AFGHAN NATIONAL POLICE

STANDARD BUILDING DESIGNS

BARRACK BUILDING TYPE 2 (579 GSM) - OPEN BAY - ELECTRIC HEAT OPTION

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US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: JDS | DATE: 09-30-09
DWN BY: JDS | SUBMITTED BY: BAKER
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AFGHAN NATIONAL POLICE
STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION
COVER SHEET

SHEET REFERENCE NUMBER:
G1

100% SUBMISSION

STRUCTURAL ABBREVIATIONS:

ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ARCH	ARCHITECTURAL
B	BOTTOM
BLDG	BUILDING
BOTT	BOTTOM
℄	CENTER LINE
CFMRF	COLD FORM METAL ROOF FRAME
CFMF	COLD FORM METAL FRAME
CFS	COLD FORMED STEEL
CIP	CAST-IN-PLACE
CIPL	CAST-IN-PLACE LINTEL
CJ	CONTROL JOINT
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COEFF	COEFFICIENT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
COORD	COORDINATE
CSJ	CONSTRUCTION JOINT
CTJ	CONTROL JOINT
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
ELEC	ELECTRICAL
ELEV	ELEVATION
EMBED	EMBEDMENT
EQUIV	EQUIVALENT
ETC	ET CETERA
EW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR
FTG	FOOTING
GA	GAUGE
HORIZ	HORIZONTAL
HRS	HOURS
IBC	INTERNATIONAL BUILDING CODE
INFO	INFORMATION
INT	INTERIOR
Kg	KILOGRAM
Km	KILOMETER
kPa	KILOPASCAL
L#	ANGLE (# INDICATES SIZE)
LONG	LONGITUDINAL
LLV	LONG LEG VERTICAL
M	METER
MAX	MAXIMUM
MBM	METAL BUILDING MANUFACTURER
MECH	MECHANICAL
MFG	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
MPa	MEGAPASCAL
MTL	METAL
MWFRS	MAIN WIND FORCE RESISTING SYSTEM
N	NEWTON
N	NORTH
N/A	NOT APPLICABLE
#	NUMBER SYMBOL FOR REBAR SIZE
NTS	NOT TO SCALE
O.C.	ON CENTER
OPNG	OPENING
PL or PL	PLATE
PRE-ENG	PRE-ENGINEERED
REINF	REINFORCED
REQ'D	REQUIRED
SIM	SIMILAR
SPECS	SPECIFICATIONS
STD	STANDARD
STRUCT	STRUCTURAL
SW	SHEAR WALL
T	TOP
T/	TOP OF
T/ELEV	TOP ELEVATION
T&B	TOP AND BOTTOM
THK	THICK
TYP	TYPICAL
UFC	UNIFIED FACILITIES CRITERIA
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
W	WIDTH
W/	WITH

GENERAL NOTES

1.0 THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS AND MATERIALS INDICATED ON THE SHEETS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC.

1.1 COORDINATE THESE SHEETS WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL SHEETS. ALL DIMENSIONS SHOWN ON THE SHEETS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

1.2 THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL FLOOR AND ROOF OPENING SIZES AND LOCATIONS, EQUIPMENT PAD SIZES AND LOCATIONS, ANCHOR BOLT LAYOUTS, ETC WITH EQUIPMENT SELECTED. THE CONTRACTOR SHALL MAKE ANY REQUIRED MODIFICATIONS AT NO ADDITIONAL COST.

1.3 THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR SLEEVES, CURBS, INSERTS OR OPENINGS, ETC. NOT HEREIN INDICATED.

1.4 SLAB OPENINGS SMALLER THAN 250mm DIA TO BE CORE DRILLED IN FIELD UON. SEE MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR LOCATIONS OF THESE OPENINGS.

1.5 WORK NOT INCLUDED ON THE SHEETS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ELSEWHERE ON THE SHEETS SHALL BE REPEATED.

1.6 IN CASE OF CONFLICT BETWEEN THE NOTES, DETAILS AND SPECIFICATIONS THE MOST RIGID REQUIREMENTS SHALL GOVERN.

1.7 SEE ARCHITECTURAL SHEETS FOR LOCATIONS OF MASONRY AND DRYWALL NON-LOAD BEARING PARTITIONS. PROVIDE COMPRESSIBLE FIRESAFING AT TOP OF WALL AS REQUIRED BY ARCHITECTURAL SHEETS.

1.8 COORDINATE FINISHED FLOOR DATUM ELEVATION 0.0m WITH THE CIVIL SHEETS.

2.0 FOUNDATION NOTES

2.1 THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. DESIGN VALUES USED IN THE STRUCTURAL ANALYSIS OF THE BUILDINGS HEREIN INDICATED HAVE BEEN ASSUMED AND SHALL BE CONFIRMED AND VERIFIED AS PART OF THE GEOTECHNICAL INVESTIGATION. VALUES WHICH DO NOT MEET THE REQUIREMENTS INDICATED ON THE BASIS OF DESIGN SHEET SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CONSIDERATION AND DETERMINATION ON THE NEXT APPROPRIATE COURSE OF ACTION.

2.2 SEE THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS TO THOSE OUTLINED IN THE GEOTECHNICAL INVESTIGATION FOR EXCAVATION AND PREPARATION OF THE FOUNDATION AND THE SLAB ON GRADE SUBGRADE INCLUDING COMPACTION PROCEDURES.

2.3 EXCAVATIONS FOR FOOTINGS SHALL HAVE THE SIDES AND BOTTOMS TEMPORARILY LINED WITH 0.25mm POLYETHYLENE IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HRS OF THE EXCAVATION OF THE FOOTING.

2.4 FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE GENERAL CONTRACTOR BEFORE FURTHER CONSTRUCTION IS ATTEMPTED. SEE PROJECT SPECIFICATIONS.

2.5 NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, ICE OR LOOSE MATERIAL. FROST DEPTH ASSUMED TO BE 800MM

2.6 ALL SLAB-ON-GRADE, TRENCH BOTTOMS AND OTHER ON-GRADE INTERIOR HORIZONTAL SURFACES SHALL BE PLACED OVER A 0.25mm VAPOR RETARDER OVER A 100mm #57 STONE WATER BARRIER PLACED ON SUBGRADE PROPERLY PREPARED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. (UON)

2.7 SEE PLUMBING, ELECTRICAL & CIVIL SHEETS FOR REQUIRED UNDERSLAB UTILITIES.

2.8 SEE ARCHITECTURAL SHEETS FOR ALL WATERPROOFING DETAILS AND MATERIALS.

2.9 IF UNDERMINING OF FOOTINGS OCCURS, FILL VOIDS WITH 15MPa CONCRETE. DO NOT ATTEMPT TO REPLACE AND RECOMPACT SOIL.

3.0 CONCRETE

3.1 CONCRETE SHALL HAVE THE UNIT WEIGHT AND THE MINIMUM COMPRESSIVE STRENGTHS (f'c) AT 28 DAYS AS SHOWN IN THE CONCRETE MATERIALS SCHEDULE ON SHEET S3. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. ENTRAIN AIR TO PRODUCE TOTAL AIR CONTENT ACCORDING TO THE SPECIFICATIONS FOR CONCRETE EXPOSED TO FREEZING TEMPERATURES (EXTERIOR FOOTINGS, SLAB TURNDOWNS, EXTERIOR SLABS AND SLABS-ON-GRADE, EXTERIOR RETAINING WALLS, AND EXTERIOR GRADE BEAMS.)

3.2 NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

3.3 MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL CONFORM TO ACI 301M-05.

3.4 ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (ACI) 318M MANUAL (metric), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND REQUIREMENTS OUTLINED IN THE CONTRACT SPECIFICATIONS. WHEN THERE IS A CONFLICT BETWEEN ACI AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN.

3.5 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 20mm x45 DEGREE CHAMFER UON.

3.6 CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615M-96a, GRADE 420 MPa, REINFORCING BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS. ALL LAP SPLICES SHALL BE CLASS "B" UON.

3.7 HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90 DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED WITH A CLASS B TENSION SPLICE AT CORNERS AND INTERSECTIONS. TOP BAR CRITERIA SHALL APPLY IF 300mm OR MORE OF FRESH CONCRETE IS PLACED BELOW BAR.

3.8 SLABS-ON-GRADE SHALL HAVE CONSTRUCTION JOINTS OR CRACK CONTROL JOINTS AS SHOWN ON THE DRAWINGS. CONSTRUCTION JOINTS CAN BE USED AT CONTROL JOINT LOCATIONS AT CONTRACTORS OPTION. SEE SLAB PLANS & JOINT DETAILS FOR ADDITIONAL INFORMATION. FOR AREAS NOT SHOWN ON DWGS, THE MAXIMUM SPACING OF CONSTRUCTION/ CRACK CONTROL JOINTS SHALL BE 4800mm

3.9 SEE SPECIFICATIONS FOR ALL WATERPROOFING/DAMPPROOFING REQUIREMENT.

3.10 ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318M, AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315M, LATEST EDITION.

3.11 SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT, SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.

3.12 ALL DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE ON THE SHEETS.

3.13 ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS AS SHOWN ON THE SHEETS.

3.14 SEE ARCHITECTURAL SHEETS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES.

3.15 THE CONTRACTOR SHALL COORDINATE ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL SHEETS. SEE MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL SHEETS.

3.16 UNLESS NOTED OTHERWISE, ALL CURBS SHALL BE REINFORCED WITH AT LEAST (1)-#13 CONTINUOUS AND #13 AT 300mm O.C. DOWELS TO STRUCTURE BELOW.

3.17 THE SUB-CONTRACTOR SHALL VERIFY ALL OPENINGS, PAD SIZES, AND ANCHOR BOLTS WITH EQUIPMENT SELECTED.

3.18 FOR ALL WALLS & PIERS, PROVIDE DOWELS INTO FOOTING AT EACH VERT REINF BAR, UON DOWEL SIZE SHALL BE SAME AS VERT REINF.

3.19 ALL DEFORMED BAR ANCHORS SHALL BE TRS NELSON DIVISION OR EQUAL 15mm DIA (UON) CONFORMING TO ASTM A-496M WITH A MINIMUM TENSILE STRENGTH OF 550 MPa. INSTALL ANCHORS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS BY AUTOMATIC END WELDING AS INDICATED ON THE DRAWINGS. NO UNAUTHORIZED OR FIELD WELDING SHALL BE MADE WITHOUT AUTHORIZATION FROM THE MANUFACTURER.

3.20 ALL REINFORCING INDICATED TO BE WELDED SHALL BE IN ACCORDANCE WITH ASTM A706M. "LOW ALLOY STEEL DEFORMED BARS FOR CONCRETE REINFORCEMENT". ANY INSTALLATIONS USING MANUFACTURER'S EQUIPMENT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

3.21 PROVIDE CONCRETE POUR STOPS OR FORMED AS REQUIRED FOR INSTALLATION OF ALL CONCRETE WORK.

3.22 PROVIDE ADDITIONAL (2)-#13 x 600mm REINFORCING BARS IN SLAB-ON GRADE AT ALL RE-ENTRANT CORNERS. PLACE BARS AT MID-DEPTH OF SLAB WITH A CLEARANCE OF 50mm FROM CORNER UON.

4.0 CONCRETE MASONRY

4.1 MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF THESE CONTRACT DOCUMENTS AND THE PROJECT SPECIFICATIONS.

4.2 THE SPECIFIED ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE MASONRY (f'm) ON THE NET AREA IS A MINIMUM OF 10.4 MPa.

4.3 PROVIDE TWO #16 BARS CONTINUOUS IN ALL MASONRY LINTELS UON ON THE SHEETS. BOND BEAM REINFORCING SHALL BE CONTINUOUS AND SPACED AT A MAXIMUM OF 1200mm OC VERTICALLY. ALL BOND BEAMS SHALL BE A MINIMUM OF 200mm IN DEPTH WITH REINFORCING BEING CONTINUOUS AND HAVING STANDARD ACI HOOKS AT EACH END. PROVIDE STANDARD BAR SPLICES AS SPECIFIED.

4.4 FOR WALL REINFORCING SEE "MIN CMU WALL REINFORCING" DETAILS ON SHEET S8. PROVIDE STANDARD BAR SPLICES AS SPECIFIED. ALL VERTICAL REINFORCEMENT EXTENDS FULL HEIGHT OF WALL.

4.5 CMU CELLS THAT REQUIRE VERTICAL REINFORCING BARS AS INDICATED ON THE CONTRACT DRAWINGS AND/OR SPECS SHALL HAVE REINF BARS PLACED IN CENTERS OF CMU CELLS AND CONTINUOUSLY GROUTED UON.

4.6 PROVIDE LADDER TYPE JOINT REINFORCEMENT AT 200mm EXTERIOR, & 400mm INTERIOR ON CENTER MAXIMUM, UON MINIMUM ROD SIZE USED SHALL BE 9 GA. DEFORMED WIRE AND CONFORM TO ASTM A82M, UON.

4.7 PROVIDE CONTROL JOINTS AS INDICATED ON THE ARCHITECTURAL SHEETS.

4.8 GROUT FOR MASONRY SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS. GROUT SHALL CONFORM TO ASTM C476M. GROUT LIFTS SHALL NOT EXCEED 1400mm.

4.9 USE MORTAR TYPE S CONFORMING TO ASTM C270M, SEE SPECIFICATIONS.

4.10 CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT AND CONFORM TO ASTM C90M.

4.11 ALL CMU CELLS, OPEN CAVITIES, AND AIR SPACES SHALL BE GROUTED TO STOP FRAGMENTS FROM MORTAR BLAST

4.12 BOND BEAM REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS (UON). MAXIMUM CONTROL JOINT SPACING SHALL BE AS INDICATED ON THE ARCHITECTURAL SHEETS.

4.13 CONTRACTOR SHALL COORDINATE LOCATION OF ALL OPENINGS SEE ARCH, MECH, ELEC, AND PLUMBING SHEETS FOR SIZE AND LOCATION OF OPENINGS.

4.14 MASONRY WALLS SHALL NOT BE BACK FILLED PRIOR TO THE MORTAR AND GROUT ATTAINING THEIR RESPECTIVE MAXIMUM DESIGN STRENGTHS PER SPECIFICATIONS.

5.0 CFMRF - COLD FORM METAL ROOF FRAMING SYSTEM

5.1 CFMF SHALL BE DESIGNED BY CFMF MANUFACTURER'S ENGINEER FOR ALL LOADING PER CODE AND AS INDICATED ON THE SHEETS.

5.2 FOR WIND LOADS, SEE THE DESIGN CRITERIA ON SHEET S2.

5.3 SUBMIT VENDOR'S PUBLISHED LITERATURE, TEST DATA AND INSTALLATION INSTRUCTIONS FOR METAL STUD ASSEMBLY AND ACCESSORIES INCLUDING OTHER DATA AS MAY BE REQUIRED TO CERTIFY COMPLIANCE WITH PERFORMANCE REQUIREMENTS SPECIFIED HEREIN.

5.4 SHOP DRAWINGS AND DESIGN ANALYSIS SHALL BE STAMPED AND APPROVED BY A LICENSED PROFESSIONAL ENGINEER.

5.5 CONNECTIONS AND GAUGE SIZES ARE MINIMUM AND SHALL BE INCREASED AS NECESSARY TO PROVIDE A STRUCTURALLY ADEQUATE SYSTEM. KICKERS MAY BE ADDED TO REDUCE THE STUD HEIGHTS WHERE ACCEPTABLE AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS.

5.6 CRMRF SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

STUD/RAFTER/EAVE STRUT/BRACE/BLOCKING:
Fy = 344 MPa
GAUGE = 16
DEPTH = 152.3 mm
WIDTH = 34.8 mm
MOMENT OF INERTIA, Ix = $847x10^3$ mm^4
SECTION MODULUS, Sx = $11.2x10^3$ mm^3

TRACK:
Fy = 344 MPa
GAUGE = 16
DEPTH = 152.3 mm
WIDTH = 38 mm
MOMENT OF INERTIA, Ix = $1083x10^3$ mm^4
SECTION MODULUS, Sx = $13.8x10^3$ mm^3

PURLIN/SUBGIRT:
Fy = 393 MPa
GAUGE = 16
MOMENT OF INERTIA (TOP COMPRESSION), Ixt = $23.7x10^3$ mm^4
MOMENT OF INERTIA (BOTT COMPRESSION), Ixb = $22.7x10^3$ mm^4
SECTION MODULUS (TOP COMPRESSION), Sxt = $1.8x10^3$ mm^3
SECTION MODULUS (BOTT COMPRESSION), Sxb = $1.7x10^3$ mm^3

STRUCTURAL DESIGN CRITERIA

ALL DESIGNS SHALL CONFORM TO THE PROVISIONS OF THE IBC 2006 AS APPLICABLE

1.0 DESIGN LOADS

1.1 DEAD LOADS

1.1.1 ROOF DEAD LOADS - CONCRETE FRAMING

	MAXIMUM GRAVITY LOAD
CONC FLAT SLAB	4.80 KPa
MECH/ELEC/PLUMBING	0.15 KPa
MISC	0.05 KPa
	5.00 KPa

1.1.2 ROOF DEAD LOADS - CONVENTIONAL LIGHT FRAMING

	MAXIMUM GRAVITY LOAD	MINIMUM GRAVITY LOAD
LIGHT GAUGE FRAMING	0.20 KPa	0.15 KPa
INSULATION	0.10 KPa	0.05 KPa
METAL ROOFING	0.14 KPa	0.05 KPa
	0.44 KPa	0.25 KPa

1.1.3 FLOOR PARTITION ALLOWANCE

0.96 KPa

1.2 LIVE LOADS (PER IBC 2006)

1.2.1 ROOF LIVE LOADS: ALL BUILDINGS

GREATER OF 1.0 KPa MINIMUM OR SNOW LOAD

1.2.2 ELEVATED FLOOR UNIFORM LIVE LOADS

CORRIDOR	4.80 KPa
ALL OTHER	2.40 KPa

1.2.3 SLAB-ON-GRADE LIVE LOADS

ALL BUILDINGS	4.80 KPa

1.3 SNOW LOADS (PER IBC 2006)

1.3.1 DESIGN PARAMETERS

GROUND SNOW LOAD (per UFC 3-310-01)	1.0 KPa
SNOW IMPORTANCE FACTOR	1.0
SNOW EXPOSURE FACTOR	1.0

1.4 SEISMIC LOADS (PER IBC 2006 & UFC 3-310-04)

1.4.1 SEISMIC PARAMETERS - CAST-IN-PLACE CONCRETE STRUCTURES

SEISMIC OCCUPANCY CATEGORY	II
SEISMIC IMPORTANCE FACTOR (I)	1.0
SEISMIC SITE CLASS	D
Ss	1.28
S1	0.51
Sds	0.853
Sd1	0.51
SEISMIC DESIGN CATEGORY	D
SEISMIC RESISTING SYSTEM	SPECIAL REINFORCED MASONRY SHEAR WALLS
RESPONSE MODIFICATION FACTOR (R)	5.0
RESPONSE COEFFICIENT (Cs)	0.17
SEISMIC ANALYTICAL PROCEDURE	EQUIV LATERAL FORCE
SEISMIC BASE SHEAR	1000 kN

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP

DESIGNED BY: MMY | DATE: 09-30-09
DWN BY: RCG | SUBMITTED BY: BAKER
CHK BY: CWW | FILE NO.: ANPSDS-001XXX

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STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

GENERAL NOTES & DESIGN CRITERIA

SHEET REFERENCE NUMBER:
S1

100% SUBMISSION

STRUCTURAL DESIGN CRITERIA (CONT)

ALL DESIGNS SHALL CONFORM TO THE PROVISIONS OF THE IBC 2006 AS APPLICABLE

1.5 WIND LOADS (PER IBC 2006)

1.5.1 DESIGN PARAMETERS

BASIC WIND SPEED	137 Km/h
WIND IMPORTANCE FACTOR	1.0
WIND EXPOSURE CATEGORY	D
DIRECTIONALITY COEFFICIENT (Kd)	0.85
TOPOGRAPHIC FACTOR (Kzt)	1.0

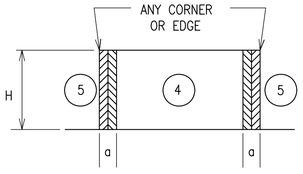
1.5.2 DESIGN WIND PRESSURE – MAIN WINDFORCE RESISTING SYSTEM

LOCATION	CORNER ZONE WIDTH "a"	MEAN ROOF HEIGHT (H)	WINDWARD WALL (@ MEAN ROOF HEIGHT)	LEEWARD WALL (@ MEAN ROOF HEIGHT)	ROOF
FIELD ZONE	N/A	5115 mm	680 N/m	^{2} −480 N/m ^{2}	−470 N/m ^{2}
CORNER ZONE	1440mm	5115 mm	800 N/m	^{2}−418 N/m ^{2}	−750 N/m ^{2}

a = 10% OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4% OF LEAST HORIZONTAL DIMENSION OR 0.9M.
h = MEAN ROOF HEIGHT, IN METERS, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ANGLE GREATER THAN 10°.

