09-E.X. C.R. (Rack R.1)	1	43.0	2.0	242.5	0.00	0.00	35.8	0.0	35.8
10-EXI. Control Room	1	114.6	15.0	822.2	0.00	0.00	0.0	10.0	82.2
11-EXI. UPS	1	13.2	0.0	120.5	0.00	0.00	11.0	0.0	11.0
13-EXI. Lavatory & Shower	1	21.3	4.0	266.3	0.00	0.00	266.3	0.0	266.3
14-EXI. Locker Room	1	6.7	1.0	44.6	0.00	0.00	33.5	0.0	33.5
16-Pantry & Dining Room	1	57.3	20.0	331.3	0.00	0.00	286.5	0.0	286.5
17-E.X. C.R. (Rack R.2)	1	40.3	2.0	210.6	0.00	0.00	33.7	0.0	33.7
18-EX. Corridor	1	63.7	5.0	115.8	10.00	0.00	0.0	0.0	50.0
Zone 2									
07-Battery Room	1	46.8	0.0	519.8	0.00	0.00	519.8	0.0	519.8
12-EXI. Battery Room	1	10.7	0.0	89.2	0.00	0.00	89.2	0.0	89.2
Zone 3									
15-EXI. HVAC Room	1	22.1	1.0	132.6	0.00	0.00	6.2	0.0	6.2
Totals (incl. Space Multipliers)				4487.5					1938.4

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه ۳۶: از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.8 AIR SYSTEM DESIGN LOAD SUMMARY:

D01

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 41.0 °C / 30.5 °C			HEATING OA DB / WB 6.0 °C / 4.4 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-
Wall Transmission	331 m²	10314	-	331 m²	8886	-
Roof Transmission	609 m²	4836	-	609 m²	4479	-
Window Transmission	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	13 m²	399	-	13 m²	374	-
Floor Transmission	609 m²	0	-	609 m²	1212	-
Partitions	46 m²	532	-	46 m²	530	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	0 W	204	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	14100 W	14098	-	0	0	-
People	102	8089	7882	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	400	800	-	0	0
Safety Factor	10% / 10%	3887	868	10%	1548	0
>> Total Zone Loads	-	42760	9550	-	17029	0
Zone Conditioning	-	42062	9550	-	16845	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	4488 L/s	0	-	4488 L/s	0	-
Ventilation Load	1938 L/s	36662	68282	1938 L/s	34879	0
Supply Fan Load	4488 L/s	0	-	4488 L/s	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	78723	77832	-	51724	0
Central Cooling Coil	-	81124	77842	-	-220	0
Central Heating Coil	-	-2401	-	-	52410	-
>> Total Conditioning	-	78723	77842	-	52190	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.9 ZONE DESIGN LOAD SUMMARY:

D01

Zone 1				DESIGN COOLING			DESIGN HEATING		
				COOLING DATA AT Jul 0800			HEATING DATA AT DES HTG		
				COOLING OA DB / WB 28.4 °C / 27.8 °C			HEATING OA DB / WB 6.0 °C / 4.4 °C		
				OCCUPIED T-STAT 24.0 °C			OCCUPIED T-STAT 22.0 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-	0 m²	-	-
Wall Transmission	237 m²	6140	-	237 m²	6979	-	237 m²	6979	-
Roof Transmission	530 m²	4802	-	530 m²	4102	-	530 m²	4102	-
Window Transmission	0 m²	0	-	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-	0 m²	0	-
Door Loads	3 m²	42	-	3 m²	125	-	3 m²	125	-
Floor Transmission	530 m²	0	-	530 m²	1039	-	530 m²	1039	-
Partitions	46 m²	211	-	46 m²	530	-	46 m²	530	-
Ceiling	0 m²	0	-	0 m²	0	-	0 m²	0	-
Overhead Lighting	7834 W	4400	-	0	0	-	0	0	-
Task Lighting	0 W	0	-	0	0	-	0	0	-
Electric Equipment	12100 W	12098	-	0	0	-	0	0	-
People	101	7935	7611	0	0	0	0	0	0
Infiltration	-	0	0	-	0	0	-	0	0
Miscellaneous	-	400	800	-	0	0	-	0	0
Safety Factor	10% / 10%	3603	841	10%	1277	0	10%	1277	0
>> Total Zone Loads	-	39631	9252	-	14052	0	-	14052	0

Zone 2				DESIGN COOLING			DESIGN HEATING		
				COOLING DATA AT Jul 0800			HEATING DATA AT DES HTG		
				COOLING OA DB / WB 28.4 °C / 27.8 °C			HEATING OA DB / WB 6.0 °C / 4.4 °C		
				OCCUPIED T-STAT 28.0 °C			OCCUPIED T-STAT 18.0 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-	0 m²	-	-
Wall Transmission	80 m²	1491	-	80 m²	1804	-	80 m²	1804	-
Roof Transmission	58 m²	411	-	58 m²	334	-	58 m²	334	-
Window Transmission	0 m²	0	-	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-	0 m²	0	-
Door Loads	5 m²	22	-	5 m²	187	-	5 m²	187	-
Floor Transmission	58 m²	0	-	58 m²	156	-	58 m²	156	-
Partitions	0 m²	0	-	0 m²	0	-	0 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-	0 m²	0	-
Overhead Lighting	1150 W	646	-	0	0	-	0	0	-
Task Lighting	0 W	0	-	0	0	-	0	0	-
Electric Equipment	1500 W	1500	-	0	0	-	0	0	-
People	0	0	0	0	0	0	0	0	0
Infiltration	-	0	0	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0	-	0	0
Safety Factor	10% / 10%	407	0	10%	248	0	10%	248	0
>> Total Zone Loads	-	4477	0	-	2730	0	-	2730	0

set point for battery room is 25°C for all seasons

based on ASHRAE Handbook—HVAC Applications 2019 (Attachment ->)

"Battery rooms should be maintained between approximately 21 and 27°C for optimum battery capacity and service life."

