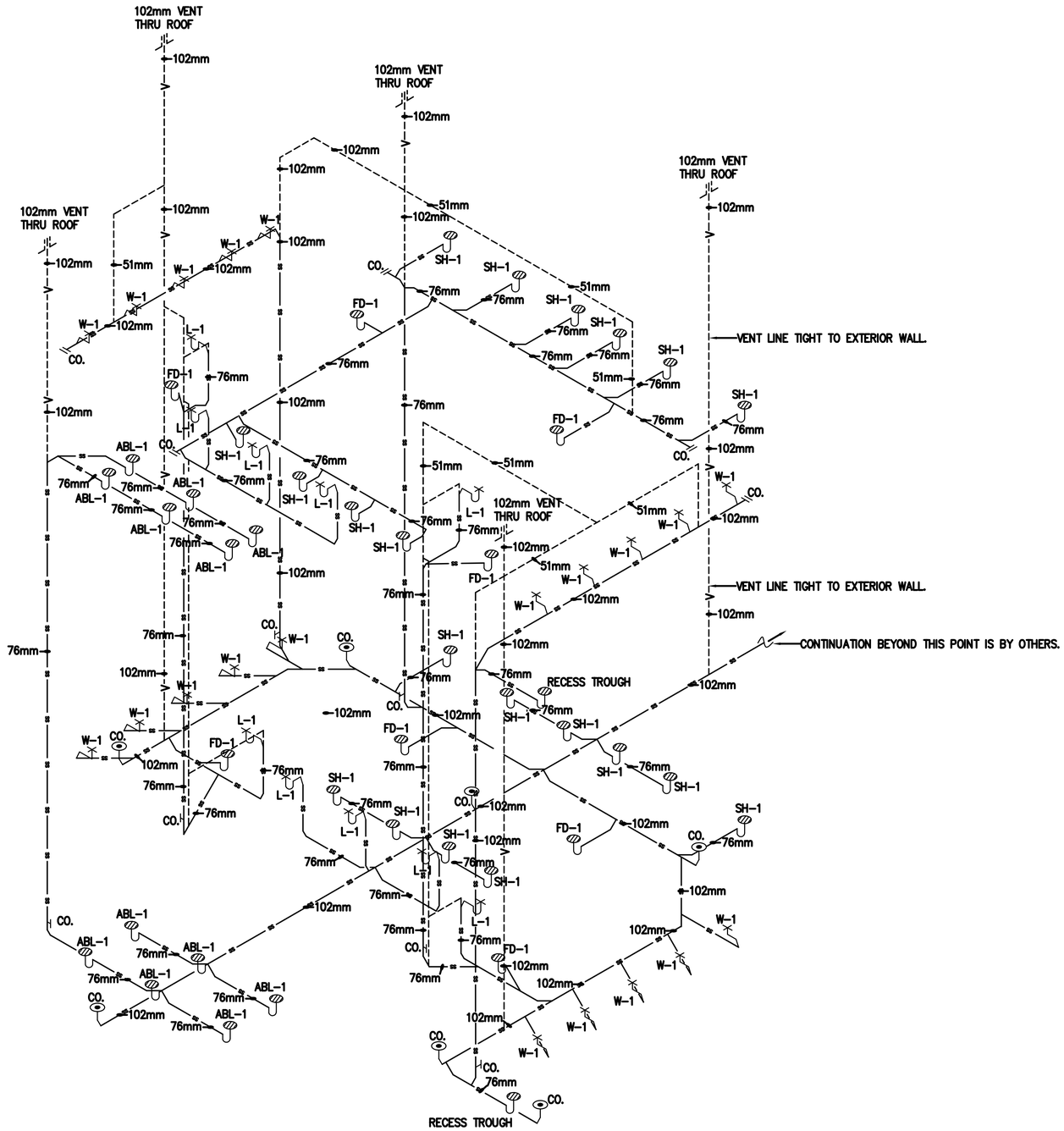
PLUMBING SYMBOLS

- SANITARY SEWER PIPING (BELOW GROUND)
- SANITARY SEWER PIPING (ABOVE GROUND)
- VENT PIPING (V)
- COLD WATER PIPING (CW)
- HOT WATER PIPING (HW)
- BALL VALVE
- BACKFLOW PREVENTER
- CLEANOUT (CO.) — OR
- ROOF PENETRATION



1 / P-901 ENLISTED BARRACKS DRAINAGE ISOMETRIC

SCALE: N.T.S.