1.5.3 DESIGN WIND PRESSURE – WALL COMPONENTS AND CLADDING

EXTERIOR WALL SYSTEMS & THEIR ATTACHMENTS TO THE PRIMARY STRUCTURE SHALL BE DESIGNED FOR THE PRESSURES SHOWN IN THE DIAGRAM BELOW:



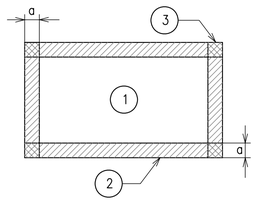
LOCATION	WINDWARD PRESSURE N/m^2 (inward)		LEEWARD PRESSURE N/m^2 (outward)		a
	④	⑤	④	⑤	
MAIN BUILDING					(mm)
AREA = 1 m ^{2}	788	788	−850	−1050	1440
AREA = 2 m ^{2}	748	748	−815	−967	1440
AREA = 5 m ^{2}	700	700	−765	−880	1440
AREA = 10 m ^{2}	648	648	−715	−750	1440

NOTES:
1. DESIGN WIND PRESSURES ABOVE REPRESENT THE NET PRESSURE (SUM OF INTERNAL AND EXTERNAL PRESSURE) APPLIED NORMAL TO ALL SURFACES.
2. LINEAR INTERPOLATION BETWEEN VALUES OF TRIBUTARY AREA IS PERMISSIBLE.
3. PLUS AND MINUS SIGNS SIGNIFY PRESSURE TOWARD AND AWAY FROM THE EXTERIOR SURFACE, RESPECTIVELY.

1.5 WIND LOADS (CONT)

1.5.4 DESIGN WIND PRESSURE – ROOF COMPONENTS AND CLADDING

ROOF COMPONENTS & THEIR ATTACHMENTS SHALL BE DESIGNED FOR THE PRESSURES SHOWN IN THE ADJACENT DIAGRAM & TABLE BELOW:



ROOF MEAN HEIGHT

LOCATION	GROSS UPLIFT PRESSURE N/m ^{2} (upward)			a
	①	②	③	
MAIN BUILDING				(mm)
AREA = 1 m ^{2}	−787	−931	−1738	1440
AREA = 2 m ^{2}	−787	−931	−1738	1440
AREA = 5 m ^{2}	−787	−931	−1738	1440
AREA = 10 m ^{2}	−787	−931	−1738	1440

NOTES:
1. DESIGN WIND PRESSURES ABOVE REPRESENT THE NET PRESSURE (SUM OF INTERNAL AND EXTERNAL PRESSURE) APPLIED NORMAL TO ALL SURFACES.
2. LINEAR INTERPOLATION BETWEEN VALUES OF TRIBUTARY AREA IS PERMISSIBLE.
3. PLUS AND MINUS SIGNS SIGNIFY PRESSURE TOWARD AND AWAY FROM THE EXTERIOR SURFACE, RESPECTIVELY.

2.0 FOUNDATION DESIGN CRITERIA (TO BE CONFIRMED BY THE CONTRACTOR)

THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. DESIGN VALUES USED IN THE STRUCTURAL ANALYSIS OF THE BUILDINGS HEREIN INDICATED HAVE BEEN ASSUMED AND SHALL BE CONFIRMED AND VERIFIED AS PART OF THE GEOTECHNICAL INVESTIGATION. VALUES WHICH DO NOT MEET THE REQUIREMENTS INDICATED BELOW SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CONSIDERATION AND DETERMINATION ON THE NEXT APPROPRIATE COURSE OF ACTION.

2.1.1 SOIL DESIGN PARAMETERS

NET ALLOWABLE SOIL BEARING CAPACITY	96.0 KPa
UNIT WEIGHT OF SOIL (moist)	1800 Kg/m ^{3}
COEFF ACTIVE EARTH PRESSURE (Kpa)	0.30
COEFF PASSIVE EARTH PRESSURE (Kpp)	3.33
COEFF AT-REST EARTH PRESSURE (Kpr)	.55
COEFF OF SOIL FRICTION	.35
SUBGRADE MODULUS	4120 g/cm^3
MINIMUM BEARING DEPTH BELOW GRADE	800mm
SEISMIC SITE CLASS (based on in-situ soil)	D

CONCRETE BEAM SCHEDULE

GRADE BEAM						
MARK	SIZE (BxH)	REINFORCING TOP	REINFORCING BOTTOM	STIRRUPS	MIDBAR	REMARKS
GB1	400x750	(3)−#22	(3)−#22	#13 @ 200	(1) #22 EF	TOP BAR LAP AT CENTER BOT BAR LAP PAST COL

ROOF BEAM						
MARK	SIZE (BxH)	REINFORCING TOP	REINFORCING BOTTOM	STIRRUPS	MIDBAR	REMARKS
RB1	400x600	(2)−#19	(2)−#19	#13 @ 250	N/A	TOP BAR LAP AT CENTER BOT BAR LAP PAST COL

NOTE:
1. DIMENSIONS NOTED ARE MILLIMETERS (mm) UON.

SPREAD FOOTING SCHEDULE

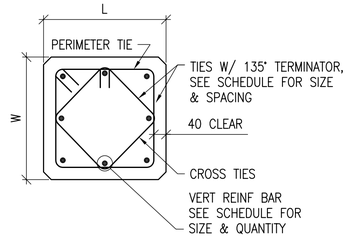
MARK	FOOTING SIZE (mm) LENGTH	WIDTH	THICKNESS	FOOTING REINFORCING	REMARKS
F1	3500	2000	300	(7)−#22 SHORT BOTT (4)−#22 LONG BOTT	-----
F2	3900	1600	300	(10)−#22 SHORT BOTT (4)−#22 LONG BOTT	-----

NOTES:
1. DIMENSIONS NOTED ARE MILLIMETERS (mm) UON.

CONCRETE COLUMN SCHEDULE

MARK	SIZE (LxW)	REINFORCING VERT BARS	REINFORCING TIES
C1	400x400	(8)−#25	#13 @ 100 (CORE OF EXT & CORNER COLUMNS) #13 @ 150 (CORE OF INTERIOR COLUMNS) #13 @ 200 (OTHER)

NOTE:
1. DIMENSIONS NOTED ARE MILLIMETERS (mm) UON.
2. SECOND STORY COLUMNS ARE SAME AS FIRST STORY COLUMNS.
3. CORE INDICATES THE AREA OF COLUMN & BEAM INTERSECTION
4. TIE INDICATES PERIMETER & CROSS TIE COMBINED



1 / S2 S2 COLUMN DETAIL
SCALE: 1:10

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 200 400 800
SCALE: 1: 10

US Army Corps of Engineers
Afghanistan Engineer District

DESIGNED BY: MMY	DWN BY: RCG	CHK BY: CWW
DATE: 09-30-09	SUBMITTED BY: BAKER	FILE NO.: ANPSDS-002XXX

SYMBOL	DESCRIPTION	DATE	APP

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AFGHAN NATIONAL POLICE
STANDARD DESIGN
BARRACK BUILDING; OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

DESIGN CRITERIA & SCHEDULES

SHEET REFERENCE NUMBER:
S2

100% SUBMISSION

MINIMUM LAP SPLICES OF REINFORCING BARS IN TENSION (PER ACI 318M–05)

f'c = 28 MPa CONCRETE

BAR SIZE \ CENTER TO CENTER BAR SPACING	TOP BARS (mm)		OTHER BARS (mm)		
	LESS THAN 4db	4db OR MORE	LESS THAN 4db	4db OR MORE	4db
#10	460	460	410	410	40
#13	660	610	510	480	50
#16	1020	760	790	580	60
#19	1450	910	1120	710	80
#22	1960	1090	1500	840	90
#25	2590	1450	1980	1120	100
#29	3280	1830	2510	1420	110
#32	4140	2340	3200	1780	130
#36	5080	2840	3910	2180	140

NOTES:

1. LAP SPLICES ABOVE ARE IN MILLIMETERS UON.
2. YIELD STRENGTH OF REINFORCEMENT, fy, IS 420MPa (LAP SPLICE LENGTH IS IN MILLIMETERS).
3. CONCRETE IS NORMAL WEIGHT (2400Kg/m^3).
4. TOP BAR INDICATES HORIZONTAL REINFORCEMENT WHICH IS PLACED ABOVE 300mm OR MORE OF FRESH CONCRETE.
5. SEE COLUMN SCHEDULE FOR COLUMN AND SHEAR WALL VERTICAL LAP SPLICE.
6. STRAIGHT DEVELOPMENT LENGTH OF AN UNLAPPED BAR IS EQUAL TO VALUE FROM TABLE DIVIDED BY 1.3.
7. CATEGORY FOR BARS SPACED LESS THAN 4d, OR ON CENTER CORRESPONDS TO CATEGORY 1 IN THE CRSI HANDBOOK WHEREAS FOR BARS SPACED 4d, OR MORE ON CENTER CORRESPOND TO CRSI CATEGORY 5.

CONCRETE COVER SCHEDULE

MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS: (SEE ACI 318M–05, SECTION 7.7 FOR CONDITIONS NOT NOTED). DIMENSIONS FOR BAR PLACEMENT GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE MINIMUM COVER REQUIREMENTS GIVEN HERE. DIMENSIONS ARE IN mm.

FOOTINGS (EARTH FORMED)		70
COLUMNS / PIERS (TO TIES)		40
GRADE BEAMS OR SLAB TURNED DOWN EDGES:		
TOP		40
BOTTOM (EARTH FORMED)		70
SIDES (EARTH FORMED)		70
SIDES (BOARD FORMED)	#16 BAR & SMALLER	40
	#19 THRU #36 BAR	50
ELEVATED BEAMS & SLABS:		
BEAM TIES & STIRRUPS (NOT EXPOSED TO WEATHER)		40
BEAM TIES & STIRRUPS (EXPOSED TO WEATHER)		50
FLOOR SLABS (NOT EXPOSED TO WEATHER)		20
FLOOR SLABS (EXPOSED TO WEATHER)		
#19 & LARGER		50
#13 & SMALLER		40
ROOF SLAB BARS		25
SLABS–ON–GRADE (NO EXPOSURE TO WEATHER) FROM TOP		20
SLABS–ON–GRADE (EXPOSURE TO WEATHER) FROM TOP		40
UTILITY TUNNEL WALLS, RETAINING WALLS AND SHEAR WALLS, (NO SURFACES SHALL BE EARTH FORMED) EARTH SIDE AND FRONT SIDE (EXPOSED TO WEATHER):		
#16 BAR AND SMALLER		40
#19 THRU #36 BAR		50

PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.

MASONRY CONCRETE LINTEL SCHEDULE

OPENING TYPE OR SIZE, BEAM LOCATION OR TYPE	MAX SPAN (mm)	BEAM DEPTH (mm)	MAIN REINFORCING			SHEAR REINF STIRRUPS
			TOP	BOTTOM	OTHER	
EXT WINDOW OR DOOR	900	400	(2)–#13	(2)–#13		----
EXT WALL OPENING, 1–STORY BLDG	1800	400	(2)–#13	(2)–#13		----
EXT WALL OPENING, 1–STORY BLDG	900	200		(2)–#13		----
INT WALL OPENING, NON–BEARING	2400	400		(2)–#13		----
INT WALL OPENING, NON–BEARING	1800	400		(2)–#13		----
INT WALL OPENING, NON–BEARING	900	200		(2)–#13		----

1. STRUCTURAL DRAWINGS DO NOT INDICATE ALL OPENINGS IN MASONRY WALLS. VERIFY NUMBER, SIZE AND LOCATION OF ALL OPENINGS IN MASONRY WALLS FROM ARCHITECTURAL SHEETS AND APPROVED PLUMBING, MECHANICAL, AND ELECTRICAL SHOP DRAWINGS.
2. PROVIDE 200mm BEARING EA END FOR 200mm DEEP MASONRY LINTEL. PROVIDE 400mm BEARING EA END FOR 400mm DEEP MASONRY LINTEL.
3. FOR HEAD DETAILS REFER TO ARCHITECTURAL SHEETS.
4. REINFORCING SHALL BE ASTM A615M, GRADE 420. CONCRETE FOR CAST–IN–PLACE BEAMS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa AT 28 DAYS.
5. CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS AND SCHEDULES SHOWING SIZE, DETAILS, LOCATIONS, ETC FOR ALL CAST–IN–PLACE BEAMS IN CMU WALLS.

TYPICAL CMU WALL REINFORCING SCHEDULE

WALL TYPE OR LOCATION	WALL THICKNESS (mm)	CONT. VERT. REINF. (CENTERED IN CMU, UON)	CONT. CAST IN PLACE LINTEL (CIP BB)			REMARKS
			DEPTH (mm)	REINF (BOTT UON)	MAX CIPL VERT SPACING (mm)	
ALL PERIMETER/EXTERIOR WALLS (UON)	200	1–#16 @ 800	200	2–#16	1200	-----
NON–LOAD BEARING INTERIOR WALLS WITH TOP AND BOTT. SUPPORTS	200	1–#13 @ 1200	200	2–#16	1200	-----

NOTES:
1. REINFORCING SIZES AND SPACING GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE THE ABOVE SCHEDULE REQUIREMENTS.
2. PROVIDE CONTINUOUS CAST IN PLACE CONCRETE BOND BEAM AT ALL WALL LATERAL SUPPORT LOCATIONS.
3. REINFORCING INDICATED SHALL BE CONTINUOUS FOR FULL EXTENT OF SPLICE FOLLOWING THE REQUIREMENTS OF THE LAP SPLICE TABLE SHOWN ON THIS SHEET.
4. WALLS HAVE BEEN DESIGNATED AS VERTICALLY SPANNING UON AND THEREFORE MUST BE TEMPORARILY SUPPORTED DURING CONSTRUCTION UNTIL THE SUPPORTING DIAPHRAGMS (FLOOR AND ROOF SYSTEMS) HAVE BEEN COMPLETELY INSTALLED. SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL CMU WALLS SHALL BE FULLY GROUTED IN LIFTS NOT EXCEEDING THOSE BY CODE (UON)
6. SEE TYPICAL CMU WALL DETAILS ON SHEET S8.

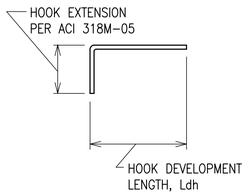
CONCRETE MATERIALS SCHEDULE

STRUCTURAL ELEMENT	f'c CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS (MPa)
SLAB–ON–GRADE/TURN–DOWN SLABS	28
ROOF AND FLOOR SLABS	28
ALL FOOTINGS (UON)	28
MISC. CURBS, WALLS AND PADS UON	28
CAST–IN–PLACE LINTEL	28
CONCRETE FRAMING – BEAMS AND COLUMNS	28

NOTES:
1. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE. (2400 Kg/m^3 UON)
2. ALL CONCRETE SHALL HAVE A MAX WATER–CEMENT RATIO OF 0.45.

STANDARD HOOKS IN TENSION PER (ACI 318M–05)

HOOK DEVELOPMENT LENGTH Ldh (mm)	
BAR SIZE	f'c 28 MPa
#10	180
#13	250
#16	300
#19	380
#22	430
#25	480
#29	560
#32	610
#36	690



NOTES:
1. CONCRETE IS NORMAL WEIGHT CONCRETE.
2. BAR YIELD STRENGTH, fy = 420 MPa
3. SIDE COVER REQUIREMENTS OF ACI SECT. 12.5.3 ARE ASSUMED TO NOT BE MET.
4. TIE OR STIRRUP REQUIREMENTS OF ACI SECT. 12.5.3 ARE ASSUMED TO NOT BE MET.
5. REDUCTION FOR EXCESS REINFORCEMENT IS NOT TAKEN.
6. HOOK DEVELOPMENT LENGTH IS VALID FOR 180° HOOKS ALSO.

MASONRY REINFORCING MINIMUM LAP SPLICES

BAR SIZE	BASIC LAP SPLICE Ld FOR CMU REINFORCING (mm)
#10	450
#13	600
#16	750
#19	900
#22	1050
#25	1200

MAXIMUM CMU WALL UNSUPPORTED HEIGHT OR LENGTH

	WALL THICKNESS (mm)	EXTERIOR WALL NON–LOAD BEARING (mm)	INTERIOR NON–LOAD BEARING WALL (mm)
MAX HEIGHT OR LENGTH BETWEEN SUPPORTS	200	4800	7200

NOTE: CMU WALL MAXIMUM LATERAL SUPPORT SPACING GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE THE ABOVE SCHEDULE REQUIREMENTS.