Temperature set point of battery room revised.



	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه: ۳۸ از ۶۶	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

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Zone 3	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1700 COOLING OA DB / WB 39.5 °C / 30.2 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C		
	OCCUPIED T-STAT 30.0 °C			OCCUPIED T-STAT 10.0 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	13 m ²	1385	-	13 m ²	103	-
Roof Transmission	22 m ²	109	-	22 m ²	43	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	5 m ²	116	-	5 m ²	62	-
Floor Transmission	22 m ²	0	-	22 m ²	17	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	0 W	3	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	500 W	500	-	0	0	-
People	1	154	271	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	227	27	10%	23	0
>> Total Zone Loads	-	2494	298	-	248	0

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۳۹ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.10 SPACE DESIGN LOAD SUMMARY:

D01

TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 00-Conference Room " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	40 m ²	1036	-	40 m ²	1149	-
Roof Transmission	38 m ²	331	-	38 m ²	298	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	38 m ²	0	-	38 m ²	133	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	507 W	285	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	100 W	100	-	0	0	-
People	20	1436	1202	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	319	120	10%	158	0
>> Total Zone Loads	-	3506	1322	-	1737	0

TABLE 1.1.B. ENVELOPE LOADS FOR SPACE " 00-Conference Room " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING TRANS	COOLING SOLAR	HEATING TRANS
	(m ²)	(W/(m ² ·°K))	Coeff.	(W)	(W)	(W)
WSW EXPOSURE						
WALL	13	1.813	-	364	-	380
SSE EXPOSURE						
WALL	27	1.813	-	672	-	769
H EXPOSURE						
ROOF	38	0.484	-	331	-	298

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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.2.A. COMPONENT LOADS FOR SPACE " 01-Management Room " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	14 m ²	360	-	14 m ²	412	-
Roof Transmission	21 m ²	178	-	21 m ²	160	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	21 m ²	0	-	21 m ²	58	-
Partitions	6 m ²	26	-	6 m ²	66	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	245 W	138	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	150 W	150	-	0	0	-
People	5	359	300	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	121	30	10%	70	0
>> Total Zone Loads	-	1332	330	-	765	0

TABLE 1.2.B. ENVELOPE LOADS FOR SPACE " 01-Management Room " IN ZONE " Zone 1 "						
	Area (m ²)	U-Value (W/(m ² -°K))	Shade Coeff.	COOLING TRANS (W)	COOLING SOLAR (W)	HEATING TRANS (W)
SSE EXPOSURE						
WALL	14	1.813	-	360	-	412
H EXPOSURE						
ROOF	21	0.484	-	178	-	160

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه: ۴۱ از ۶۶	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004		D01

TABLE 1.3.A. COMPONENT LOADS FOR SPACE " 02-Entrance " IN ZONE " Zone 1 "						
DESIGN COOLING			DESIGN HEATING			
COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C			
SPACE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	0 m ²	0	-	0 m ²	0	-
Roof Transmission	16 m ²	143	-	16 m ²	122	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	16 m ²	0	-	16 m ²	51	-
Partitions	9 m ²	41	-	9 m ²	103	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	112 W	63	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	200 W	200	-	0	0	-
People	2	144	120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	59	12	10%	28	0
>> Total Zone Loads	-	650	132	-	304	0

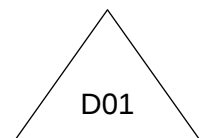
TABLE 1.3.B. ENVELOPE LOADS FOR SPACE " 02-Entrance " IN ZONE " Zone 1 "						
			COOLING	COOLING	HEATING	
			TRANS	SOLAR	TRANS	
			(W)	(W)	(W)	
H EXPOSURE	Area (m ²)	U-Value (W/(m ² ·°K))	Shade Coeff.			
ROOF	16	0.484	-	143	-	122

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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.4.A. COMPONENT LOADS FOR SPACE " 03-Archive " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	9 m ²	223	-	9 m ²	255	-
Roof Transmission	13 m ²	108	-	13 m ²	97	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	13 m ²	0	-	13 m ²	36	-
Partitions	6 m ²	26	-	6 m ²	66	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	149 W	84	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	100 W	100	-	0	0	-
People	3	215	180	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	76	18	10%	45	0
>> Total Zone Loads	-	832	198	-	499	0

TABLE 1.4.B. ENVELOPE LOADS FOR SPACE " 03-Archive " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
SSE EXPOSURE						
WALL	9	1.813	-	223	-	255
H EXPOSURE						
ROOF	13	0.484	-	108	-	97



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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.5.A. COMPONENT LOADS FOR SPACE " 04-Locker " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	12 m ²	299	-	12 m ²	342	-
Roof Transmission	17 m ²	144	-	17 m ²	129	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	17 m ²	0	-	17 m ²	48	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	192 W	108	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	50 W	50	-	0	0	-
People	5	432	667	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	103	67	10%	52	0
>> Total Zone Loads	-	1137	733	-	571	0