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER MATTHEW R. SOTOSKY 045576-E

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

Mark	Description	Date	Appr.	Mark	Description	Date	Appr.

Designed by: RMH
Dwn by: RMH
Ckd by: CJM
Reviewed by:
Submitted by: BAKER
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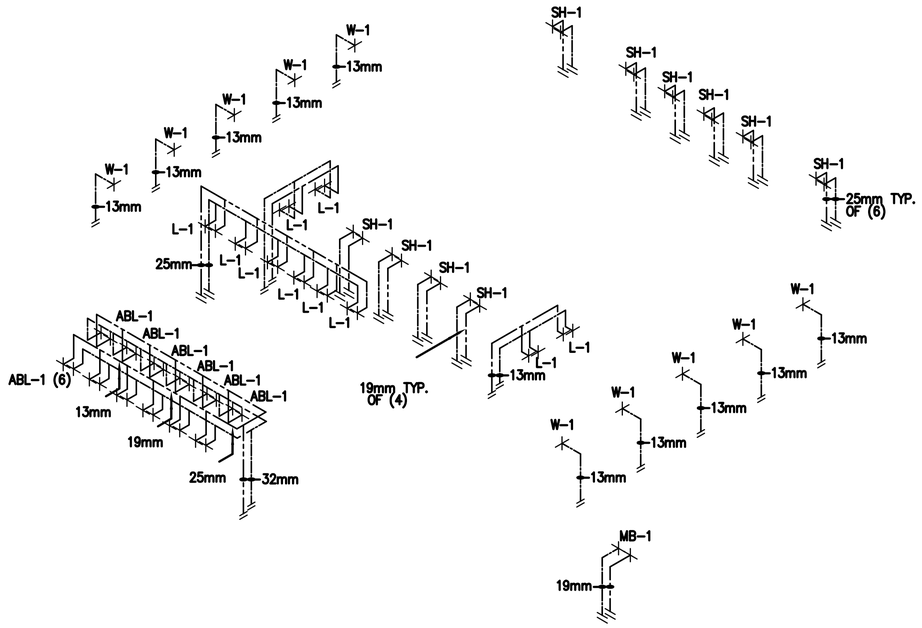
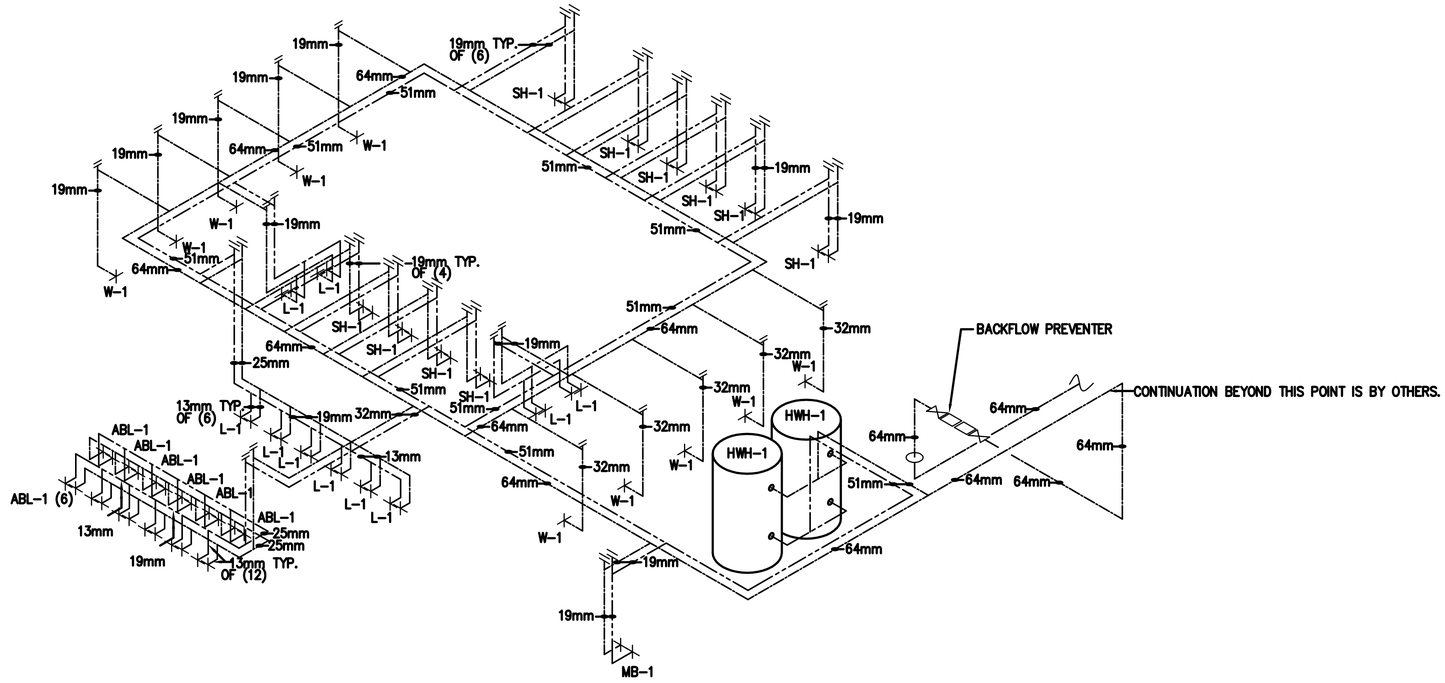
ENLISTED BARRACKS
DRAINAGE ISOMETRIC