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: MMY | DWN BY: RCG | CHK BY: CWW
DATE: 09–30–09 | SUBMITTED BY: BAKER | FILE NO.: ANPSDS–003XXX

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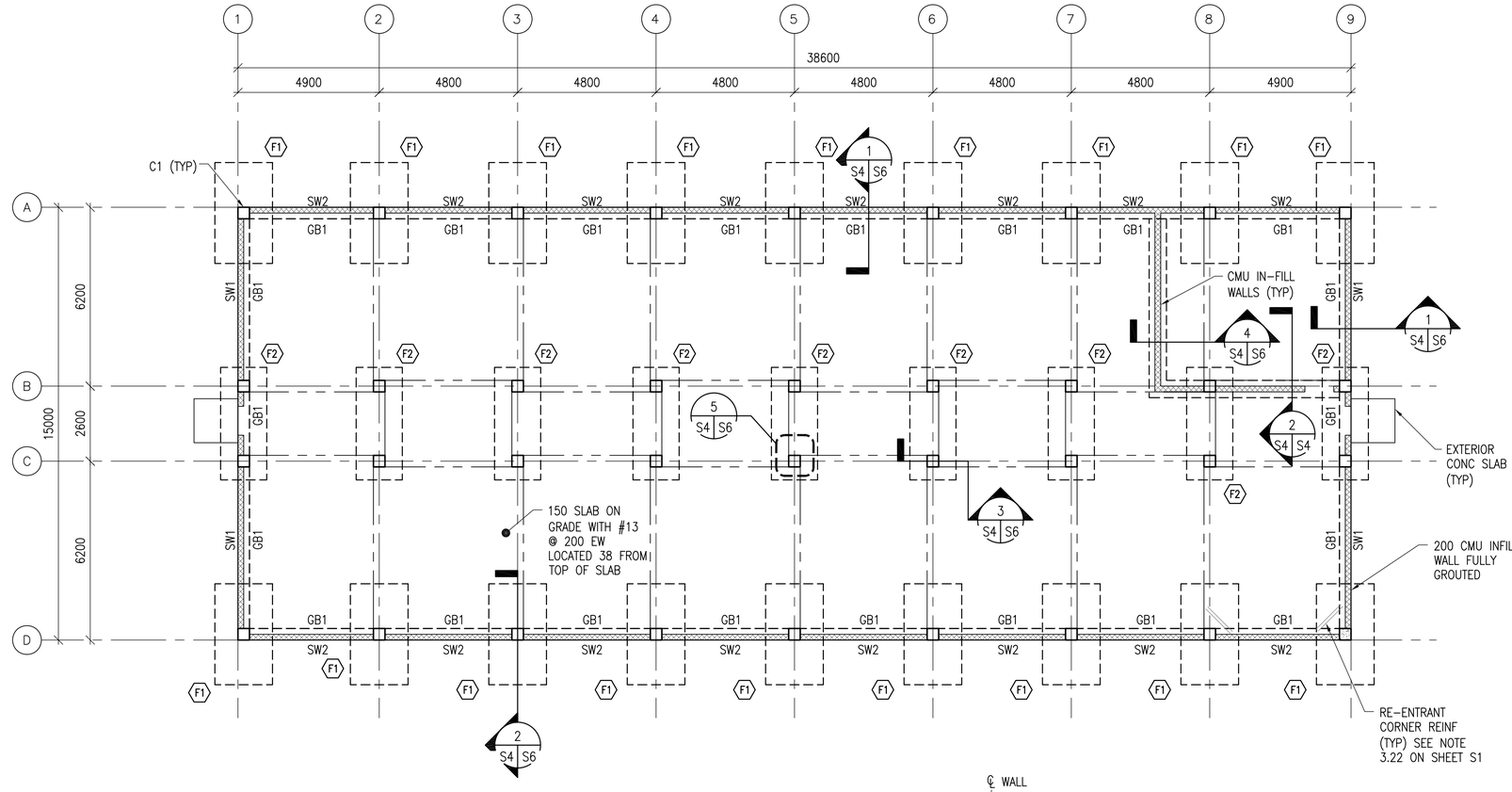
STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

SCHEDULES

SHEET REFERENCE NUMBER:
S3

100% SUBMISSION



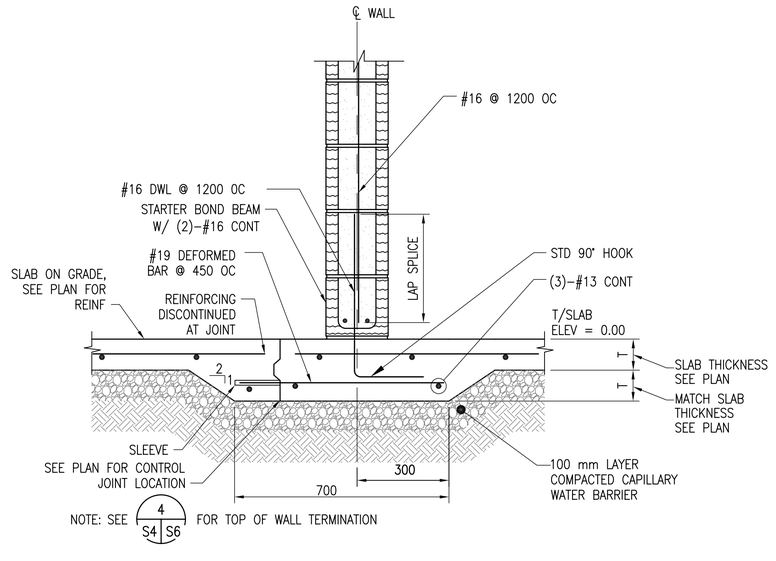
1 S4 S4 **FOUNDATION PLAN**

SCALE: 1:100

N

PLAN NOTES:

1. FINISH FIRST FLOOR ELEVATION SHALL BE (DATUM 0.0). ALL PLUS OR MINUS DIMENSIONS INDICATED ON PLAN OR REFERRED TO IN NOTES RELATE TO FINISH FIRST FLOOR ELEVATION.
2. TOP OF EXTERIOR FOOTINGS SHALL BE –950 UNLESS OTHERWISE INDICATED.
3. TOP OF INTERIOR FOOTING SHALL BE –600 UNLESS OTHERWISE INDICATED.
4. SPREAD FOOTINGS INDICATED BY F# ON PLAN. REFER TO SPREAD FOOTING SCHEDULE ON SHEET S2.
5. COLUMNS INDICATED THUS C# ON PLAN. REFER TO COLUMN SCHEDULE ON SHEET S2.
6. REFER TO SHEETS S1 TO S3 FOR STRUCTURAL NOTES AND BASIS OF DESIGN.
7. CTJ & CSJ INDICATES SLAB CONTROL OR CONSTRUCTION JOINTS. RESPECTIVELY, REFER TO SHEET S8 FOR DETAILS.
8. SEE CMU WALL REINFORCING SCHEDULE ON SHEET S3.
9. REFER TO ARCHITECTURAL SHEETS FOR MASONRY PARTITION TYPES.
10. SEE MECHANICAL AND ELECTRICAL SHEETS FOR CONCRETE PAD LOCATIONS, SIZES, AND THICKNESS NOT SHOWN. SEE SHEET S8 FOR DETAILS.



2 S4 S4 **SECTION**

SCALE: 1:10

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 2000 4000 8000

SCALE: 1: 100

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP

DESIGNED BY: MMY	DATE: 09-30-09
DWN BY: RCG	SUBMITTED BY: BAKER
CHK BY: CWW	FILE NO.: ANPSDS-104XXX

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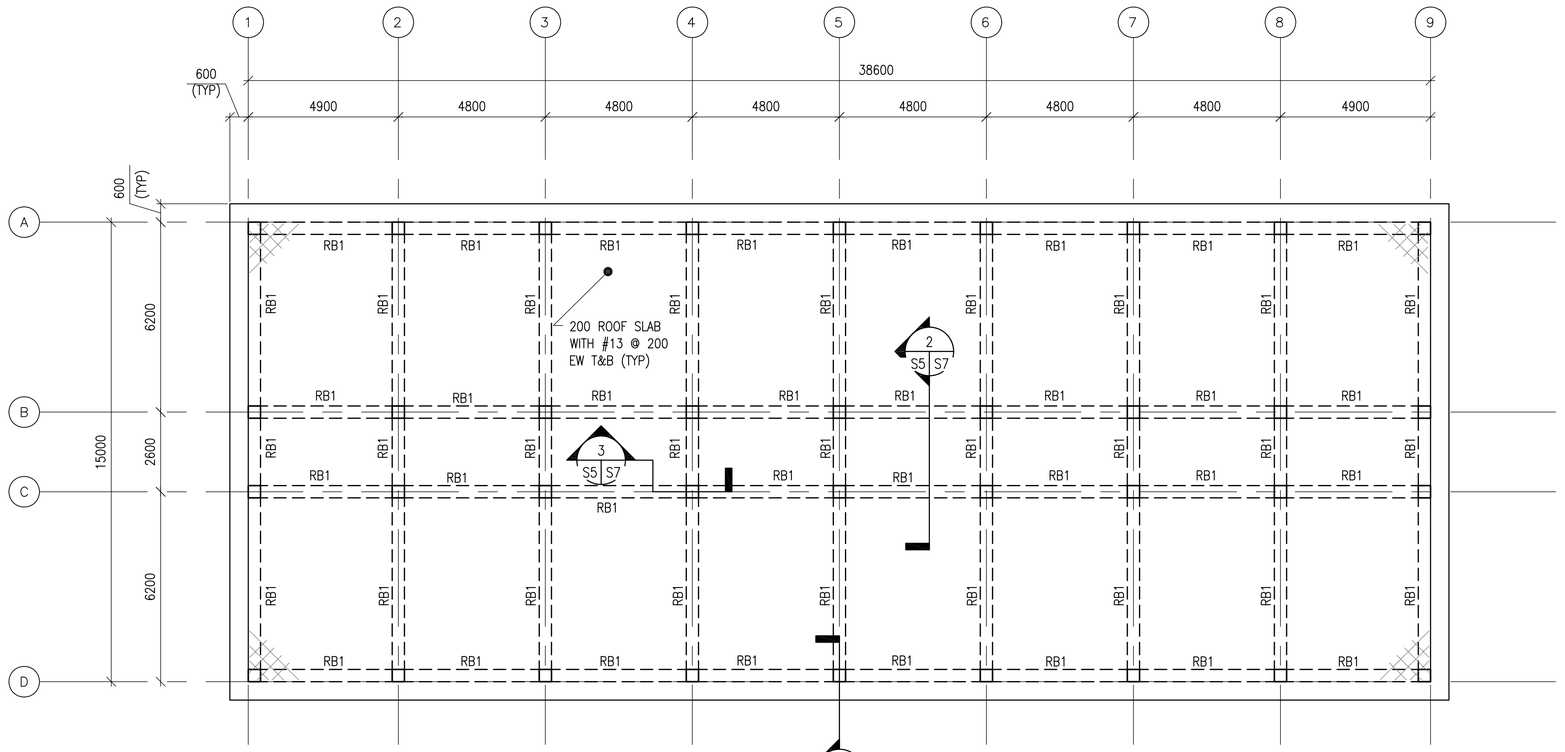
FOUNDATION PLAN

SHEET REFERENCE NUMBER:
S4

100% SUBMISSION



ROOF FRAMING PLAN

1 / S5 | S5

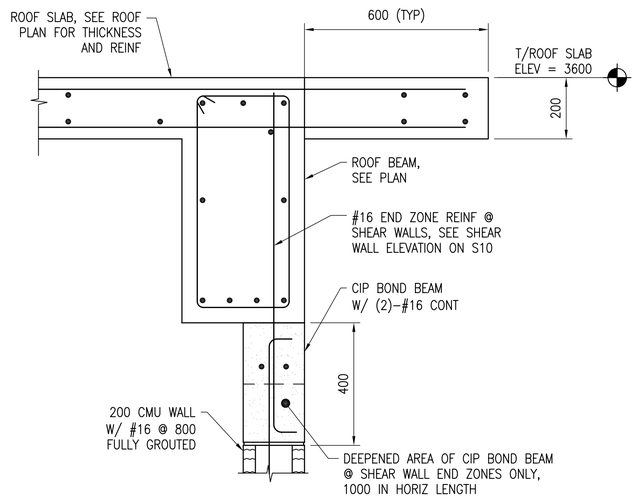
SCALE: 1:100

N

2 / S5 | S5

PLAN NOTES:

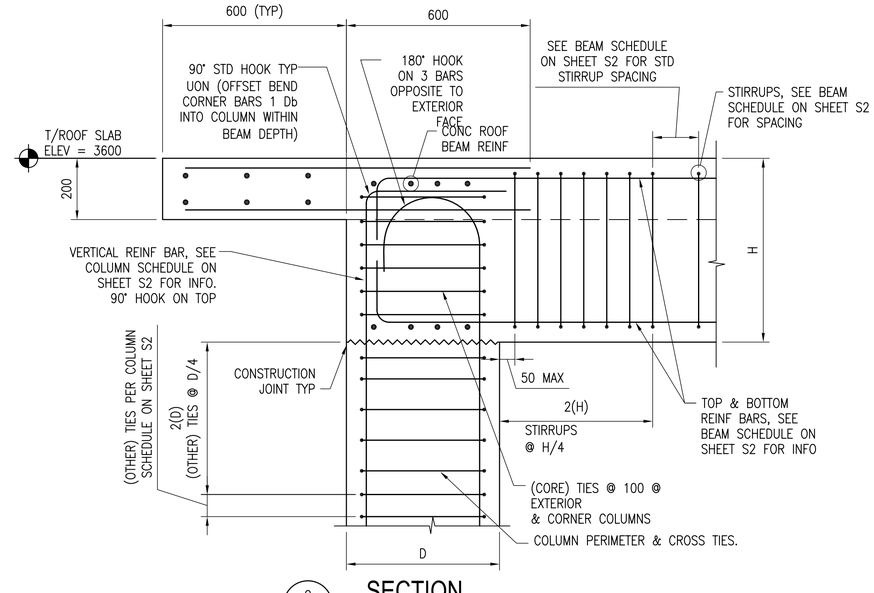
1. TOP OF SLAB ELEVATION = 3600 UNLESS NOTED OTHERWISE
2. RB# DENOTES ROOF BEAM TYPE. SEE BEAM SCHEDULE ON SHEET S2.
3. REFER TO SHEETS S1 AND S2 FOR STRUCTURAL NOTES AND BASIS OF DESIGN.
4. COORDINATE WITH ARCHITECTURAL SHEETS FOR COLD-FORMED STEEL OVERBUILT FRAMING ABOVE ROOF SLAB.
5. COLD-FORMED METAL OVERBUILT ROOF FRAMING NOT SHOWN FOR CLARITY. SEE OVERBUILT ROOF FRAMING DETAILS AND SECTIONS ON SHEET S7.



SECTION

3 / S8 | S5

SCALE: 1:10



SECTION

2 / S5 | S5

SCALE: 1:10

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 200 400 800

SCALE: 1: 10

0 2000 4000 8000

SCALE: 1: 100

US Army Corps of Engineers

Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

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CHK BY: CWW	FILE NO.: ANPSDS-105XXX		

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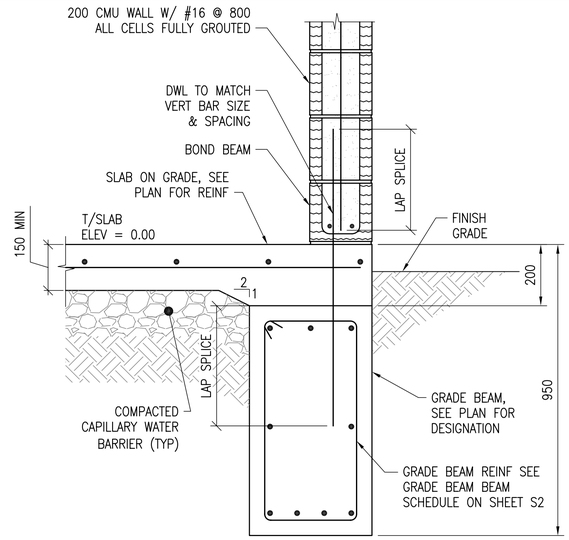
ELECTRIC HEAT OPTION

ROOF FRAMING PLAN

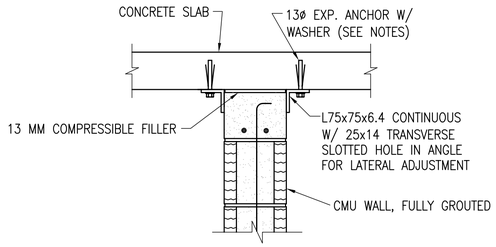
SHEET REFERENCE NUMBER:

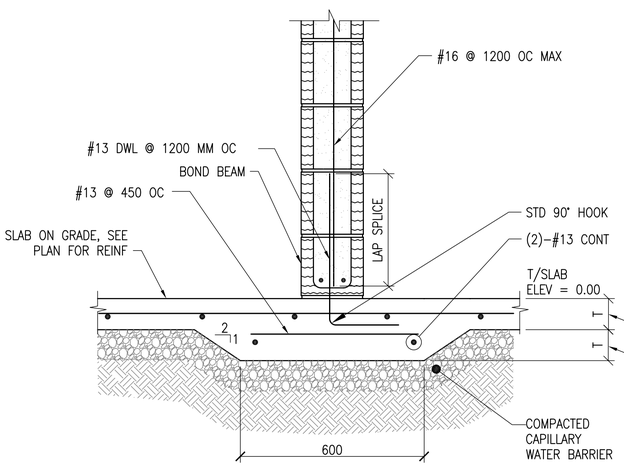
S5

100% SUBMISSION



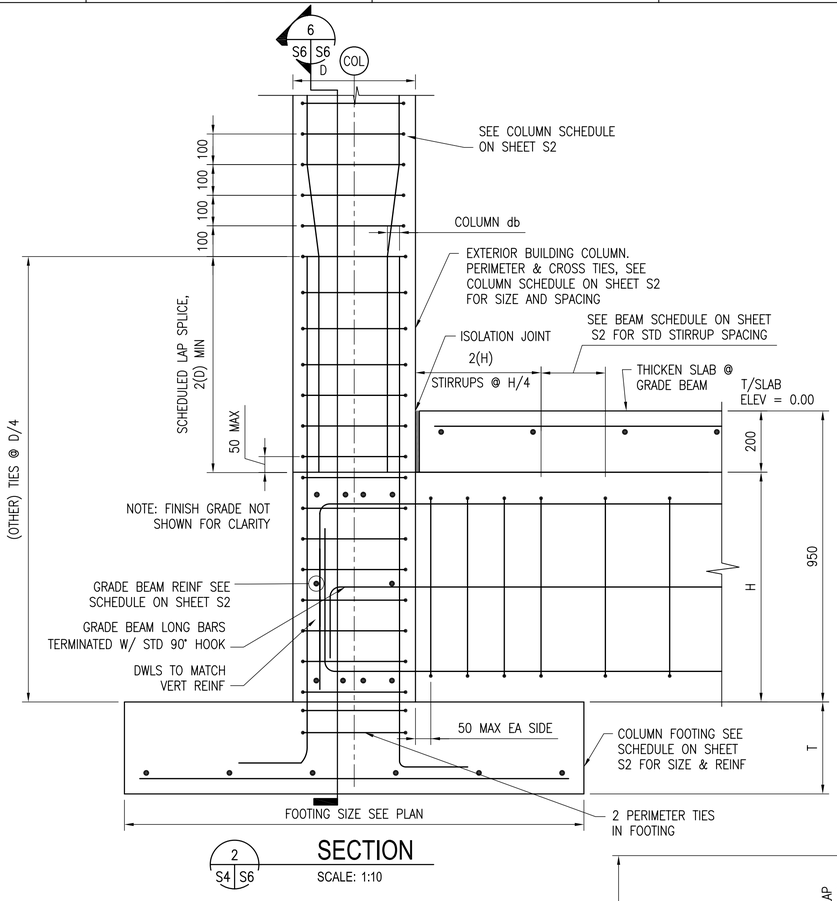
1 S4 S6 **SECTION**
SCALE: 1:10



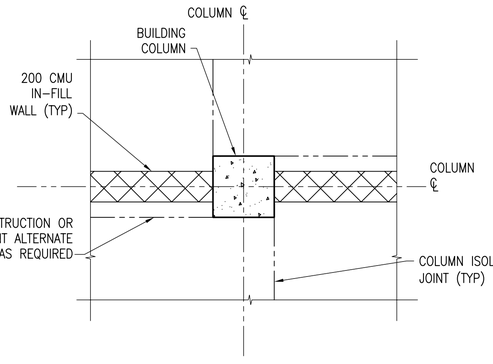


NOTES:
1. SEE SHEETS S3 AND S8 FOR ADDITIONAL CMU WALL REINF. REQUIREMENTS
2. EMBED EXPANSION ANCHOR 82 MINIMUM INTO SOLID CONCRETE.
3. INSTALL 13 MM ISOLATION JOINT VERTICALLY AT WALL ENDS THAT ARE ADJACENT TO CONCRETE COLUMNS.
4. USE STEEL WASHER BETWEEN ANCHOR HEAD AND ANGLE. NOMINAL WASHER INSIDE AND OUTSIDE DIAMETER TO BE 14 & 35 RESPECTIVELY.