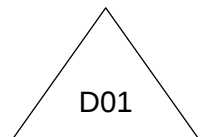
TABLE 1.5.B. ENVELOPE LOADS FOR SPACE " 04-Locker " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
SSE EXPOSURE						
WALL	12	1.813	-	299	-	342
H EXPOSURE						
ROOF	17	0.484	-	144	-	129

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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.6.A. COMPONENT LOADS FOR SPACE " 05-Prayer Room " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	12 m ²	299	-	12 m ²	342	-
Roof Transmission	17 m ²	144	-	17 m ²	129	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	17 m ²	0	-	17 m ²	48	-
Partitions	13 m ²	59	-	13 m ²	147	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	192 W	108	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	15	1231	1187	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	184	119	10%	67	0
>> Total Zone Loads	-	2025	1305	-	733	0

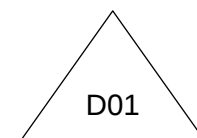
TABLE 1.6.B. ENVELOPE LOADS FOR SPACE " 05-Prayer Room " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
SSE EXPOSURE						
WALL	12	1.813	-	299	-	342
H EXPOSURE						
ROOF	17	0.484	-	144	-	129



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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.7.A. COMPONENT LOADS FOR SPACE " 06-Corridor " IN ZONE " Zone 1 "						
DESIGN COOLING			DESIGN HEATING			
COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C			
SPACE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	0 m ²	0	-	0 m ²	0	-
Roof Transmission	15 m ²	138	-	15 m ²	118	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	15 m ²	0	-	15 m ²	50	-
Partitions	3 m ²	16	-	3 m ²	39	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	108 W	61	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	144	120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	36	12	10%	21	0
>> Total Zone Loads	-	393	132	-	228	0

TABLE 1.7.B. ENVELOPE LOADS FOR SPACE " 06-Corridor " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING TRANS	COOLING SOLAR	HEATING TRANS
	(m ²)	(W/(m ² -°K))	Coeff.	(W)	(W)	(W)
H EXPOSURE						
ROOF	15	0.484	-	138	-	118



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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۴۶ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.8.A. COMPONENT LOADS FOR SPACE " 08-UPS " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700 COOLING OA DB / WB 39.5 °C / 30.2 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	Details	(W)	(W)	Details	(W)	(W)
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	35 m ²	3383	-	35 m ²	1069	-
Roof Transmission	34 m ²	277	-	34 m ²	260	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	3 m ²	105	-	3 m ²	125	-
Floor Transmission	34 m ²	0	-	34 m ²	105	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	0 W	14	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	4000 W	4000	-	0	0	-
People	0	0	0	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	778	0	10%	156	0
>> Total Zone Loads	-	8555	0	-	1713	0

TABLE 1.8.B. ENVELOPE LOADS FOR SPACE " 08-UPS " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS	SOLAR	TRANS
				(W)	(W)	(W)
NNW EXPOSURE						
WALL	14	1.936	-	1315	-	427
WSW EXPOSURE						
WALL	10	1.936	-	1190	-	294
SSE EXPOSURE						
WALL	11	1.936	-	878	-	347
DOOR	3	3.000	-	105	-	125
H EXPOSURE						
ROOF	34	0.484	-	277	-	260

D01

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه ۴۷: از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.9.A. COMPONENT LOADS FOR SPACE " 09-E.X. C.R. (Rack R.1) " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	21 m ²	515	-	21 m ²	603	-
Roof Transmission	43 m ²	390	-	43 m ²	333	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	43 m ²	0	-	43 m ²	100	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	860 W	483	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1000 W	1000	-	0	0	-
People	2	164	158	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	255	16	10%	104	0
>> Total Zone Loads	-	2807	174	-	1140	0

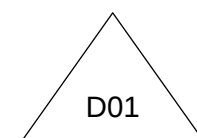
TABLE 1.9.B. ENVELOPE LOADS FOR SPACE " 09-E.X. C.R. (Rack R.1) " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
NNW EXPOSURE						
WALL	13	1.813	-	305	-	383
WSW EXPOSURE						
WALL	8	1.813	-	210	-	220
H EXPOSURE						
ROOF	43	0.484	-	390	-	333

D01

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه ۴۸: از ۶۶	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.10.A. COMPONENT LOADS FOR SPACE " 10-EXI. Control Room " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	47 m ²	1095	-	47 m ²	1375	-
Roof Transmission	115 m ²	1039	-	115 m ²	888	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	115 m ²	0	-	115 m ²	244	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	2292 W	1287	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	4000 W	3999	-	0	0	-
People	15	1231	1187	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	865	119	10%	251	0
>> Total Zone Loads	-	9517	1305	-	2757	0

TABLE 1.10.B. ENVELOPE LOADS FOR SPACE " 10-EXI. Control Room " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
NNW EXPOSURE						
WALL	47	1.813	-	1095	-	1375
H EXPOSURE						
ROOF	115	0.484	-	1039	-	888



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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۴۹ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.11.A. COMPONENT LOADS FOR SPACE " 11-EXI. UPS " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	0 m ²	0	-	0 m ²	0	-
Roof Transmission	13 m ²	120	-	13 m ²	102	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	13 m ²	0	-	13 m ²	0	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	264 W	148	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1000 W	1000	-	0	0	-
People	0	0	0	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	127	0	10%	10	0
>> Total Zone Loads	-	1395	0	-	112	0

TABLE 1.11.B. ENVELOPE LOADS FOR SPACE " 11-EXI. UPS " IN ZONE " Zone 1 "						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(m ²)	(W/(m ² -°K))	Coeff.	(W)	(W)	(W)
H EXPOSURE						
ROOF	13	0.484	-	120	-	102

D01

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								 شرکت تولید و پخش گاز ایران 
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه ۵۰ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.12.A. COMPONENT LOADS FOR SPACE " 13-EXI. Lavatory & Showe " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	30 m ²	787	-	30 m ²	907	-
Roof Transmission	21 m ²	193	-	21 m ²	165	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	21 m ²	0	-	21 m ²	85	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	151 W	85	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	328	316	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	139	32	10%	116	0
>> Total Zone Loads	-	1533	348	-	1272	0

TABLE 1.12.B. ENVELOPE LOADS FOR SPACE " 13-EXI. Lavatory & Showe " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
NNW EXPOSURE						
WALL	15	1.870	-	362	-	458
WSW EXPOSURE						
WALL	15	1.870	-	425	-	449
H EXPOSURE						
ROOF	21	0.484	-	193	-	165

D01

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۵۱ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.13.A. COMPONENT LOADS FOR SPACE " 14-EXI. Locker Room " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	10 m ²	279	-	10 m ²	293	-
Roof Transmission	7 m ²	61	-	7 m ²	52	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	7 m ²	0	-	7 m ²	28	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	77 W	43	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	1	86	133	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	47	13	10%	37	0
>> Total Zone Loads	-	517	147	-	410	0

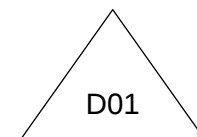
TABLE 1.13.B. ENVELOPE LOADS FOR SPACE " 14-EXI. Locker Room " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
WSW EXPOSURE						
WALL	10	1.813	-	279	-	293
H EXPOSURE						
ROOF	7	0.484	-	61	-	52

D01

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۵۲ از ۶۶
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.14.A. COMPONENT LOADS FOR SPACE " 16-Pantry & Dining Room " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	Details	(W)	(W)	Details	(W)	(W)
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	0 m ²	0	-	0 m ²	0	-
Roof Transmission	57 m ²	520	-	57 m ²	444	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	57 m ²	0	-	57 m ²	0	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	756 W	425	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	500 W	500	-	0	0	-
People	20	1641	1582	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	400	800	-	0	0
Safety Factor	10% / 10%	349	238	10%	44	0
>> Total Zone Loads	-	3834	2620	-	488	0

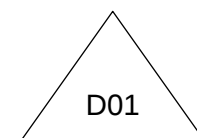
TABLE 1.14.B. ENVELOPE LOADS FOR SPACE " 16-Pantry & Dining Room " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING TRANS	COOLING SOLAR	HEATING TRANS
	(m ²)	(W/(m ² -°K))	Coeff.	(W)	(W)	(W)
H EXPOSURE						
ROOF	57	0.484	-	520	-	444



 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								 شرکت تولید و پخش گاز 
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۵۳ از ۶۶
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.15.A. COMPONENT LOADS FOR SPACE " 17-E.X. C.R. (Rack R.2) " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	8 m ²	219	-	8 m ²	232	-
Roof Transmission	40 m ²	365	-	40 m ²	312	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	40 m ²	0	-	40 m ²	54	-
Partitions	3 m ²	15	-	3 m ²	38	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	806 W	453	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1000 W	1000	-	0	0	-
People	2	164	158	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	222	16	10%	64	0
>> Total Zone Loads	-	2438	174	-	700	0

TABLE 1.15.B. ENVELOPE LOADS FOR SPACE " 17-E.X. C.R. (Rack R.2) " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
ENE EXPOSURE						
WALL	8	1.813	-	219	-	232
H EXPOSURE						
ROOF	40	0.484	-	365	-	312



 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۵۴ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 1.16.A. COMPONENT LOADS FOR SPACE " 18-EX. Corridor " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 24.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 22.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	0 m ²	0	-	0 m ²	0	-
Roof Transmission	64 m ²	578	-	64 m ²	494	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	0 m ²	0	-	0 m ²	0	-
Floor Transmission	64 m ²	0	-	64 m ²	0	-
Partitions	6 m ²	28	-	6 m ²	70	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	452 W	254	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	5	359	300	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	122	30	10%	56	0
>> Total Zone Loads	-	1340	330	-	619	0

TABLE 1.16.B. ENVELOPE LOADS FOR SPACE " 18-EX. Corridor " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
H EXPOSURE						
ROOF	64	0.484	-	578	-	494

D01

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه ۵۵ از ۶۶	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 2.1.A. COMPONENT LOADS FOR SPACE " 07-Battery Room " IN ZONE " Zone 2 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 28.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 18.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	75 m ²	1406	-	75 m ²	1688	-
Roof Transmission	47 m ²	334	-	47 m ²	272	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	3 m ²	11	-	3 m ²	94	-
Floor Transmission	47 m ²	0	-	47 m ²	132	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	936 W	526	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1000 W	1000	-	0	0	-
People	0	0	0	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	328	0	10%	219	0
>> Total Zone Loads	-	3604	0	-	2404	0

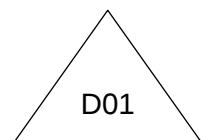
TABLE 2.1.B. ENVELOPE LOADS FOR SPACE " 07-Battery Room " IN ZONE " Zone 2 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
NNW EXPOSURE						
WALL	19	1.870	-	318	-	435
ENE EXPOSURE						
WALL	39	1.870	-	810	-	875
SSE EXPOSURE						
WALL	17	1.870	-	278	-	377
DOOR	3	3.000	-	11	-	94
H EXPOSURE						
ROOF	47	0.484	-	334	-	272