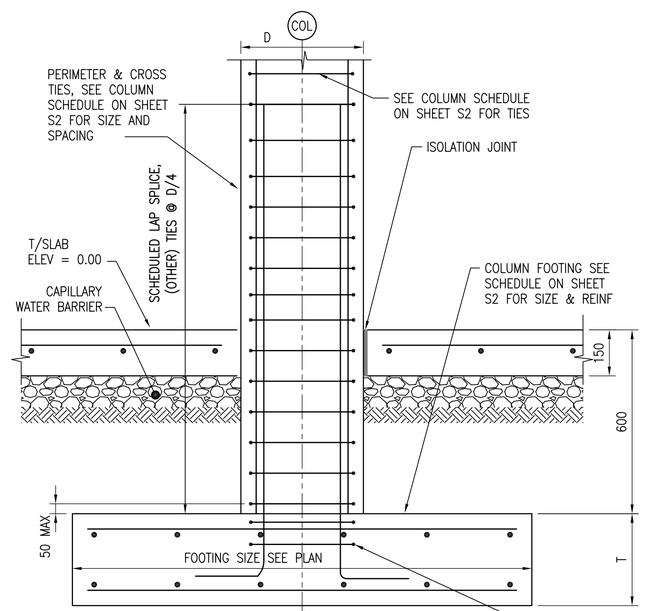
4 S4 S6 **SECTION**
SCALE: 1:10



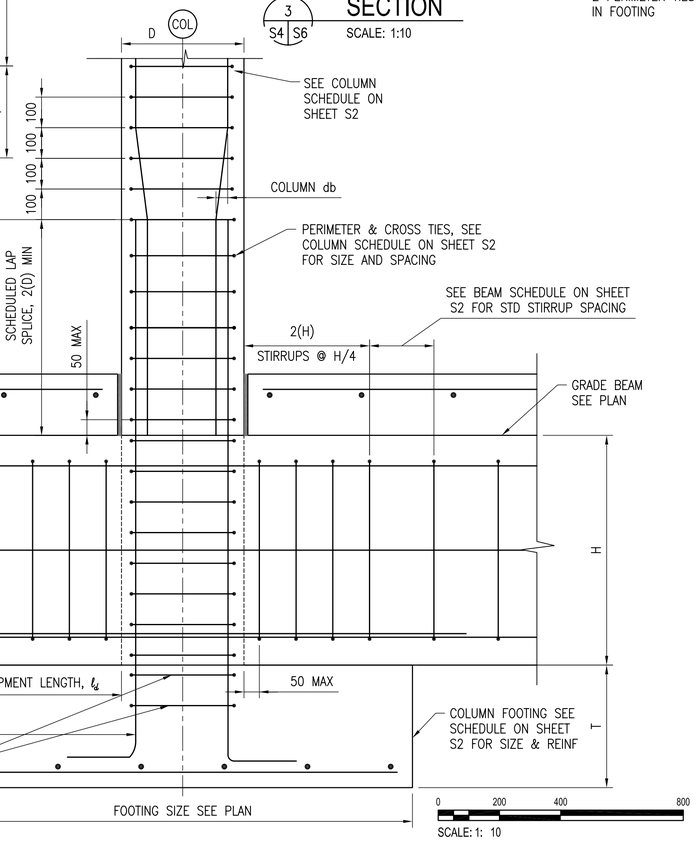
2 S4 S6 **SECTION**
SCALE: 1:10



5 S4 S6 **TYPICAL ISOLATION JOINT DETAIL**
SCALE: 1:20



3 S4 S6 **SECTION**
SCALE: 1:10



6 S6 S6 **SECTION**
SCALE: 1:10

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 200 400 800
SCALE: 1: 10

0 400 800 1600
SCALE: 1: 20

US Army Corps of Engineers
Afghanistan Engineer District

DESIGNED BY: MMY	DWN BY: RCG	CHK BY: CWW
DATE: 09-30-09	SUBMITTED BY: BAKER	FILE NO.: ANPSDS-306XXX

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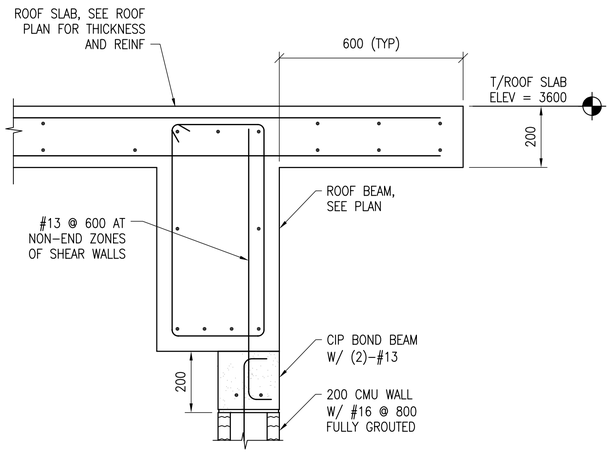
FOUNDATION SECTIONS & DETAILS

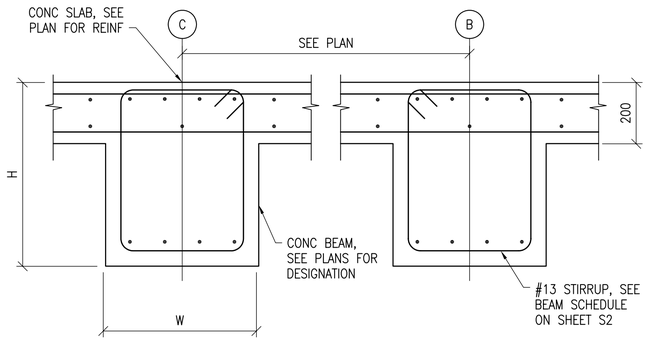
SHEET REFERENCE NUMBER:
S6

100% SUBMISSION

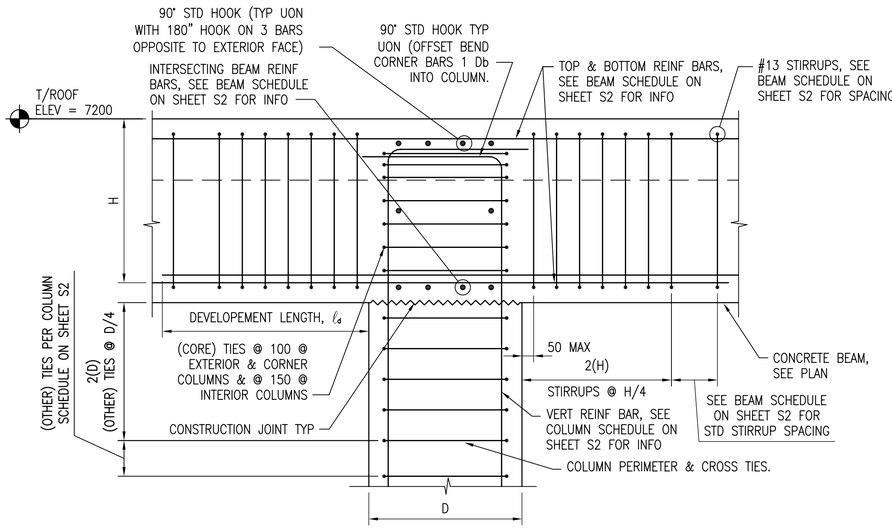


NOTES:
1. REFERENCE THIS SHEET FOR OVERFRAMING ABOVE ROOF SLAB.

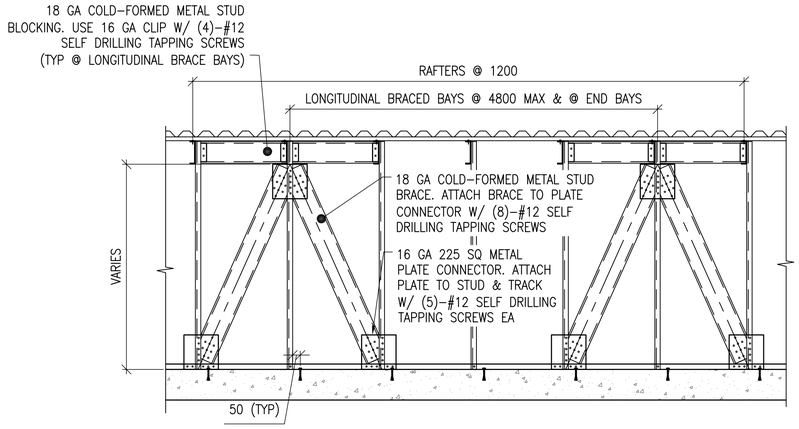
1 S8|S7 SECTION
SCALE: 1:10



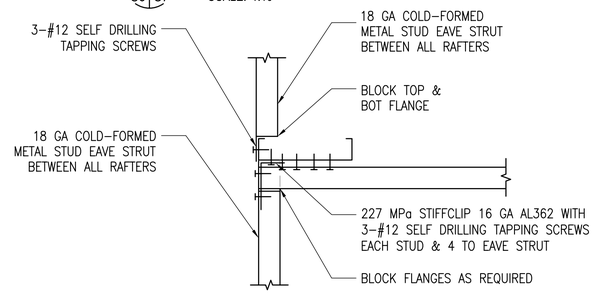
2 S5,S6|S7 SECTION
SCALE: 1:10



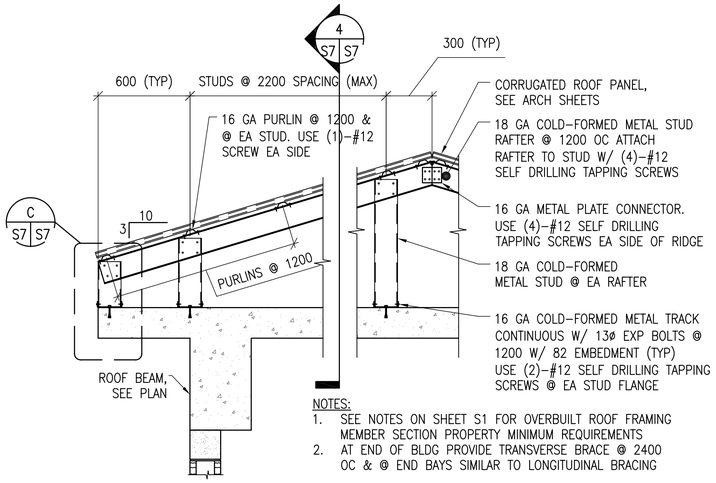
3 S6|S7 SECTION
SCALE: 1:10



4 S7|S7 SECTION
SCALE: NTS

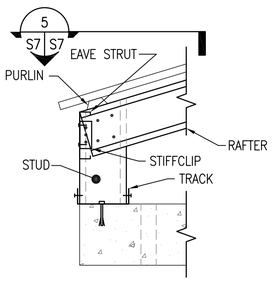


5 S7|S7 SECTION
SCALE: 1:5

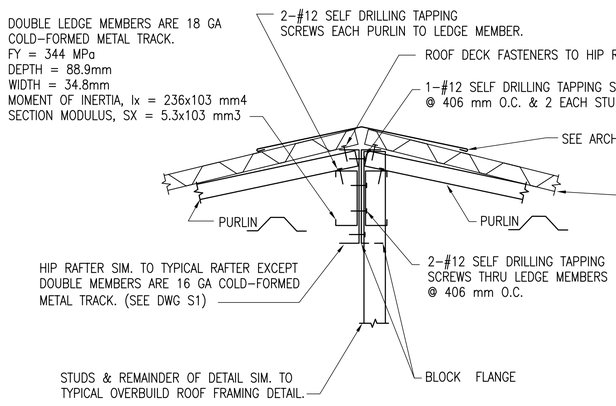


NOTES:
1. SEE NOTES ON SHEET S1 FOR OVERBUILT ROOF FRAMING MEMBER SECTION PROPERTY MINIMUM REQUIREMENTS
2. AT END OF BLDG PROVIDE TRANSVERSE BRACE @ 2400 OC & @ END BAYS SIMILAR TO LONGITUDINAL BRACING

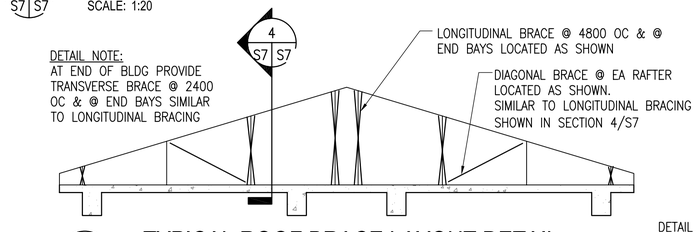
A S7|S7 TYPICAL OVERBUILT ROOF FRAMING DETAIL
SCALE: 1:20



C S7|S7 DETAIL
SCALE: 1:10



TYPICAL HIP FRAMING DETAIL
SCALE: 1:5



B S7|S7 TYPICAL ROOF BRACE LAYOUT DETAIL
SCALE: NTS

DETAIL NOTE:
AT END OF BLDG PROVIDE TRANSVERSE BRACE @ 2400 OC & @ END BAYS SIMILAR TO LONGITUDINAL BRACING

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

SCALE: 1: 5 (0, 100, 200, 400)
SCALE: 1: 10 (0, 200, 400, 800)
SCALE: 1: 20 (0, 400, 800, 1600)

US Army Corps of Engineers
Afghanistan Engineer District

DESIGNED BY: KMP	DWN BY: RCG	CHK BY: CWW
DATE: 09-30-09	SUBMITTED BY: BAKER	FILE NO.: ANPSDS-307XXX

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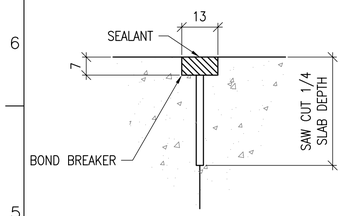
AFGHAN NATIONAL POLICE
STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

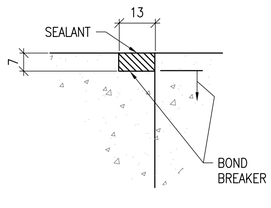
FLOOR & ROOF FRAMING SECTIONS & DETAILS

SHEET REFERENCE NUMBER: S7

100% SUBMISSION



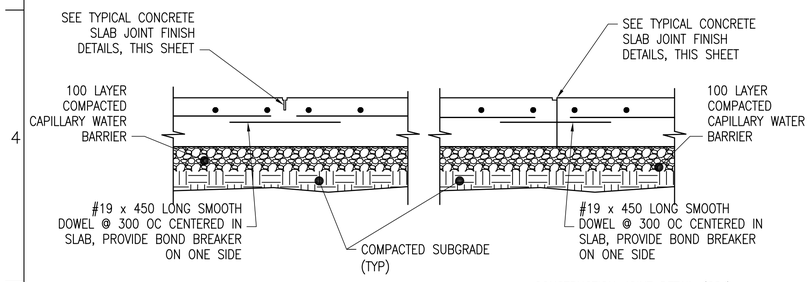
CONTROL JOINT DETAIL



CONSTRUCTION JOINT DETAIL

1 S8 TYPICAL CONCRETE SLAB JOINT FINISH DETAIL

SCALE: NTS

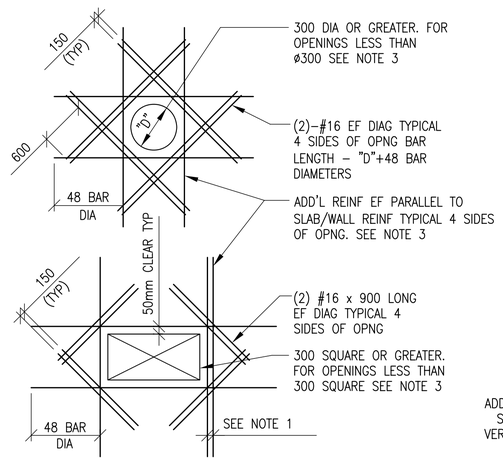


CONTROL JOINT DETAIL (CTJ)

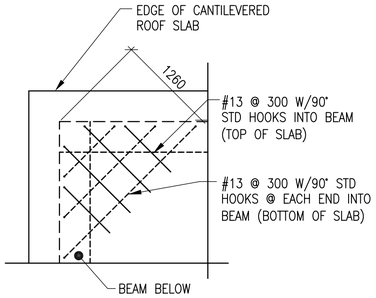
CONSTRUCTION JOINT DETAIL (CSJ)

2 S8 TYPICAL SLAB ON GRADE JOINT DETAILS

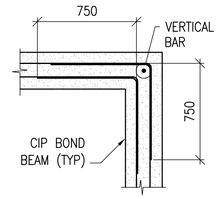
SCALE: NTS



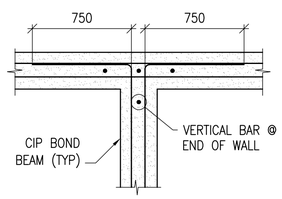
SLAB OPENINGS



ELEVATED SLAB EXTERIOR CORNERS



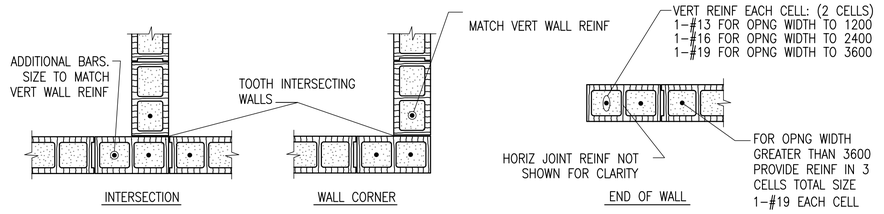
BOND BEAM CORNER

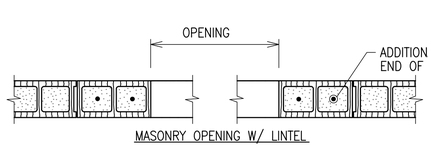


BOND BEAM INTERSECTION

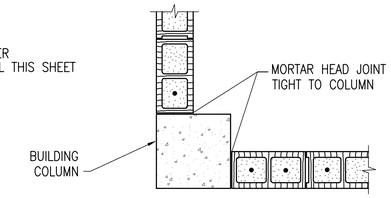
6 S8 CIP BOND BEAM DETAILS

SCALE: NTS





MASONRY OPENING W/ LINTEL

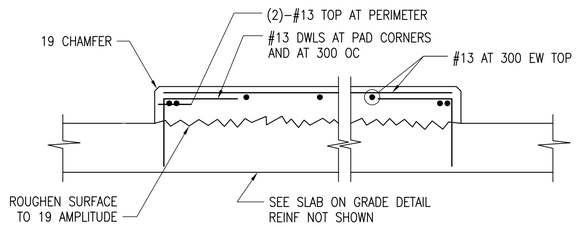


WALL END AT COLUMN

NOTES:
1. OPENING WIDTH SHALL NOT EXCEED 3600 FOR THIS TYPE OF JAMB
2. ALL CELLS FULLY GROUTED

7 S8 TYPICAL CMU DETAILS

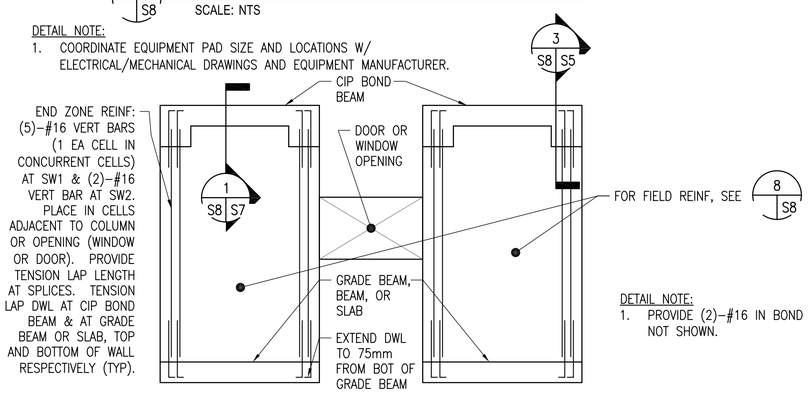
SCALE: NTS



3 S8 INTERIOR EQUIPMENT PAD DETAIL

SCALE: NTS

DETAIL NOTE:
1. COORDINATE EQUIPMENT PAD SIZE AND LOCATIONS W/ ELECTRICAL/MECHANICAL DRAWINGS AND EQUIPMENT MANUFACTURER.