D01

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه ۵۶: از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

TABLE 2.2.A. COMPONENT LOADS FOR SPACE " 12-EXI. Battery Room " IN ZONE " Zone 2 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0800 COOLING OA DB / WB 28.4 °C / 27.8 °C OCCUPIED T-STAT 28.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 18.0 °C		
		Sensible (W)	Latent (W)		Sensible (W)	Latent (W)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	5 m ²	85	-	5 m ²	117	-
Roof Transmission	11 m ²	76	-	11 m ²	62	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	3 m ²	11	-	3 m ²	94	-
Floor Transmission	11 m ²	0	-	11 m ²	23	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	214 W	120	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	500 W	500	-	0	0	-
People	0	0	0	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	79	0	10%	30	0
>> Total Zone Loads	-	872	0	-	325	0

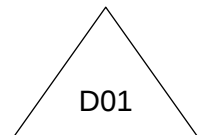
TABLE 2.2.B. ENVELOPE LOADS FOR SPACE " 12-EXI. Battery Room " IN ZONE " Zone 2 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
NNW EXPOSURE						
WALL	5	1.870	-	85	-	117
DOOR	3	3.000	-	11	-	94
H EXPOSURE						
ROOF	11	0.484	-	76	-	62



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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه: ۵۷ از ۶۶	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004		D01

TABLE 3.1.A. COMPONENT LOADS FOR SPACE " 15-EXI. HVAC Room " IN ZONE " Zone 3 "						
DESIGN COOLING			DESIGN HEATING			
COOLING DATA AT Aug 1700 COOLING OA DB / WB 39.5 °C / 30.2 °C OCCUPIED T-STAT 30.0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6.0 °C / 4.4 °C OCCUPIED T-STAT 10.0 °C			
SPACE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m ²	0	-	0 m ²	-	-
Wall Transmission	13 m ²	1385	-	13 m ²	103	-
Roof Transmission	22 m ²	109	-	22 m ²	43	-
Window Transmission	0 m ²	0	-	0 m ²	0	-
Skylight Transmission	0 m ²	0	-	0 m ²	0	-
Door Loads	5 m ²	116	-	5 m ²	62	-
Floor Transmission	22 m ²	0	-	22 m ²	17	-
Partitions	0 m ²	0	-	0 m ²	0	-
Ceiling	0 m ²	0	-	0 m ²	0	-
Overhead Lighting	0 W	3	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	500 W	500	-	0	0	-
People	1	154	271	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	227	27	10%	23	0
>> Total Zone Loads	-	2494	298	-	248	0

TABLE 3.1.B. ENVELOPE LOADS FOR SPACE " 15-EXI. HVAC Room " IN ZONE " Zone 3 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m ²)	(W/(m ² -°K))	Coeff.	TRANS (W)	SOLAR (W)	TRANS (W)
WSW EXPOSURE						
WALL	13	1.936	-	1385	-	103
DOOR	5	3.000	-	116	-	62
H EXPOSURE						
ROOF	22	0.484	-	109	-	43



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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۵۸ از ۶۶
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

4.11 SYSTEM PSYCHROMETRIC:

D01

July DESIGN COOLING DAY, 1500

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°C)	Specific Humidity (kg/kg)	Airflow (L/s)	CO2 Level (ppm)	Sensible Heat (W)	Latent Heat (W)
Ventilation Air	Inlet	41.0	0.02351	1938	400	36662	68282
Vent - Return Mixing	Outlet	32.1	0.01672	4488	613	-	-
Supply Fan	Outlet	32.1	0.01672	4488	613	0	-
Central Cooling Coil	Outlet	14.4	0.00976	3803	613	81124	77842
Central Heating Coil	Outlet	35.0	0.01672	684	613	2401	-
Cold Supply Duct	Outlet	14.4	0.00976	3803	613	-	-
Hot Supply Duct	Outlet	35.0	0.00976	684	613	0	-
Zone Air	-	25.3	0.01155	4488	775	42062	9550
Return Plenum	Outlet	25.3	0.01155	4488	775	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.207; At site altitude = 1.206 W/(L/s-K)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 2947.6; At site altitude = 2944.1 W/(L/s)

Site Altitude = 10.0 m

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (W)	T-stat Mode	Zone Cond (W)	Zone Temp (°C)	Zone Airflow (L/s)	CO2 Level (ppm)	Terminal Heating Coil (W)	Zone Heating Unit (W)
Zone 1	36771	Cooling	36213	24.6	3746	800	0	0
Zone 2	3854	Cooling	3796	28.3	609	622	0	0
Zone 3	2135	Cooling	2053	30.7	133	759	0	0

WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°C)	Specific Humidity (kg/kg)	Airflow (L/s)	CO2 Level (ppm)	Sensible Heat (W)	Latent Heat (W)
Ventilation Air	Inlet	6.0	0.00453	1938	400	-34879	0
Vent - Return Mixing	Outlet	14.5	0.00453	4488	408	-	-
Supply Fan	Outlet	14.5	0.00453	4488	408	0	-
Central Cooling Coil	Outlet	14.4	0.00453	2370	408	220	0
Central Heating Coil	Outlet	35.0	0.00453	2118	408	52410	-
Cold Supply Duct	Outlet	14.4	0.00453	2370	408	-	-
Hot Supply Duct	Outlet	35.0	0.00453	2118	408	0	-
Zone Air	-	20.9	0.00453	4488	413	-16845	0
Return Plenum	Outlet	20.9	0.00453	4488	413	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.207; At site altitude = 1.206 W/(L/s-K)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 2947.6; At site altitude = 2944.1 W/(L/s)