4 S8 SPECIAL REINFORCED MASONRY SHEAR WALL ELEVATION

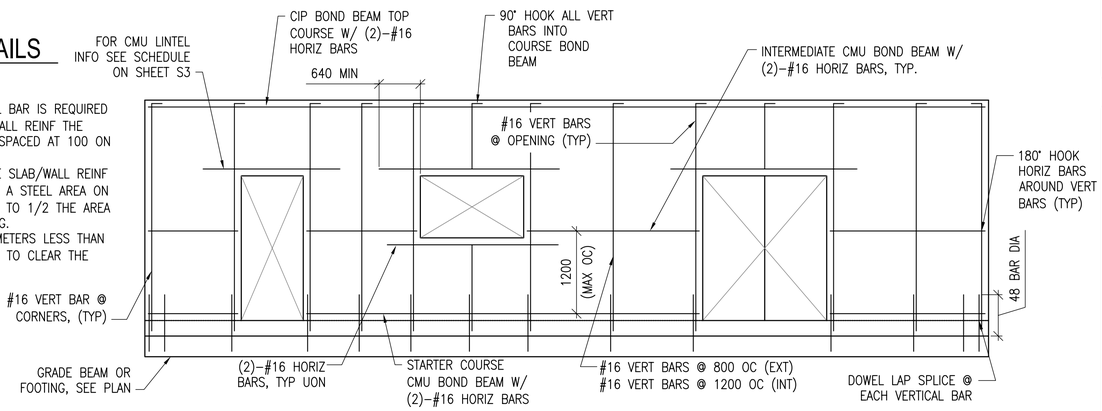
SCALE: NTS

5 S8 ADD'L REINFORCEMENT DETAILS

SCALE: NTS

DETAIL NOTES:
1. WHERE MORE THAN ONE ADDITIONAL BAR IS REQUIRED PARALLEL TO THE EXISTING SLAB/WALL REINF THE ADDITIONAL REINF BARS SHALL BE SPACED AT 100 ON CENTER.
2. ADDITIONAL REINF PARALLEL TO THE SLAB/WALL REINF SHALL BE #16 BARS THAT PROVIDE A STEEL AREA ON EACH SIDE OF THE OPENING EQUAL TO 1/2 THE AREA OF THE REINF CUT BY THE OPENING.
3. FOR OPENINGS WITH SIDES OR DIAMETERS LESS THAN 300 SPREAD THE SLAB/WALL REINF TO CLEAR THE OPENING.

DETAIL NOTE:
1. PROVIDE (2)-#16 IN BOND BEAMS AT 1200 OC, NOT SHOWN.



8 S8 MIN CMU WALL REINFORCING

SCALE: NTS

LINTEL NOTES:
CMU LINTEL REINFORCEMENT AS PER SCHEDULE ON SHEET S3

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP

DESIGNED BY: MMY	DATE: 09-30-09
DWN BY: RCG	SUBMITTED BY: BAKER
CHK BY: CWW	FILE NO.: ANPSDS-508XXX

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ELECTRIC HEAT OPTION

TYPICAL DETAILS

SHEET REFERENCE NUMBER:
S8

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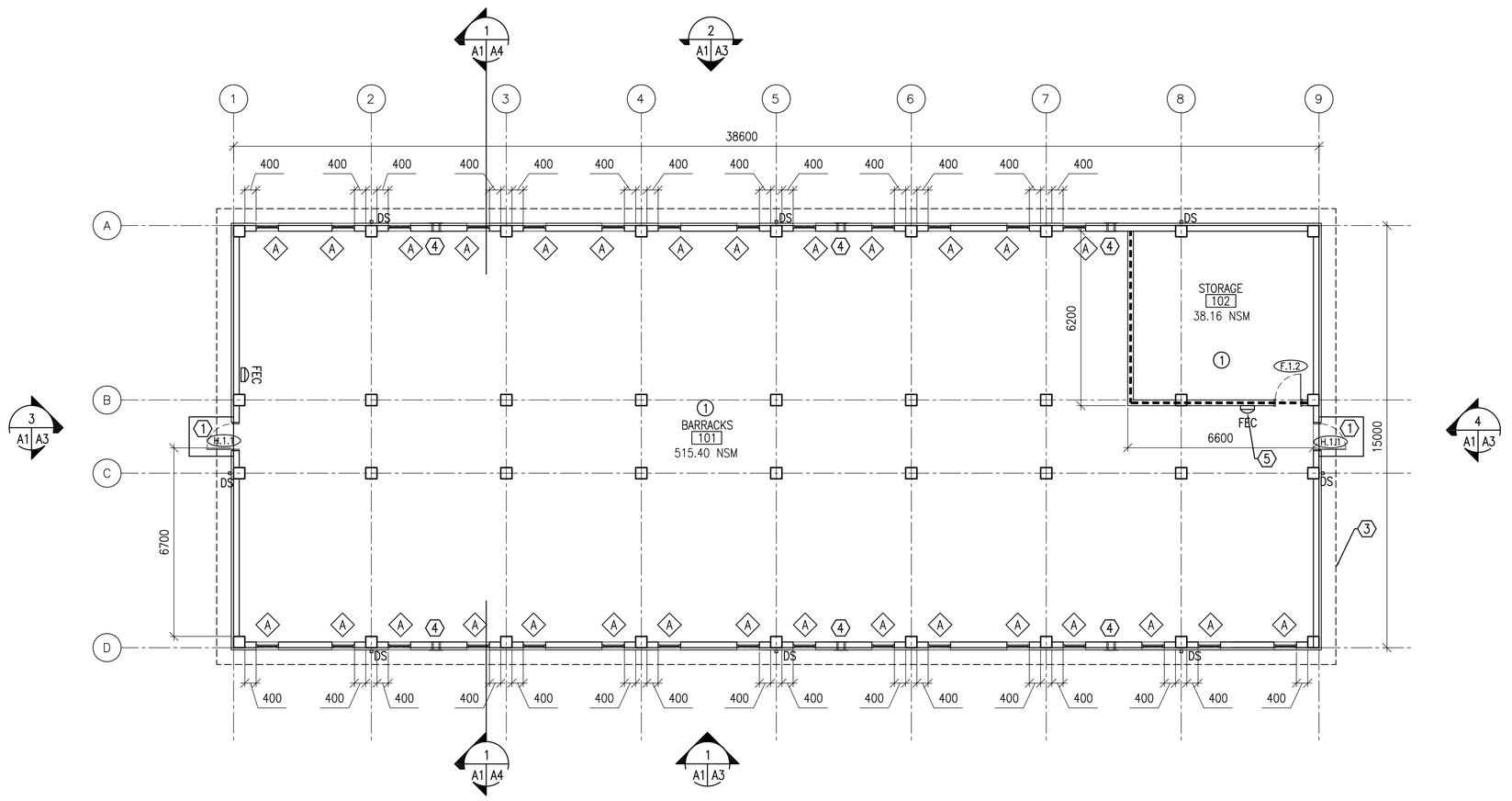

FLOOR PLAN

SCALE: 1:100
579.0 GSM

GENERAL NOTES:

A. INTERIOR PARTITIONS SHALL BE 200 MM CMU UNLESS NOTED OTHERWISE

B. OPENINGS FOR DOORS SHALL BE LOCATED 200 MM FROM THE ADJACENT WALL UNLESS NOTED OTHERWISE

C. SURFACES TO BE PAINTED SHALL BE CLEAN AND FREE OF FOREIGN MATTER BEFORE APPLICATION OF PAINT. CLEANING SHALL BE SCHEDULED SO THAT DUST AND OTHER CONTAMINANTS WILL NOT FALL ON WET, NEWLY PAINTED SURFACES.

D. CONCRETE AND INTERIOR MASONRY SURFACES GROUTED SOLID SHALL BE ALLOWED TO DRY AT LEAST 30 DAYS BEFORE PAINTING EXCEPT CONCRETE SLAB ON GRADE WHICH SHALL BE ALLOWED TO CURE 90 DAYS BEFORE PAINTING.

E. PAINTS CONTAINING LEAD IN EXCESS OF 0.06 PERCENT BY WEIGHT OF THE TOTAL NONVOLATILE CONTENT SHALL NOT BE USED.

F. MERCURIAL FUNGICIDES SHALL NOT BE USED IN OIL–BASE PAINT.

G. REMOVE LOOSE DIRT AND CLEAN SURFACES BEFORE PAINTING. APPLY PAINT TO INTERIOR STRUCTURAL RIGID FRAMINGS AND CEILINGS AND TEST FOR ADHESION. PRIMER COAT FOR MASONRY. INITIAL FIRST COAT WITH AN ACRYLIC LATEX PAINT FOR EXTERIOR SURFACES AND A SECOND COAT WITH A WATER REPELLENT ACRYLIC LATEX PAINT.

H. METAL DOORS AND FRAMES SHALL RECEIVE A PRIMER COAT PLUS TWO COATS OF PAINT.

I. DIMENSIONS ARE TO STRUCTURAL COLUMN GRID, EDGE OF WINDOW OPENINGS, AND TO HINGE SIDE OF DOOR OPENINGS.

J. PROVIDE 1 HOUR RATED PARTITIONS AT STORAGE ROOM IN ACCORDANCE WITH NFPA 101, TABLE 28.3.2.2.2. FILL ANULAR SPACE AT ANY AND ALL PENETRATIONS IN FLOORS, WALLS, OR CEILINGS WITH APPROPRIATE FIRE STORING MATERIALS.

ROOM FINISHES: (X)

1.
WALLS: PAINTED PLASTER,
FLOOR: SEALED CONCRETE
CEILING: PAINTED PLASTER APPLIED TO STRUCTURE

KEY NOTES: (X)

1. CONCRETE STOOP – RE: DETAIL 2/A6.
2. NOT USED
3. LINE OF ROOF OVERHANG ABOVE
4. TWO–PIECE WALL THIMBLE AND TRIM PLATE FOR OPTIONAL WOOD BURNING STOVE CHIMNEY PIPE. STOVE AND PIPE BY OTHERS.
5. PROVIDE FEC AT STORAGE ROOM IN ACCORDANCE WITH NFPA 101, 28.3.5.8.

LEGEND:

- F.1.4 — DOOR TYPE, SEE SHEET A5
- A — WINDOW TYPE, SEE SHEET A5
- X — KEY NOTE
- FEC — FIRE EXTINGUISHER CABINET
- 1–HOUR RATED PARTITION
- 1 — ROOM FINISH TYPE DESIGNATION
- DS — METAL DOWNSPOUT

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 2000 4000 8000

SCALE: 1: 100

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: DLB	DWN BY: AAR	CHK BY: KRC	
DATE: 09–30–09	SUBMITTED BY: BAKER	FILE NO.: ANPSDA–101XXX	

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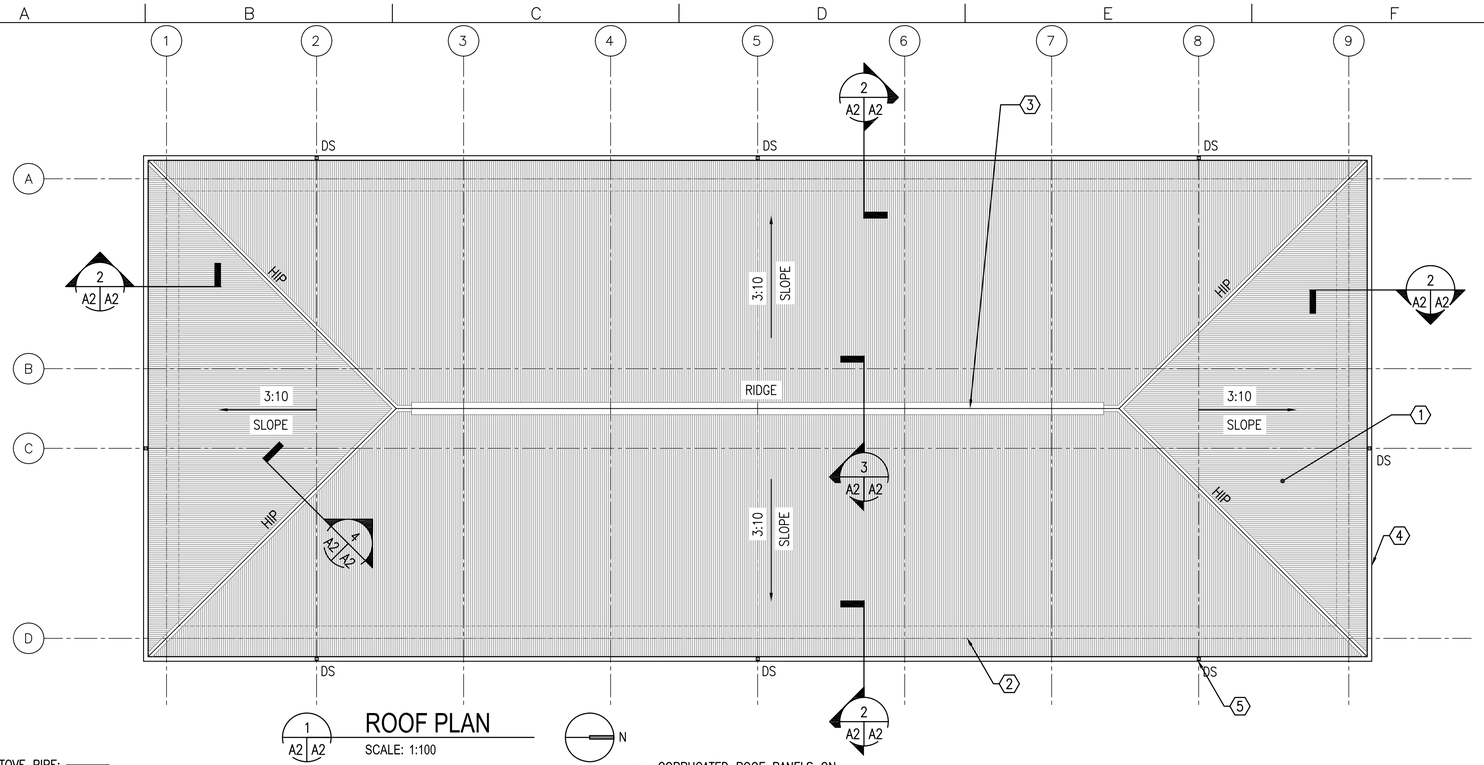
ELECTRIC HEAT OPTION

FLOOR PLAN

SHEET REFERENCE NUMBER:
A1

100% SUBMISSION



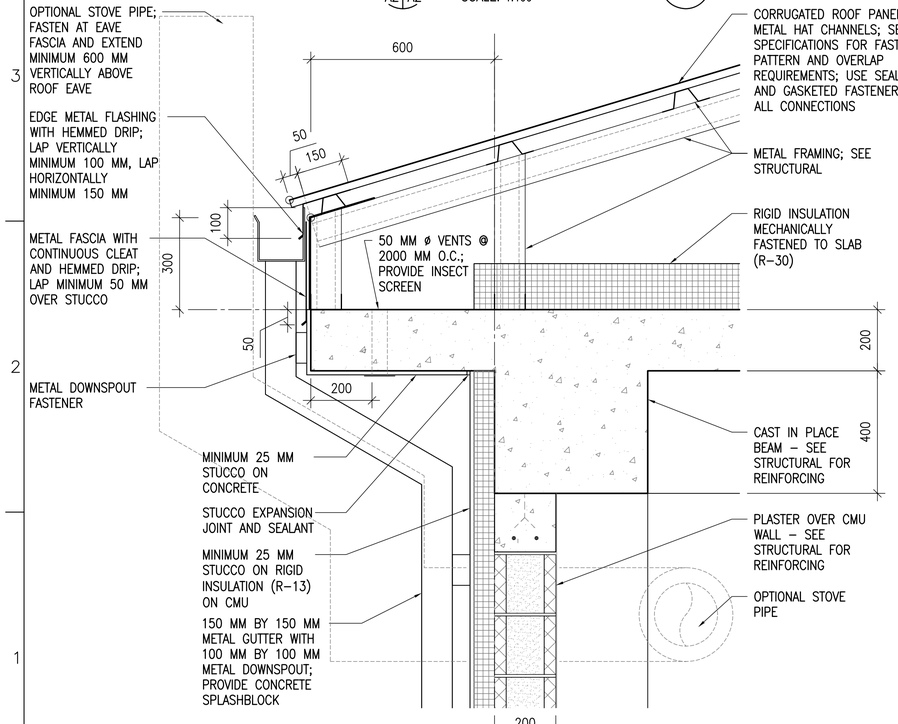
ROOF PLAN

1 A2 A2 — SCALE: 1:100

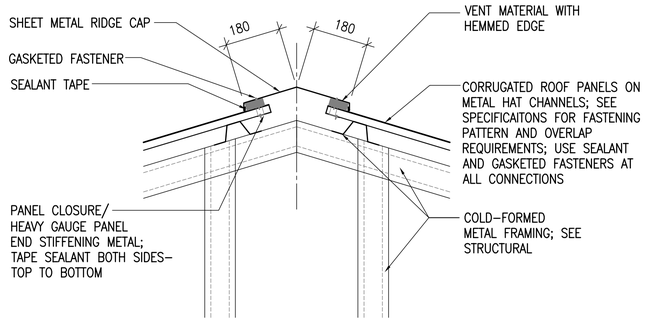
N

KEY NOTES: (X)

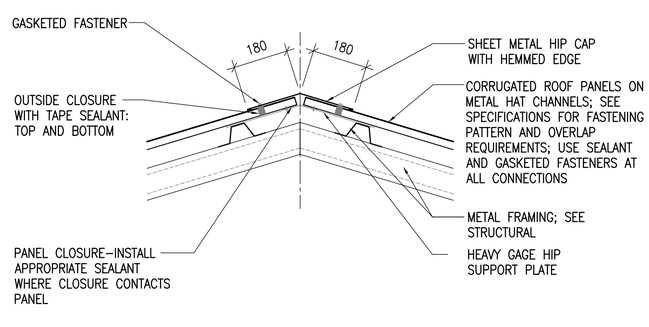
1. CORRUGATED METAL ROOF PANELS ON COLD-FORMED METAL FRAMING
2. LINE OF BUILDING WALL BELOW
3. CONTINUOUS RIDGE VENT
4. METAL GUTTER
5. METAL DOWNSPOUT WITH SPLASHBLOCK