Site Altitude = 10.0 m

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (W)	T-stat Mode	Zone Cond (W)	Zone Temp (°C)	Zone Airflow (L/s)	CO2 Level (ppm)	Terminal Heating Coil (W)	Zone Heating Unit (W)
Zone 1	-14052	Heating	-13904	21.8	3746	413	0	0
Zone 2	-2730	Heating	-2696	17.8	609	413	0	0
Zone 3	-248	Heating	-245	10.0	133	413	0	0



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض

عمومی و مشترک



شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING

پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	HV	CN	0004	D01

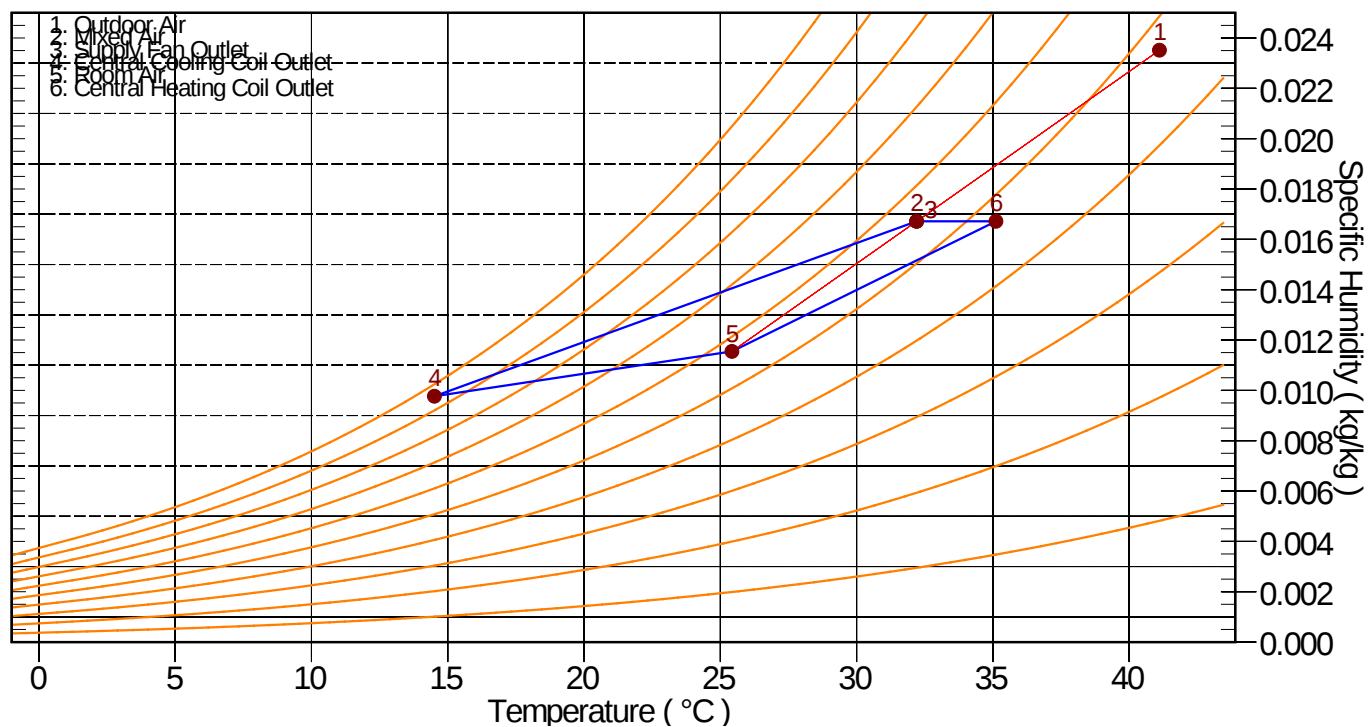
شماره صفحه: ۵۹ از ۶۶

Location: Binak, IRAN

Altitude: 10.0 m.

Data for: July DESIGN COOLING DAY, 1500

D01



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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

5.0 Equipment Selection

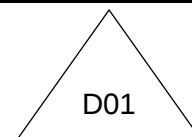
5.1 PACKAGE UNIT

D01

1202-PU-GCSCB-01 Control Building (Existing & Extension)

UNIT IDENTITY		BLDG. NAME
		Control Building (Existing & Extension)
DESCRIPTIONS		TECHNICAL REQUIREMENT
Location	Condensing Unit	Control Building Roof
	Air Handling Unit	Control Building HVAC Room
Quantity		1+1 (Duty + Standby)
Ambient Design Condition	Summer DB. Temp (°C)	41.0
	Summer WB. Temp (°C)	30.5
	Winter DB. Temp (°C)	6.0
	Elevation (M)	10
Total Actual Cooling Load Capacity (Kw)		159.0 * 1.1 (+ 10% Over Capacity)= 174.9
Sensible Cooling Load Capacity (Kw)		81.1
Entering Air DB / WB (°C)		32.1 / 24.8
Leaving Air DB / WB (°C)		14.4 / 14.0
Outdoor Air DB / WB (°C)		41.0 / 30.5
Cooling Coil Type		DX
Heating Load Capacity (Kw)		52.4 * 1.1 (+ 10% Over Capacity)= 57.64
Entering Air DB (Heating Coil) (°C)		14.5°C
Leaving Air DB (Heating Coil) (°C)		35.0°C
Heating Coil Type		Electrical
AHU Section Supply Air Flow (L/S)		4520
AHU Section Return Air Flow (L/S)		2555
AHU Section Fresh Air Flow (L/S)		1965
Unit Type		Split Type
External Static Pressure (Pa)		579.2
Total Static Pressure (Pa)		By Vendor
Total Power Consumption (Kw)		By Vendor
Electric Power		400-420v/3 PH/50HZ

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	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	



External Static Pressure Drop:

Duct static pressure	Pa (in.wg)	97.86 (0.39)
Motorized Smoke Fire Damper	Pa (in.wg)	25 (0.10)
Supply Air Volume Damper	Pa (in.wg)	30 (0.12)
Return Air Volume Damper	Pa (in.wg)	35 (0.14)
Blast Valve	Pa (in.wg)	140 (0.56)
Return Grill	Pa (in.wg)	16.2 (0.065)
Supply Diffuser	Pa (in.wg)	23.89 (0.096)
Sand Trap Louver	Pa (in.wg)	149 (0.60)
Door Louver	Pa (in.wg)	9.60 (0.040)
Total External static pressure + 10% Over S.F.	Pa (in.wg)	579.2 (2.33)

Supply Air Duct static pressure: $1.5 * 55 \text{ m} * 0.735 \text{ pa/m} = 60.64 \text{ pa}$

Return Air Duct static pressure: $1.5 * 38 \text{ m} * 0.653 \text{ pa/m} = 37.22 \text{ pa}$

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۶۲ از ۶۶
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

5.2 EXHAUST FAN SELECTION

1202-EF-GCSCB-01 (Locker + Prayer Room + Store)

D01

Locker

Air Flow = $16.7 \text{ (area, m}^2\text{)} \times 3 \text{ (height, m)} \times 6 \text{ ACH} \div 60 \text{ min} = 5.01 \text{ m}^3/\text{min} = 176.9 \text{ cfm}$
 $= 83.5 \text{ L/S} \sim 115 \text{ L/S}$

(100 L/s Supply Air & 15 L/s Transfer Air)

Prayer Room

Air Flow = $16.7 \text{ (area, m}^2\text{)} \times 3 \text{ (height, m)} \times 6 \text{ ACH} \div 60 \text{ min} = 5.01 \text{ m}^3/\text{min} = 176.9 \text{ cfm}$
 $= 83.5 \text{ L/S} \sim 190 \text{ L/S}$

(175 L/s Supply Air & 15 L/s Transfer Air)

Store

Air Flow = $23 \text{ (area, m}^2\text{)} \times 3 \text{ (height, m)} \times 6 \text{ ACH} \div 60 \text{ min} = 6.9 \text{ m}^3/\text{min} = 243.7 \text{ cfm}$
 $= 115 \text{ L/S}$

(115 L/s Transfer Air)

$$115+190+115 = 420 \text{ L/S}$$

Item		1202-EF-GCSCB-01
Service Area		Locker + Prayer Room + Store
Equipment QTY.		1
Air Flow(L/S)		420
Air Flow(CFM)		889.9
Component Pressure Drop (External) Pa (in.wg)	Blast Proof Valve	130 (0.52)
	Fuse Fire Damper	20 (0.08)
	Volume Damper	35 (0.14)
	Duct static pressure	13.7 (0.055)
	Exhaust Grill	6.47 (0.026)
	Door Louver	11.2 (0.045)
Total Pressure Drop * + 10% Over S.F.	(In.WG.)	0.956
	(Pa)	238
Exhaust Fan type		Utility Ex. Fan
Power Supply (V/PH/Hz)		400/3/50
Power Consumption (w) Each Eq.		By Vendor
REMARKE		Equipped With Bird Mesh and Motorized Smoke Fire Damper

*Total Pressure Drop Should Be Specified By Vendor.

$$\text{Duct static pressure: } 1.5 * 16 \text{ m} * 0.571 \text{ pa/m} = 13.7 \text{ pa}$$

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه: ۶۳ از ۶۶
	پروژه	بسته کاری	صادرکننده	تسهيلات	رشته	نوع مدرک	سريال	
	BK	GCS	PEDCO	120	HV	CN	0004	D01

1202-EF-GCSCB-02 (Pantry +Dining Room)

D01

Pantry + Dining Room

Air Flow = $57.3 \text{ (area, m}^2\text{)} \times 3 \text{ (height, m)} \times 6 \text{ ACH} \div 60 \text{ min} = 17.19 \text{ m}^3/\text{min} = 607.05 \text{ cfm} = 286.5 \text{ L/S} \sim 420 \text{ L/S}$
(330 L/s Supply Air & 90 L/s Transfer Air)

Item		1202-EF-GCSCB-02
Service Area		Pantry + Dining Room
Equipment QTY.		1
Air Flow(L/S)		420
Air Flow(CFM)		889.9
Component Pressure Drop (External) Pa (in.wg)	Blast Proof Valve	130 (0.52)
	Fuse Fire Damper	20 (0.08)
	Volume Damper	35 (0.14)
	Duct static pressure	12.85 (0.052)
	Exhaust Grill	17.17 (0.069)
	Door Louver	11.5 (0.046)
Total Pressure Drop * + 10% Over S.F.	(In.WG.)	1.001
	(Pa)	249.172
Exhaust Fan type		Utility Ex. Fan
Power Supply (V/PH/Hz)		400/3/50
Power Consumption (w) Each Eq.		By Vendor
REMARKE		Equipped With Bird Mesh and Motorized Smoke Fire Damper

*Total Pressure Drop Should Be Specified By Vendor.