2 A2 A2 — EAVE DETAIL — SCALE: 1:10



3 A2 A2 — RIDGE VENT DETAIL — SCALE: 1:10



4 A2 A2 — HIP DETAIL — SCALE: 1:10

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 200 400 800
SCALE: 1: 10

0 2000 4000 8000
SCALE: 1: 100

US Army Corps of Engineers
Afghanistan Engineer District

	DATE	DESCRIPTION	SYMBOL
			APP'D

DESIGNED BY: DLB	DATE: 09-30-09
DWN BY: AAR	SUBMITTED BY: BAKER
CHK BY: KRC	FILE NO.: ANPSDA-102XXX

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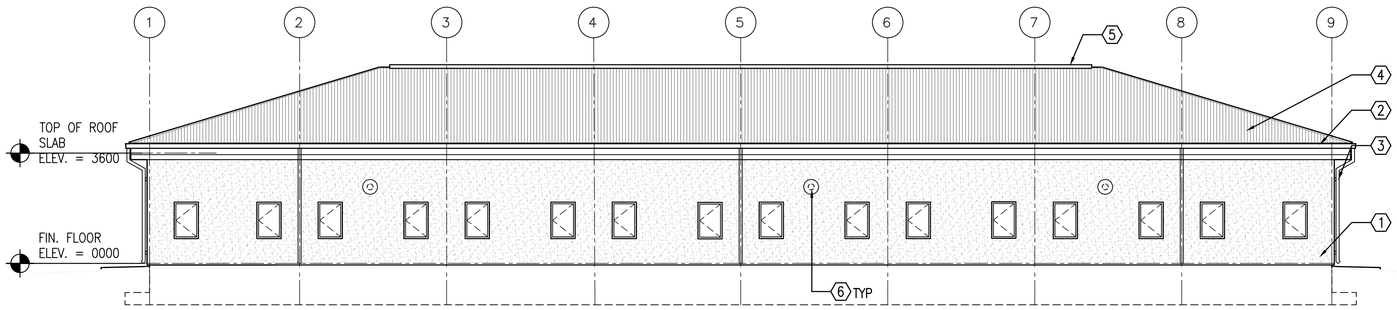
ELECTRIC HEAT OPTION

ROOF PLAN AND DETAILS

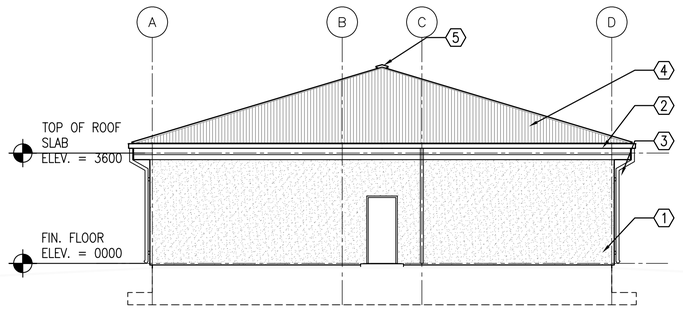
SHEET REFERENCE NUMBER: A2

100% SUBMISSION



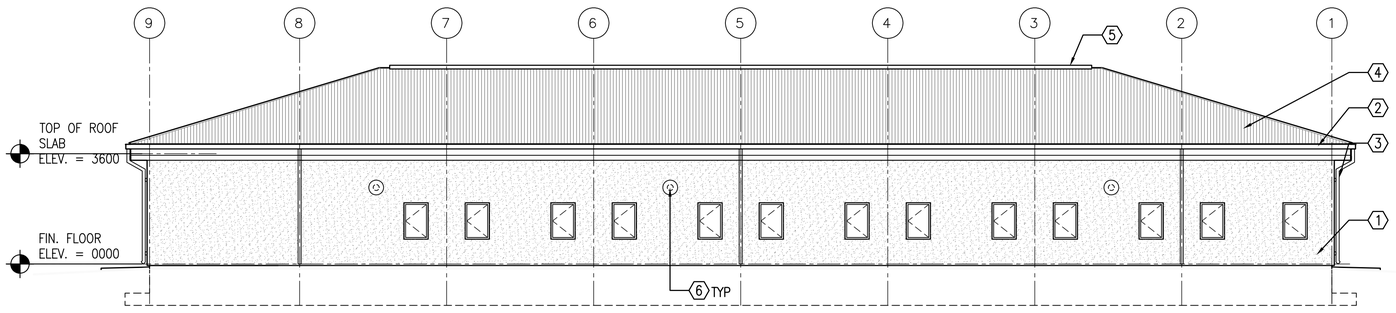
1 / A1 A3 EAST ELEVATION

SCALE: 1:100



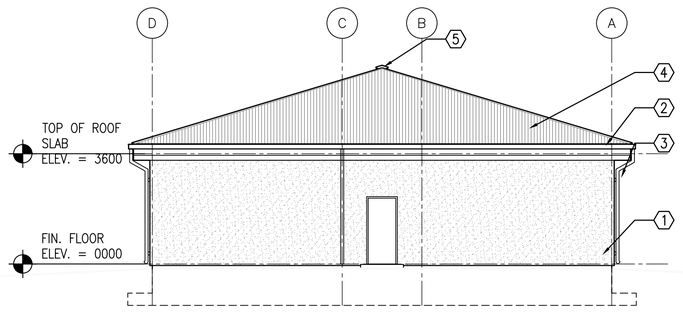
3 / A1 A3 SOUTH ELEVATION

SCALE: 1:100



2 / A1 A3 WEST ELEVATION

SCALE: 1:100



4 / A1 A3 NORTH ELEVATION

SCALE: 1:100

KEY NOTES: (X)

1. STUCCO AND RIGID INSULATION SYSTEM OVER CMU AND CONCRETE.
2. METAL GUTTER
3. METAL DOWNSPOUT WITH SPLASH BLOCK
4. CORRUGATED METAL ROOF PANELS ON COLD-FORMED METAL FRAMING.
5. CONTINUOUS RIDGE VENT
8. TWO-PIECE WALL THIMBLE AND TRIM PLATE FOR OPTIONAL WOOD BURNING STOVE CHIMNEY PIPE. STOVE AND PIPE BY OTHERS.

GENERAL NOTES:

1. COORDINATE SIZE AND LOCATION OF OPENINGS FOR MECHANICAL ITEMS WITH MECHANICAL DRAWINGS.
2. PROVIDE STRUCTURAL LINTELS AS REQUIRED – RE: STRUCT

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 2000 4000 8000

SCALE: 1: 100

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: DLB	DATE: 09-30-09
DWN BY: AAR	SUBMITTED BY: BAKER
CHK BY: KRC	FILE NO.: ANPSDA-203XXX

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ELECTRIC HEAT OPTION

EXTERIOR ELEVATIONS

SHEET REFERENCE NUMBER:
A3

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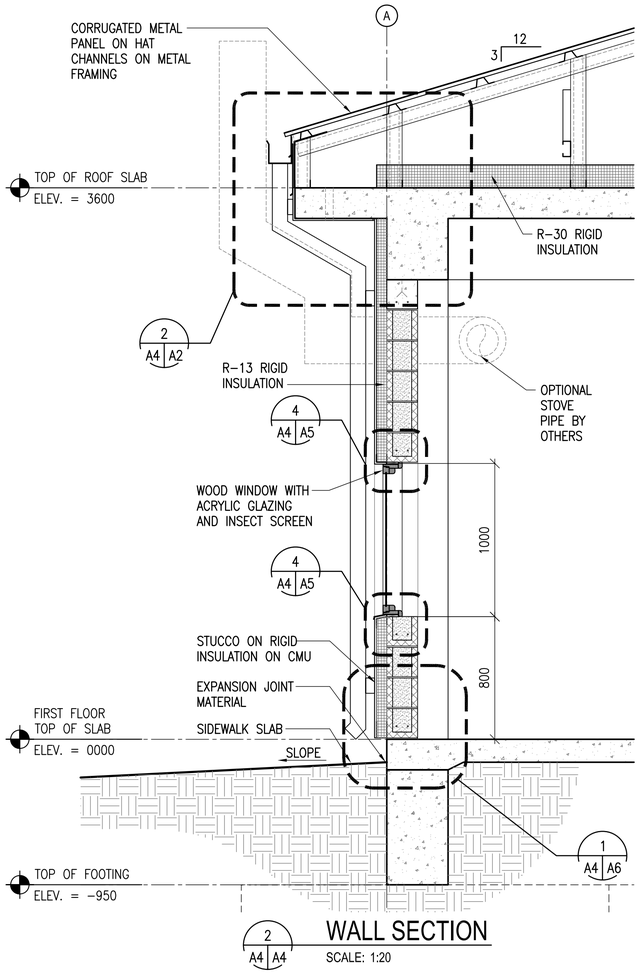
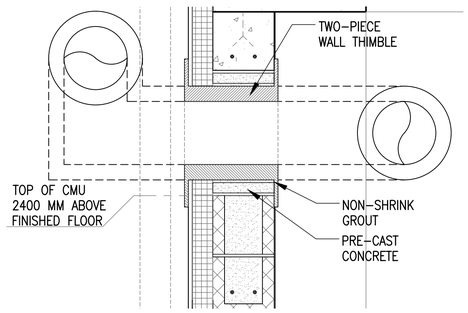
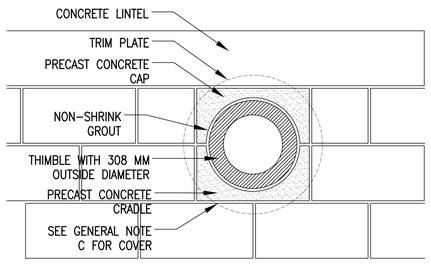


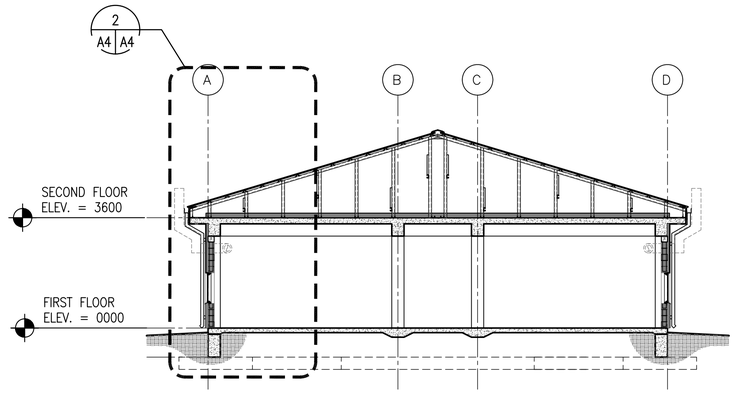
2 A4 A4 WALL SECTION
SCALE: 1:20



3 A4 A4 THIMBLE DETAIL, TYPICAL
SCALE: 1:10



4 A4 A4 THIMBLE DETAIL, TYPICAL
SCALE: 1:10



1 A1 A4 BUILDING SECTION
SCALE: 1:100

GENERAL NOTES:

A. COORDINATE SIZE AND LOCATION OF OPENINGS FOR MECHANICAL ITEMS WITH MECHANICAL DRAWINGS.
B. PROVIDE STRUCTURAL LINTELS AS REQUIRED – RE: STRUCT
C. PROVIDE 480 MM SQUARE, 1.5 MM THICK GALVANIZED SHEET METAL COVER WITH 13 MM HEMMED EDGE FOR WALL THIMBLE UNTIL STOVE PIPE IS PROVIDED. INSTALL COVER ON EXTERIOR FACE OF THIMBLE TRIM PLATE. COVER SHALL BE SET IN SILICONE SEALANT AND FASTENED WITH 4 STAINLESS STEEL SCREWS. ALIGN FASTENER LOCATIONS WITH COVER PLATE FASTENER OPENINGS SO ADDITIONAL FASTENER PENETRATIONS ARE NOT CREATED IN EXTERIOR FINISH.

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 400 800 1600
SCALE: 1: 20

0 2000 4000 8000
SCALE: 1: 100

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: DLB | DATE: 09-30-09
DWN BY: AAR | SUBMITTED BY: BAKER
CHK BY: KRC | FILE NO.: ANPSDA-304XXX

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ELECTRIC HEAT OPTION

BUILDING & WALL SECTIONS

SHEET REFERENCE NUMBER:
A4

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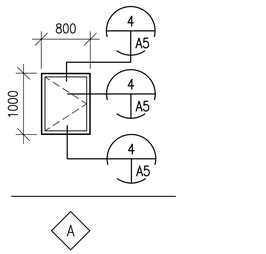
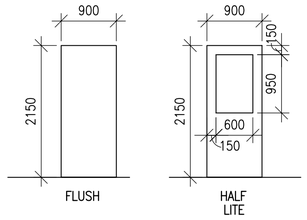


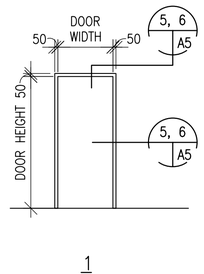
1 A5 A5 WINDOW TYPES

SCALE: 1:50



2 A5 A5 DOOR TYPES

SCALE: 1:50



3 A5 A5 FRAME TYPES

SCALE: 1:50

WINDOW TYPES NOTES:

1. ALL EXTERIOR WINDOWS SHALL BE WOOD WITH INSECT SCREENS. WINDOWS SHALL BE COMMERCIAL GRADE.
2. GLAZING SHALL BE ACRYLIC SHEET.

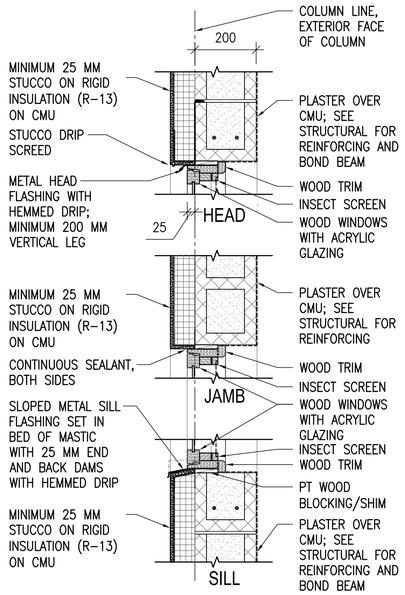
DOOR TYPES NOTES:

1. INTERIOR AND EXTERIOR METAL DOORS AND FRAME COLORS SHALL MATCH ADJACENT WALL COLORS AS SELECTED BY THE CONTRACTING OFFICER.
2. HARDWARE SHALL BE HEAVY DUTY, COMMERCIAL GRADE, STAINLESS STEEL WITH A MATTE FINISH.
3. FRAMES, EXCEPT FIRE-RATED FRAMES, SHALL BE MOUNTED AND ADJUSTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. FRAMES SHALL BE FASTENED WITH MINIMUM OF THREE FASTENING POINTS PER SIDE AT REGULAR INTERVALS.
4. DIMENSIONS SHOWN ON DOOR SCHEDULE ARE BASED UPON MODULAR MASONRY (OR ROUGH OPENING), HEIGHT OF 2200mm FOR STANDARD PERSONNEL DOORS. CONTRACTOR SHALL COORDINATE WITH DOOR SUPPLIER TO ENSURE THAT DIMENSIONS OF DOORS AND FRAMES PROVIDED ARE COMPATIBLE WITH DOOR OPENING DIMENSIONS.
5. DOORS SHALL BE 45 MINUTE DOORS AS REQUIRED IN 1 HOUR RATED WALLS. (NFPA 101, TABLE 8.3.4.2.).

DOOR HARDWARE TYPES:

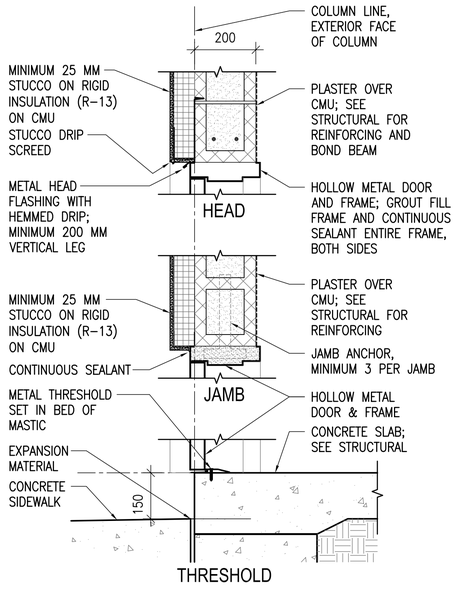
HW-1 1-1/2 PR HINGES
1 EA EXIT DEVICE, SURFACE MOUNTED F08
1 EA CYLINDER. GRADE 1
1 EA DOOR CLOSER, C02061,LOW RESISTANCE
1 EA THRESHOLD J32130

HW-2 1-1/2 PR HINGES
1 EA LOCKSET W/LEVERS. GRADE 1
1 EA DOOR CLOSER, C02061,LOW RESISTANCE



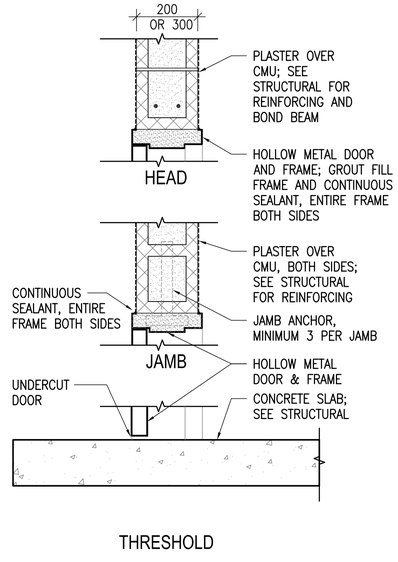
4 A5 A5 WINDOW DETAILS

SCALE: 1:10



5 A5 A5 EXTERIOR DOOR DETAILS

SCALE: 1:10



6 A5 A5 INTERIOR DOOR DETAILS

SCALE: 1:10

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 200 400 800

SCALE: 1: 10

0 1000 2000 4000

SCALE: 1: 50

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY:	DATE:
DLB	09-30-09
DWN BY:	SUBMITTED BY:
AAR	BAKER
CHK BY:	FILE NO.:
KRC	ANPSDA-305XXX

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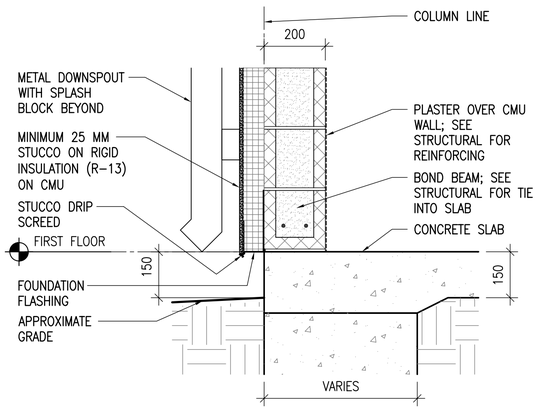
AFGHAN NATIONAL POLICE
STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

DOOR, WINDOW & FINISH TYPES & DETAILS

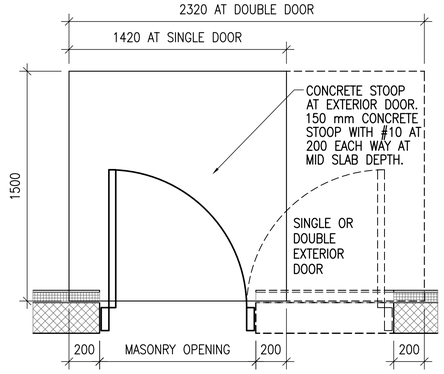
SHEET REFERENCE NUMBER:
A5

100% SUBMISSION



1 A4 A6 **STUCCO BASE DETAIL**

SCALE: 1:10



1 A1 A6 **CONCRETE STOOP PLAN DETAIL**

SCALE: 1:20

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

0 1000 2000 4000

SCALE: 1: 50

US Army Corps of Engineers

Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: DLB	DATE: 09-30-09
DWN BY: AAR	SUBMITTED BY: BAKER
CHK BY: KRC	FILE NO.: ANPSDA-506XXX