Duct static pressure: $1.5 * 15 \text{ m} * 0.571 \text{ pa/m} = 12.85 \text{ pa}$

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۶۶ از ۶۶
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

1202-EF-GCSCB-03 (Battery Room)

D01

Battery Room (Extension)

Air Flow = $46.79 \text{ (area, m}^2\text{)} \times 4 \text{ (height, m)} \times 10 \text{ ACH} \div 60 \text{ min} = 31.19 \text{ m}^3/\text{min} = 1101.5 \text{ cfm} = 519.8 \text{ L/S} \sim 520 \text{ L/S}$
(520 L/s Supply Air)

Item		1202-EF-GCSCB-03
Service Area		Battery Room (Extension)
Equipment QTY.		2 (1 Duty + 1 Standby)
Air Flow(L/S)		520
Air Flow(CFM)		1101.5
Component Pressure Drop (External) Pa (in.wg)	Blast Proof Valve	140 (0.56)
	Fuse Fire Damper	35 (0.14)
	Duct static pressure	7.28 (0.029)
	Exhaust Grill	16.17 (0.065)
Total Pressure Drop * + 10% Over S.F.	(In.WG.)	0.877
	(Pa)	218.30
Exhaust Fan type		Utility Ex. Fan
Power Supply (V/PH/Hz)		400/3/50
Power Consumption (w) Each Eq.		By Vendor
REMARKE		Equipped With Bird Mesh and Motorized Smoke Fire Damper

*Total Pressure Drop Should Be Specified By Vendor.

Duct static pressure: $1.5 \times 8.5 \text{ m} \times 0.571 \text{ pa/m} = 7.28 \text{ pa}$

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING							شماره صفحه: ۶۵ از ۶۶	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

1202-EF-GCSCB-04 (Battery Room)

D01

Battery Room (Existing)

Air Flow = $10.7 \text{ (area, m}^2\text{)} \times 3 \text{ (height, m)} \times 10 \text{ ACH} \div 60 \text{ min} = 5.35 \text{ m}^3/\text{min} = 188.9 \text{ cfm}$
 $= 89.2 \text{ L/S} \sim 90 \text{ L/S}$
 (90 L/s Supply Air)

Item		1202-EF-GCSCB-04
Service Area		Battery Room (Existing)
Equipment QTY.		2 (1 Duty + 1 Standby)
Air Flow(L/S)		90
Air Flow(CFM)		190.7
Component Pressure Drop (External) Pa (in.wg)	Blast Proof Valve	140 (0.56)
	Fuse Fire Damper	35 (0.14)
	Duct static pressure	4.28 (0.017)
	Exhaust Grill	14.9 (0.060)
Total Pressure Drop * + 10% Over S.F.	(In.WG.)	0.858
	(Pa)	213.60
Exhaust Fan type		Utility Ex. Fan
Power Supply (V/PH/Hz)		400/3/50
Power Consumption (w) Each Eq.		By Vendor
REMARKE		Equipped With Bird Mesh and Motorized Smoke Fire Damper

*Total Pressure Drop Should Be Specified By Vendor.

Duct static pressure: $1.5 \times 5 \text{ m} \times 0.571 \text{ pa/m} = 4.28 \text{ pa}$

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض عمومی و مشترک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	HVAC CALCULATION NOTE FOR EXTENSION OF EXISTING CONTROL BUILDING								شماره صفحه: ۶۶ از ۶۶
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	HV	CN	0004	D01	

1202-EF-GCSCB-05 (Lavatory + Shower + Locker)

D01

Lavatory + Shower (Existing)

Air Flow = $21.3 \text{ (area, m}^2\text{)} \times 3 \text{ (height, m)} \times 15 \text{ ACH} \div 60 \text{ min} = 15.98 \text{ m}^3/\text{min} = 564.33 \text{ cfm} = 266.3 \text{ L/S} \sim 270 \text{ L/S}$
(170+100 L/s Transfer Air)

Locker (Existing)

Air Flow = $6.7 \text{ (area, m}^2\text{)} \times 3 \text{ (height, m)} \times 6 \text{ ACH} \div 60 \text{ min} = 2.01 \text{ m}^3/\text{min} = 70.98 \text{ cfm} = 33.5 \text{ L/S} \sim 65 \text{ L/S}$
(45 L/s Supply Air & 20 L/s Transfer Air)

270+65 = 335 L/S

Item		1202-EF-GCSCB-05
Service Area		Lavatory + Shower + Locker (Existing)
Equipment QTY.		1
Air Flow(L/S)		335
Air Flow(CFM)		709.8
Component Pressure Drop (External) Pa (in.wg)	Blast Proof Valve	160 (0.64)
	Motorized Smoke Fire Damper	25 (0.10)
	Duct static pressure	6.85 (0.028)
	Door Louver	11.5 (0.046)
	Exhaust Grill	14.18 (0.057)
Total Pressure Drop * + 10% Over S.F.	(In.WG.)	0.874
	(Pa)	217.53
Exhaust Fan type		Inline Axial Exhaust Fan.
Power Supply (V/PH/Hz)		400/3/50
Power Consumption (w) Each Eq.		By Vendor
REMARKE		-

*Total Pressure Drop Should Be Specified By Vendor.

Duct static pressure: $1.5 * 8 \text{ m} * 0.571 \text{ pa/m} = 6.85 \text{ pa}$