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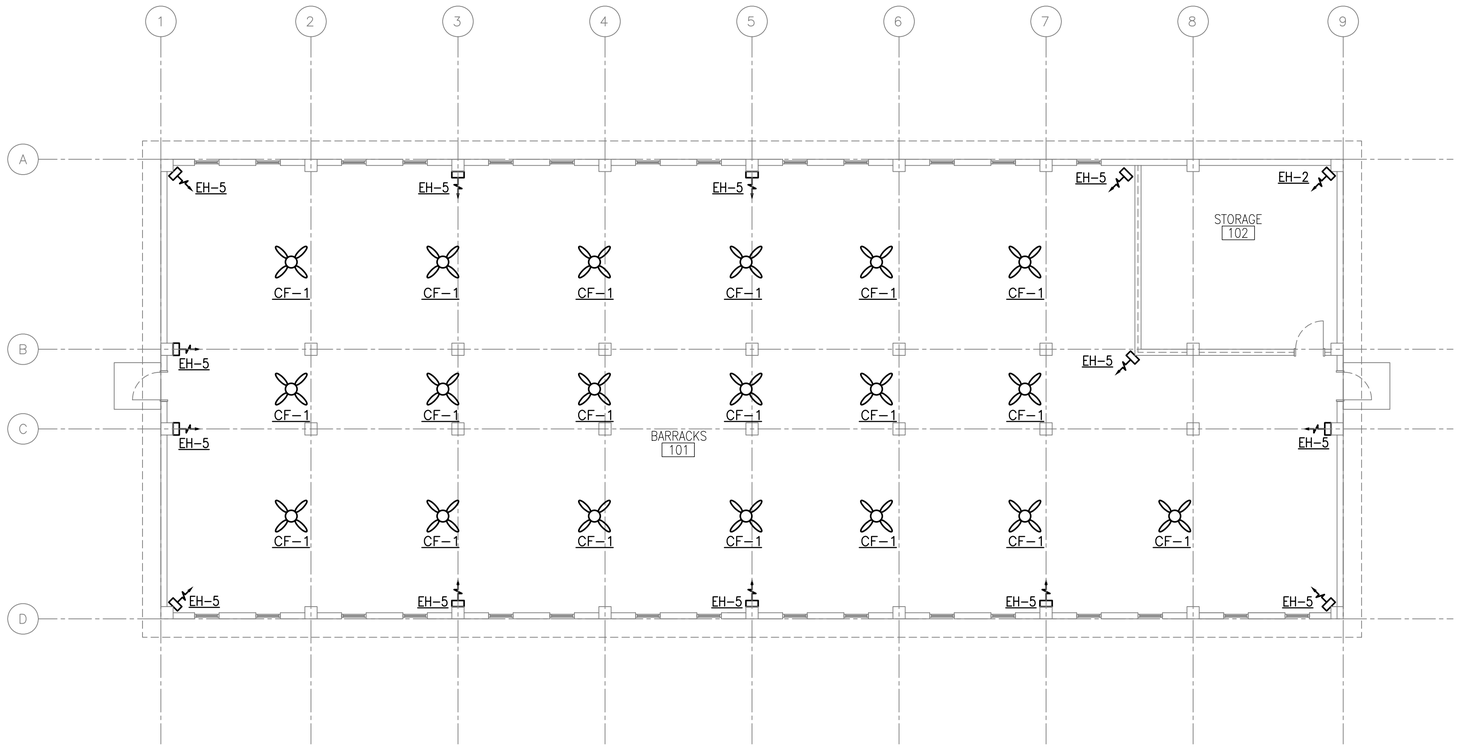
ELECTRIC HEAT OPTION

SECTION DETAILS

SHEET REFERENCE NUMBER:

A6

100% SUBMISSION



1 M1 M1 PLAN - HVAC

SCALE: 1:100

N

GENERAL NOTES:

1. DO NOT SCALE DRAWINGS – ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
2. ALL WORK PERFORMED ON THIS BUILDING SHALL BE IN COMPLIANCE WITH ALL PERTINENT CODES, RULES, ORDINANCES AND REGULATIONS OF THE GOVERNING AUTHORITIES.
3. ALL WORK PERFORMED UNDER AND IN CONNECTION WITH THESE DRAWINGS AND SPECIFICATIONS SHALL BE IN STRICT COMPLIANCE WITH THE LATEST SAFETY AND HEALTH STANDARDS.

ELECTRIC UNIT HEATER SCHEDULE

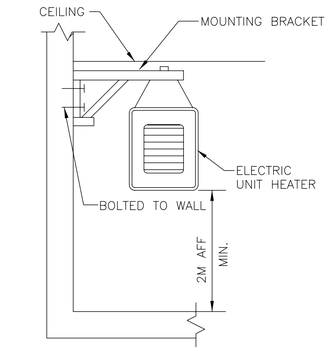
NO.	CMS	KW	F.A.T. °C	ELECT. CHAR.	MOUNTING
EH-2	.200	2.6	38	370/1/50	WALL HUNG
EH-5	.200	5	38	370/1/50	WALL HUNG

NOTES:
1. UNIT HEATERS SHALL BE MOUNTED AS HIGH AS POSSIBLE.
2. UNIT HEATERS SHALL HAVE TAMPER PROOF INTEGRAL STATS.

CEILING FAN

NO.	BLADE SIZE		VOLTAGE	SWITCH
	mm	IN		
CF-1	1320	52	220/1/50	@ WALL

NOTES:
1. FINAL ELECTRICAL CONNECTIONS BY EC.



ELECTRIC UNIT HEATER MOUNTING
N.T.S.

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: RML
DWN BY: JJN
CHK BY: CJM
DATE: 09-30-09
SUBMITTED BY: BAKER
FILE NO.: ANPSDM-101XXX

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STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

PLAN - HVAC

SHEET REFERENCE NUMBER:
M1

100% SUBMISSION

POWER

- DISTRIBUTION PANELBOARD
- NEW PANELBOARD – SURFACE
- NEW PANELBOARD – RECESSED
- EXISTING PANELBOARD
- (G) GENERATOR
- TVSS TRANSIENT VOLTAGE SURGE SURPRESSOR
- TRANSFORMER (DRAWN TO SIZE)
- PS POWER SUPPLY
- CP CONTROL PANEL
- TC TIME CLOCK
- TIM ASTRONOMICAL TIME CLOCK– "SEE SPEC."
- R RELAY WITH RATING AND NUMBER OF POLES AS NOTED ON DRAWINGS– "SEE SPEC."
- J JUNCTION BOX
- (J) JUNCTION BOX – CEILING
- PB PULL BOX
- BD BUS DUCT HORIZONTAL
- BUS DUCT VERTICAL
- EMERGENCY POWER OFF PUSH BUTTON
- NON–FUSIBLE SAFETY SWITCH
- FUSIBLE SAFETY SWITCH
- (M) MOTOR
- ^{M} MOTOR STARTING SWITCH – 20A RATED
- ^{K} KEY SWITCH – 20A RATED
- FC FAN COIL – FURNISHED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL INSTALL AND PROVIDE POWER CONNECTION
- UH UNIT HEATER – FURNISHED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL INSTALL AND PROVIDE POWER CONNECTION
- D JUNCTION BOX FOR CONNECTION TO GARBAGE DISPOSAL
- CF LIGHT/HEATER/FAN – FURNISHED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR SHALL INSTALL AND PROVIDE POWER CONNECTION
- ELECTRIC WATER HEATER
- EPO WEATHERPROOF / EXPLOSION PROOF EMERGENCY POWER OFF PUSH–BUTTON TO BE INTERCONNECTED WITH GENERATOR SHUT DOWN CONTROL
- CF CEILING FAN – REFER TO SPECIFICATION SECTION 26 20 00

RECEPTACLES

- DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS
- $_{GF}$ DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS – 10mA GROUND FAULT INTERRUPTER TYPE
- $_{WP}$ DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS – 10mA GROUND FAULT INTERRUPTER TYPE WITH WEATHERPROOF COVER
- $_{EXP}$ DUPLEX 20A BRITISH STANDARD UNSWITCHED SOCKETS – EXPLOSION PROOF
- * INDICATES MOUNT DEVICE ABOVE COUNTER TOP

LIGHTNING PROTECTION

- AIR TERMINAL 20mm O.D. X 4m SOLID COPPER, NICKEL PLATED ON ADHESIVE BASE.
- EQ EQUIPMENT AIR TERMINAL
- TEST WELL WITH GROUND ROD(S)
- GROUND ROD
- G GROUND PLATE
- MAIN GROUND CONDUCTER CONCEALED WITHIN CONSTRUCTION
- MAIN GROUND CONDUCTOR EXPOSED ON EXPOSED ON BUILDING EXTERIOR SURFACE
- GROUND CONDUCTOR CAD WELDED TO GROUND CABLE OR EQUIPMENT
- GROUND CONDUCTOR CAD WELDED TO BUILDING STEEL COLUMN
- GROUND ROD TRIPOD, SPACED 10 FEET APART.
- LEVEL TO LEVEL CABLE

LIGHTING

- LIGHTING FIXTURE – SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- LIGHTING FIXTURE – SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- DOWNLIGHT
- LIGHTING FIXTURE ON NORMAL/EMERGENCY
- WALL MOUNTED LIGHT FIXTURE
- E EXIT SIGN – DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS
- B BATTERY PACK WITH HEADS AS INDICATED ON DRAWINGS
- REMOTE HEAD FOR BATTERY PACK
- $ SINGLE POLE SWITCH – 20A RATED
- ^{3} 3–WAY SWITCH – 20A RATED
- ^{4} 4–WAY SWITCH – 20A RATED
- PC PHOTOCELL VOLTAGE TO MATCH CIRCUITRY
- LC LIGHTING CONTACTOR
- POLE MOUNTED SITE LIGHTING FIXTURE– NUMBER OF FIXTURES PER POLE AS INDICATED ON DRAWINGS
- EXTERIOR DIRECTIONAL LIGHTING FIXTURE
- a SMALL CASE LETTERS REPRESENTS LAMP(S) / SWITCHES. WHEN USED WITH AN OCCUPANCY SENSOR THIS INDICATES SENSOR WITH MANUAL OVERRIDE SWITCH

TELECOMMUNICATIONS

- TELEPHONE OUTLET(S) @ 18" AFF. U.N.O. WITH 3/4" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO TELEPHONE TERMINAL BOARD IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION
- DATA OUTLET(S) @ 18" AFF. U.N.O. WITH 3/4" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO DATA EQUIPMENT RACK IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION

TELECOMMUNICATIONS (CONTINUED)

- COMBINATION TELEPHONE/DATA OUTLET(S) @ 18" AFF. U.N.O. WITH 1" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO TELE/DATA TERMINAL AREA IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION
- W WALL MTD. TELEPHONE OUTLET WITH 3/4" RACEWAY TERMINATED ABOVE NEAREST ACCESSIBLE CEILING OR TO TELEPHONE TERMINAL BOARD IF NO ACCESSIBLE CEILING AVAILABLE. SEE TELE/DATA RISER DIAGRAM FOR OUTLET AND CABLE DESCRIPTION
- (x)T INDICATES NUMBER OF TELEPHONE OUTLET(S) AND ASSOCIATED CABLING
- (x)D INDICATES NUMBER OF DATA OUTLET(S) AND ASSOCIATED CABLING
- (x)TF INDICATES NUMBER OF TELEPHONE OUTLETS AND ASSOCIATED CABLING WITH 1 OUTLET AND CABLE DEDICATED FOR FAX

SINGLE LINE SYMBOLS

- SWITCH
- BREAKER
- FUSE
- TRANSFORMER
- CAPACITOR
- GROUND
- CONTACT (NORMALLY OPEN)
- CONTACT (NORMALLY CLOSED)
- AUTOMATIC TRANSFER SWITCH
- MANUAL DOUBLE THROW SWITCH
- CURRENT TRANSFORMER
- INDICATES NEW ELECTRICAL EQUIPMENT
- C INDICATES NEW CONTROL WIRING AND CONDUIT
- EQUIPMENT OUTLINE

MISCELLANEOUS

- BRANCH CIRCUIT WIRING CONCEALED ABOVE CEILINGS, SURFACE MOUNTED ON WALLS
- BRANCH CIRCUIT WIRING – #10 AWG
- BRANCH CIRCUIT WIRING – UNDER FLOOR
- HOME RUN BACK TO PANEL
- CONDUIT TURNED DOWN
- CONDUIT TURNED UP
- LV LOW VOLTAGE WIRING AND CONDUIT
- CT–X CABLE TRAY ("X" DENOTES WIDTH)
- INDICATES CONTINUATION OF LINE

FIRE ALARM

- FACP FIRE ALARM CONTROL PANEL WITH BATTERY BACKUP
- F FIRE ALARM PULL STATION

FIRE ALARM (CONTINUED)

- F FIRE ALARM STROBE – WALL MOUNTED
- F FIRE ALARM AUDIBLE/STROBE – WM
- F FIRE ALARM HORN/STROBE – WM
- S SMOKE DETECTOR
- H HEAT DETECTOR CEILING MOUNTED
- D DUCT DETECTOR – PROVIDED BY EC, INSTALLED BY MC AND CONNECTED BY EC

DENOTATIONS & ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
C	CEILING MOUNTED
E	EMERGENCY
EC	ELECTRICAL CONTRACTOR
EPO	EMERGENCY POWER OFF
EXP	EXPLOSION PROOF
F	FIRE ALARM
FF	FLUSH FLOOR MOUNTED
FL	FLUORESCENT
FO	FIBER OPTIC
FSS	FUSED SAFETY SWITCH
G	GROUND FAULT INTERRUPTER
GC	GENERAL CONTRACTOR
HOA	HAND–OFF AUTO
I	INFRARED
ICD	INCANDESCENT
IG	ISOLATED GROUND
K	KEY
LV	LOW VOLTAGE
M	MOTOR
MC	MECHANICAL CONTRACTOR
NE	NORMAL/EMERGENCY
NFSS	NON–FUSED SAFETY SWITCH
PA	PAGING SYSTEM
PLC	PLUMBING CONTRACTOR
REL	RELOCATE
RED	RELOCATED
SL	SINGLE LINE
SS	SURGE SUPPRESSION
T	TELEPHONE
TL	TWIST LOCK

DENOTATIONS & ABBREVIATIONS (CONT.)

TP	TAMPER PROOF
UE	UNDERGROUND ELECTRIC
UF	UNDERGROUND FIBER
UT	UNDERGROUND TELEPHONE
W	WALL MOUNTED
WG	WIRE GUARD
WP	WEATHERPROOF
WPG	WEATHERPROOF/GROUND FAULT INTERRUPTER
WT	WATER TIGHT

GENERAL PROJECT NOTES:

G1. UNLESS OTHERWISE NOTED, PROVIDE ALL EQUIPMENT SHOWN ON THE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SYMBOLS SHOWN ON THE PLANS WITH THE SYMBOL LIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INTENT OF ANY SYMBOL THAT IS SHOWN ON THE PLANS AND NOT INDICATED ON THE SYMBOL LIST WITH THE ENGINEER PRIOR TO BID.

G2. COORDINATE THE FINAL LOCATIONS OF ALL LIGHT FIXTURES WITH THE ARCHITECT'S REFLECTED CEILING PLANS. REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO INSTALLATION.

G3. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE CONSTRUCTION AREA THREE (3) WORKING DAYS NOTICE BEFORE COMMENCE DIGGING. NOTIFY THE LOCAL OR STATE AUTHORITY HAVING JURISDICTION AND WAIT THE REQUIRED TIME BEFORE COMMENCING TO DIG.

G4. THE CONTRACTOR SHALL COORDINATE CONDUIT RUNS, CABLE TRAY, LIGHTING FIXTURES AND OTHER EQUIPMENT LOCATIONS WITH THE OTHER TRADE CONTRACTORS TO AVOID CONFLICTS.

G5. WHERE VOLTAGES AND FREQUENCIES ON THE DRAWINGS AND IN THE SPECIFICATIONS DIFFER FROM THE LOCAL ONES, ALL WORK SHALL BE PERFORMED USING THE LOCAL VOLTAGES AND FREQUENCIES.

G6. THE MINIMUM WIRE SIZE ON THE PROJECT SHALL BE 4mm2. THE MINIMUM CONDUIT SIZE SHALL BE 20mm. THE MINIMUM BREAKER SIZE SHALL BE 20 AMPS.

G7. THE CONTRACTOR SHALL PUT A MAXIMUM OF 6 DUPLEX SOCKETS ON A 20A SINGLE POLE CIRCUIT.

G8. WHERE THE 1010 SCOPE REVIEW, 1015 TECHNICAL REVIEW, DRAWINGS, AND SPECIFICATIONS DIFFER FROM AMERICAN CODES OR STANDARDS THE 1010, 1015, DRAWINGS, AND SPECIFICATIONS SHALL RULE.

G9. WORK FOR THE AMMUNITION SUPPLY POINT SHALL BE DONE IN ACCORDANCE WITH DEPARTMENT OF DEFENSE STANDARD DOD 6055.9–STD.

G10. ALL CONDUIT AND DEVICES SHALL BE SURFACE MOUNTED UNLESS OTHERWISE INDICATED.

US Army Corps of Engineers
Afghanistan Engineer District

APP	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: JRG | DWN BY: JRG | CHK BY: JRG
DATE: 09–30–09 | SUBMITTED BY: BAKER | FILE NO.: ANPSDE–OOOXXX

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Moon Township, PA 15108
www.mbakercorp.com

AFGHAN NATIONAL POLICE
STANDARD DESIGN
BARRACK BUILDING; OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

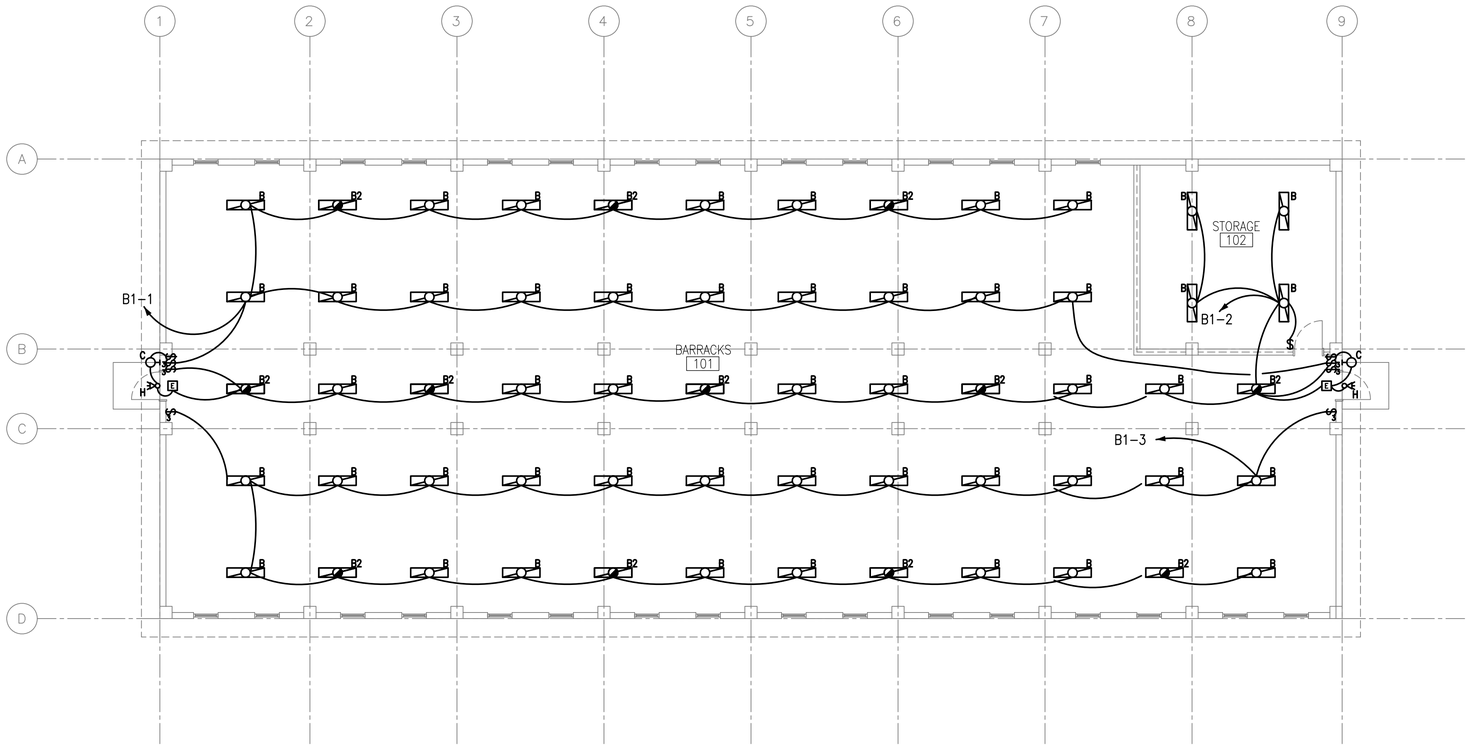
ELECTRICAL SYMBOLS AND ABBREVIATIONS

SHEET REFERENCE NUMBER:
E0

100% SUBMISSION

GENERAL NOTES:

1. REFER TO DRAWING #E0 FOR THE ELECTRICAL SYMBOLS LIST.
2. EXIT SIGNS SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING ON CIRCUITS.
3. REFER TO DRAWING #E4 FOR THE LIGHTING FIXTURE SCHEDULE.
4. REFER TO DRAWING #E3 FOR THE POWER RISER.
5. REFER TO DRAWING #E5 FOR PANEL SCHEDULES.
6. LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A BATTERY BACKUP BALLAST.



1 / E1 | E1 LIGHTING PLAN

SCALE: 1:100

N

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

1 0 1 2 3 4 5 6 7 8 9
1:100

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: JRG	DWN BY: JRG	CHK BY: JRG	
DATE: 09-30-09	SUBMITTED BY: BAKER	FILE NO.: ANPSDE-101XXX	

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STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

LIGHTING PLAN

SHEET REFERENCE NUMBER:
E1

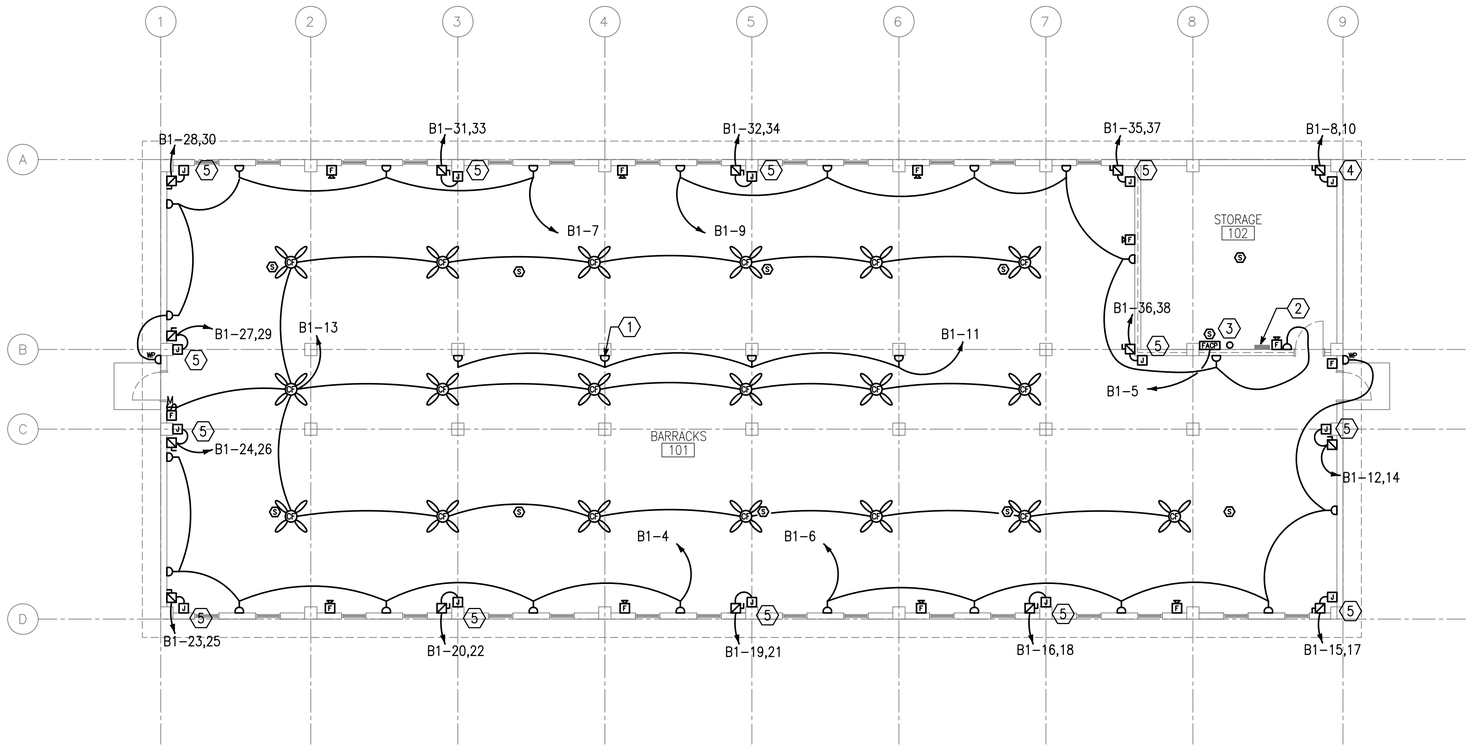
100% SUBMISSION

GENERAL NOTES:

1. REFER TO DRAWING #E0 FOR THE ELECTRICAL SYMBOLS LIST.
2. REFER TO DRAWING #E3 FOR THE POWER RISER.
3. REFER TO DRAWING #E5 FOR PANEL SCHEDULES.
4. COORDINATE EXACT MOUNTING LOCATION OF DISCONNECTING MEANS FOR MECHANICAL AND PLUMBING EQUIPMENT IN THE FIELD.
5. FUSIBLE SAFETY SWITCHES THAT ARE NOT OTHERWISE IDENTIFIED SHALL BE 380V, 1P, 30A FUSED SAFETY SWITCHES WITH 20A FUSES.

NUMBERED NOTE:

1. SURFACE MOUNTED ON COLUMN (TYPICAL OF 4).
2. PANEL B1.
3. TELECOMMUNICATIONS CONDUIT STUB-UP
4. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #2. SEE DRAWINGS #E5 AND #M1 FOR MORE INFORMATION.
5. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #5. SEE DRAWINGS #E5 AND #M1 FOR MORE INFORMATION.



1 / E2 | E2 POWER AND SYSTEMS PLAN

SCALE: 1:100

N

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM)

1 0 1 2 3 4 5 6 7 8 9

1:100

US Army Corps of Engineers

Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: JRG	DWN BY: JRG	CHK BY: JRG	DATE: 09-30-09
			SUBMITTED BY: BAKER
			FILE NO.: ANPSDE-102XXX

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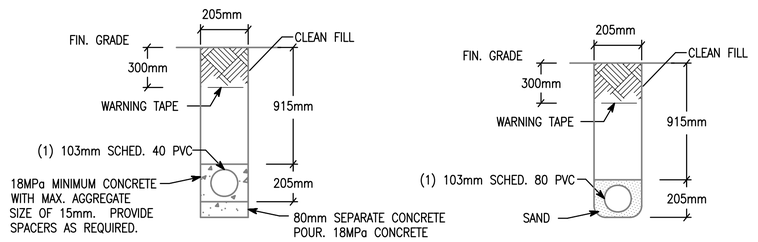
AFGHAN NATIONAL POLICE
STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

POWER AND SYSTEMS PLAN

SHEET REFERENCE NUMBER:

E2

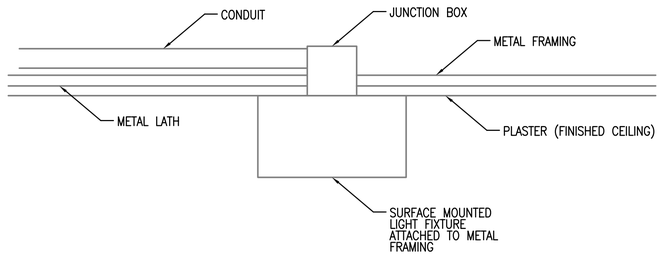
100% SUBMISSION



NOTE: PVC CONDUIT SHALL BE DIRECT BURIED SCHEDULE 80 FOR NO TRAFFIC AREAS AND CONCRETE-ENCASED SCHEDULE 40 FOR UNDER ROADWAYS OR TRAFFIC AREAS.

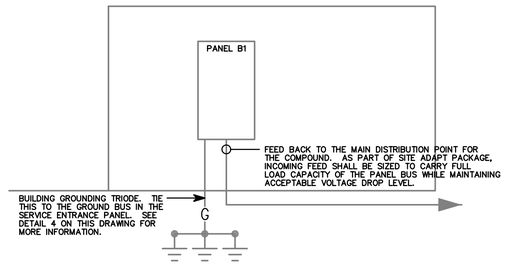
1 / E3 | E3 TYPICAL DUCT BANK DETAILS FOR CONDUIT IN SAND OR CONCRETE

SCALE: N.T.S.



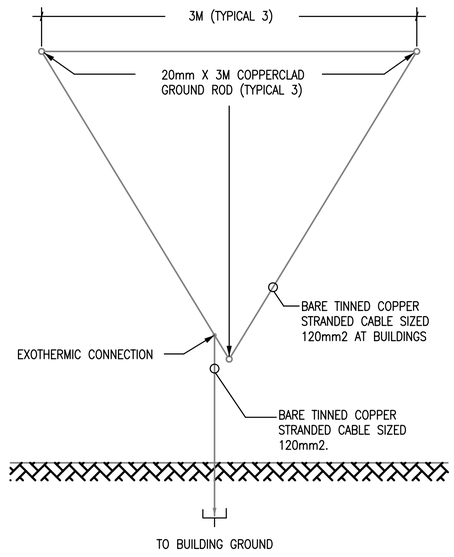
2 / E3 | E3 TYPICAL DETAIL FOR SURFACE MOUNTED LIGHT FIXTURES

SCALE: N.T.S.



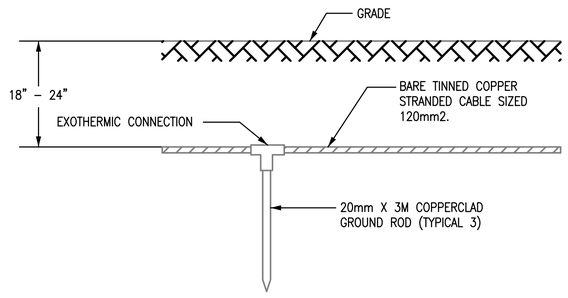
3 / E3 | E3 B.2 RISER DIAGRAM

SCALE: N.T.S.



4 / E3 | E3 GROUND TRIPOD SYSTEM DETAIL - PLAN

SCALE: N.T.S.



5 / E3 | E3 GROUND TRIPOD SYSTEM DETAIL - ELEVATION

SCALE: N.T.S.

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: JRG	DATE: 09-30-09
DWN BY: JRG	SUBMITTED BY: BAKER
CHK BY: JRG	FILE NO.: ANPSDE-503XXX

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ELECTRIC HEAT OPTION

DETAILS

SHEET REFERENCE NUMBER:
E3

100% SUBMISSION

LIGHTING FIXTURE SCHEDULE

FIXTURE MARK	STYLE NUMBER AND TYPE	NUMBER AND TYPE OF LAMPS	VOLTAGE	MOUNTING	NOTES
B	WET LOCATION WRAP AROUND SURFACE/PENDANT MOUNTED FLUORESCENT FIXTURE WITH PRISMATIC ACRYLIC LENS AND ELECTRONIC BALLAST	(2) 32W 3500K	220V – 1ø 50HZ	PENDANT MOUNTED FROM SLOPED CEILINGS	FURNISHED WITH ELECTRONIC BALLAST, VIRGIN ACRYLIC WRAP AROUND LENS.
B2	SAME AS FIXTURE 'B' WITH EMERGENCY BALLAST	(2) 32W 3500K	220V – 1ø 50HZ	PENDANT MOUNTED FROM SLOPED CEILINGS	FURNISHED WITH ELECTRONIC BALLAST, VIRGIN ACRYLIC WRAP AROUND LENS. EMERGENCY BALLAST WITH SELF TEST SWITCH.
C	INCANDESCENT ONE PIECE W/ APPROVED LENS STABILIZED HIGH IMPACT POLY CARBONATE.	(1) A19 – 100W INCANDESCENT	220V – 1ø 50HZ	WALL MOUNTED ABOVE EXTERIOR DOORS	
H	REMOTE HEAD EXTERIOR LIGHT HEAD POWERED FROM EXIT SIGN BATTERY– 12V DOUBLE HEAD CORROSION RESISTANT WITH UL34 WEATHERPROOF CONSTRUCTION	(2) 12W/12V HALOGEN LAMP	12V – 1ø 50HZ	EXTERIOR WALL MOUNTED AT TOP OF DOOR HEIGHT	
[E]	UNIVERSAL MOUNT ENGINEER GRADE THERMOPLASTIC HOUSING EXIT SIGN WITH LED LAMPS, RED LETTERS 6" IN HEIGHT WITH ARROWS AS INDICATED, WITH 12V CADMIUM BATTERY WITH REMOTE HEAD CAPABILITY	LED LAMPS	220V – 1ø 50HZ	UNIVERSAL MOUNTING	

FIXTURE MARK 'B'

WET LOCATION WRAP AROUND SURFACE/PENDANT MOUNTED FLUORESCENT FIXTURE WITH PRISMATIC ACRYLIC LENS AND ELECTRONIC BALLAST.

FIXTURE MARK 'B2':
SAME FIXTURE AS 'B' WITH EMERGENCY BALLAST.

FIXTURE MARK 'C'

INCANDESCENT ONE PIECE WITH APPROVED LENS, STABILIZED HIGH IMPACT POLY CARBONATE

FIXTURE MARK 'H'

REMOTE HEAD EXTERIOR LIGHT HEAD POWERED FROM EXIT SIGN BATTERY– 12V DOUBLE HEAD CORROSION RESISTANT WITH UL34 WEATHERPROOF CONSTRUCTION

FIXTURE MARK '[E]'

UNIVERSAL MOUNT ENGINEER GRADE THERMOPLASTIC HOUSING EXIT SIGN WITH LED LAMPS, RED LETTERS 6" IN HEIGHT WITH ARROWS AS INDICATED, WITH 12V CADMIUM BATTERY

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY:	DATE:	
JRG	09-30-09	
DWN BY:	SUBMITTED BY:	
JRG	BAKER	
CHK BY:	FILE NO.:	
JRG	ANPSDE-604XXX	

Michael Baker Jr., Inc
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AFGHAN NATIONAL POLICE
STANDARD DESIGN
BARRACK BUILDING, OPEN BAY (579 GSM)
ELECTRIC HEAT OPTION

LIGHT FIXTURE SCHEDULE

SHEET REFERENCE NUMBER:
E4

100% SUBMISSION

PANELBOARD B1 SURFACE MOUNTED ASYM. A.I.C. MIN.
AMP. MAIN LUGS (OR) 150 AMP. MAIN BREAKER W/ 150 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 150 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-V.A. AØ	LOAD-V.A. BØ	LOAD-V.A. CØ	LOAD-V.A. AØ	LOAD-V.A. BØ	LOAD-V.A. CØ	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	20	1	4.0	4.0	20	LIGHTING – 101	1.3			1.3			LIGHTING – 101, 102	20	4.0	4.0	1	20	2
3	20	1	10.0	6.0	20	LIGHTING – 101		1.6			1.2		RECEPTACLES – 101	20	4.0	4.0	1	20	4
5	20	1	4.0	4.0	20	F.A.C.P.			0.5			1.2	RECEPTACLES – 101	20	4.0	4.0	1	20	6
7	20	1	4.0	4.0	20	RECEPTACLES – 101	1.2			1.3			ELECTRIC HEATER–102	20	4.0	4.0	2	20	8
9	20	1	4.0	4.0	20	RECEPTACLES – 101, 102		1.4			1.3								10
11	20	1	4.0	4.0	20	RECEPTACLES – COLUMNS			0.8			2.5	ELECTRIC HEATER–101	20	4.0	4.0	2	20	12
13	20	1	4.0	4.0	20	CEILING FANS	1.0			2.5									14
15	20	2	4.0	4.0	20	ELECTRIC HEATER–101		2.5			2.5		ELECTRIC HEATER–101	20	4.0	4.0	2	20	16
17									2.5			2.5							18
19	20	2	4.0	4.0	20	ELECTRIC HEATER–101	2.5			2.5			ELECTRIC HEATER–101	20	4.0	4.0	2	20	20
21								2.5			2.5								22
23	20	2	4.0	4.0	20	ELECTRIC HEATER–101			2.5			2.5	ELECTRIC HEATER–101	20	4.0	4.0	2	20	24
25							2.5			2.5									26
27	20	2	4.0	4.0	20	ELECTRIC HEATER–101		2.5			2.5		ELECTRIC HEATER–101	20	4.0	4.0	2	20	28
29									2.5			2.5							30
31	20	2	4.0	4.0	20	ELECTRIC HEATER–101	2.5			2.5			ELECTRIC HEATER–101	20	4.0	4.0	2	20	32
33								2.5			2.5								34
35	20	2	4.0	4.0	20	ELECTRIC HEATER–101			2.5			2.5	ELECTRIC HEATER–101	20	4.0	4.0		20	36
37							2.5			2.5									38
39	20	1				SPARE							SPARE				1	20	40
41	20	1				SPARE							SPARE				1	20	42
							13.5	13.0	11.3	15.1	12.5	13.7							

TOTAL CONN. LOAD
PER PHASE (KVA): AØ 28.6 BØ 25.5 CØ 25.0

TOTAL CONN. LOAD 79.1 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 55.4 SUPPLIED FROM SWITCHGEAR MAIN DISTRIBUTION

• MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

US Army Corps of Engineers
Afghanistan Engineer District

SYMBOL	DESCRIPTION	DATE	APP'D

DESIGNED BY: JRG	DATE: 09-30-09	FILE NO.: ANPSDE-605XXX
DWN BY: JRG	SUBMITTED BY: BAKER	
CHK BY: JRG		

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ELECTRIC HEAT OPTION

PANEL SCHEDULES AND RISER DIAGRAM

SHEET REFERENCE NUMBER:
E5

100% SUBMISSION