Sheet reference number:
P-901



2 P-902 ENLISTED BARRACKS 2ND FLOOR HOT AND COLD WATER ISOMETRIC

SCALE: N.T.S.



1 P-902 ENLISTED BARRACKS 1ST FLOOR HOT AND COLD WATER ISOMETRIC

SCALE: N.T.S.

PLUMBING SYMBOLS

- SANITARY SEWER PIPING (BELOW GROUND)
- SANITARY SEWER PIPING (ABOVE GROUND)
- VENT PIPING (V)
- COLD WATER PIPING (CW)
- HOT WATER PIPING (HW)
- BALL VALVE
- BACKFLOW PREVENTER
- OR — CLEANOUT (CO.)
- ROOF PENETRATION

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

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ENLISTED BARRACKS

HOT AND COLD WATER PIPING ISOMETRIC

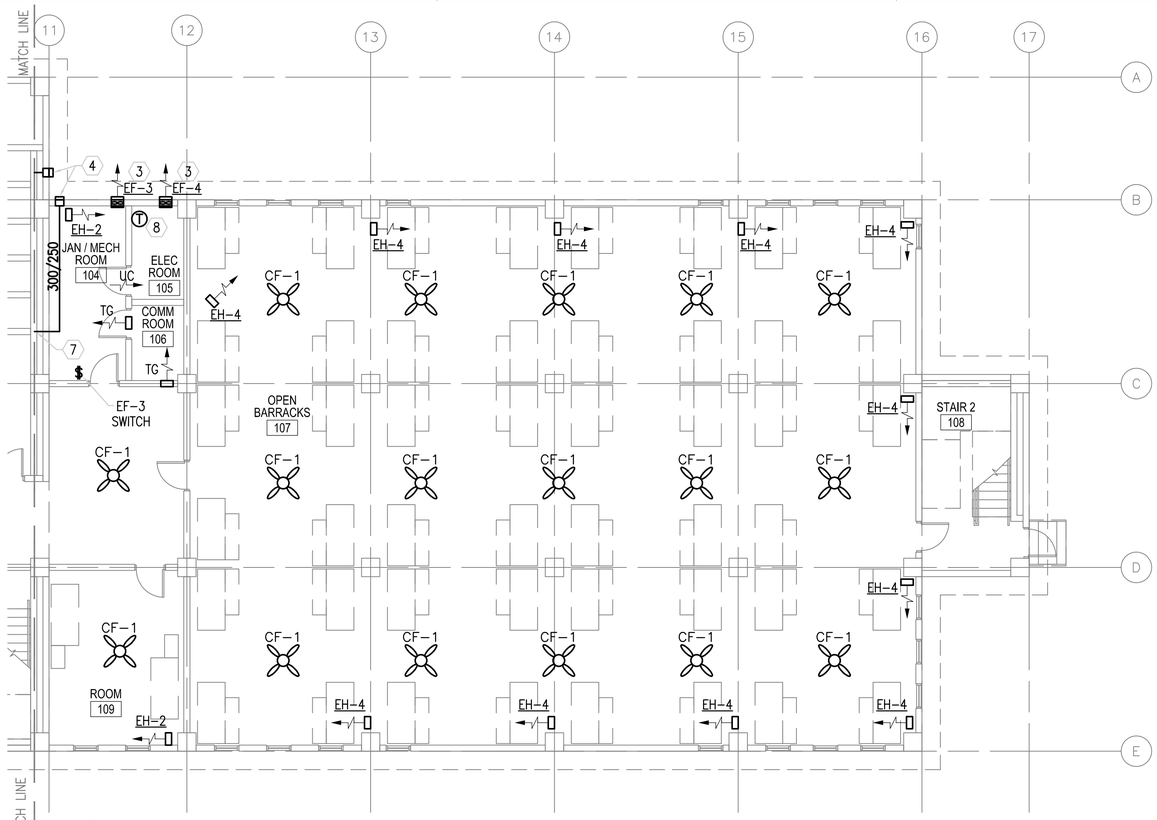
APPROVED:

A/E DESIGNER OF RECORD

SEAL:

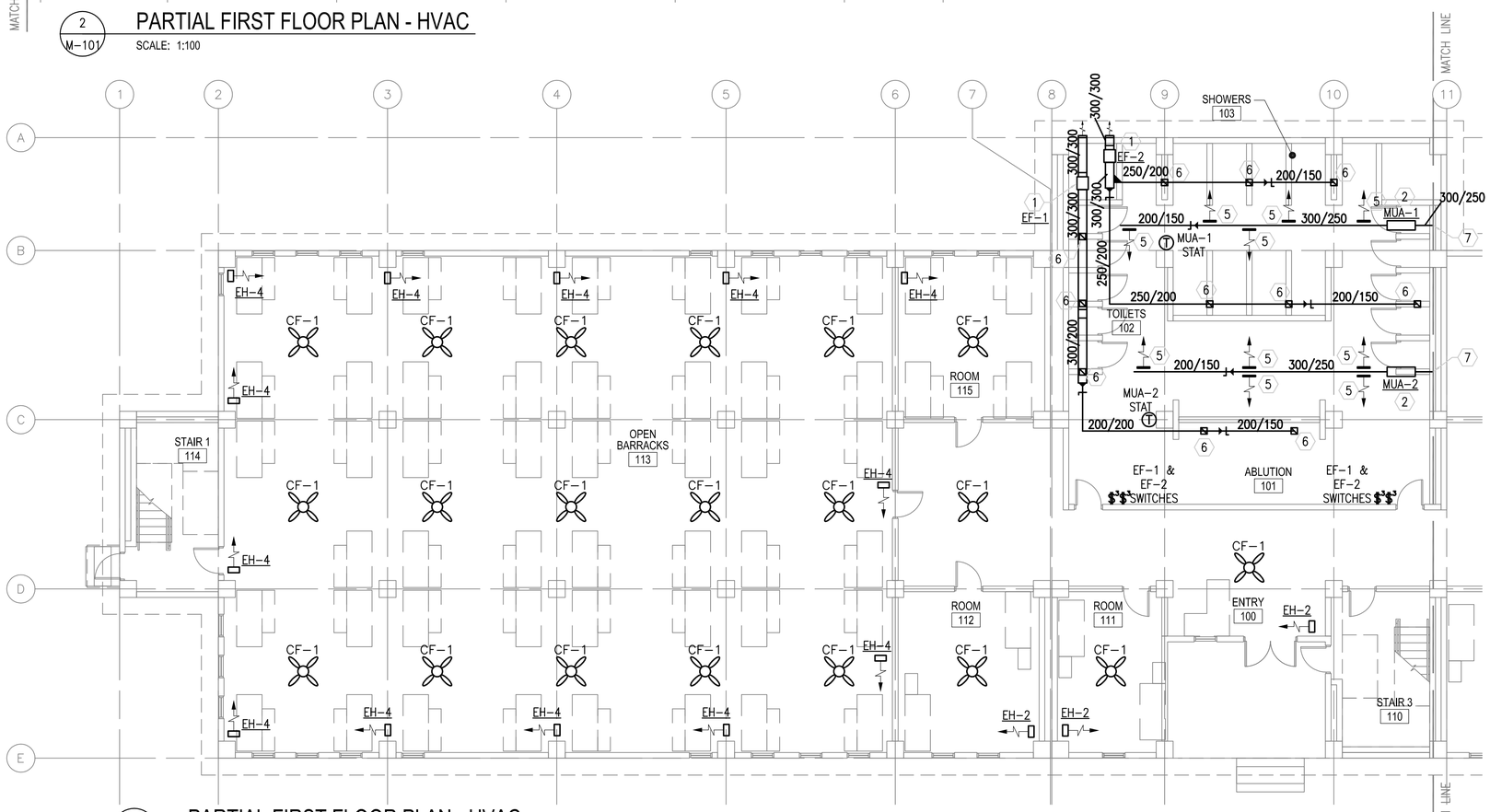
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW R. SOTOSKY
ENGINEER
045576-E

Sheet reference number:
P-902



2 M-101 PARTIAL FIRST FLOOR PLAN - HVAC

SCALE: 1:100



1 M-101 PARTIAL FIRST FLOOR PLAN - HVAC

SCALE: 1:100

KEY NOTE:

1. INLINE EXHAUST FAN DUCTED TO WALL CAP WITH LOW LEAKAGE GRAVITY BACK-DRAFT DAMPER. SECURE FAN TO STRUCTURE ABOVE AND INTERLOCK WITH MAKE UP AIR HEATER.
2. ELECTRIC MAKE UP AIR HEATER SECURED TO STRUCTURE ABOVE. BLOWER FOR MUA-1 SHALL BE SET TO ENERGIZE WITH EXHAUST FAN EF-1 & THERMOSTAT, HEAT SHALL BE CONTROLLED BY STAT. BLOWER FOR MUA-2 SHALL BE SET TO ENERGIZE WITH EXHAUST FAN EF-2 & THERMOSTAT, HEAT SHALL BE CONTROLLED BY STAT.
3. WALL EXHAUST FAN WITH LOW SPRING OPERATED BACK-DRAFT DAMPER. SEE DETAIL 3 ON M501.
4. 600X600 (24X24) FOR MAKE UP AIR UNIT. PROVIDE WEATHER PROOF LOUVER WITH 50mm (2") WASHABLE FILTER AND SAND TRAP.
5. 200x150 (8x6) ALUMINUM DUCT MOUNTED SUPPLY GRILLE WITH ADJUSTABLE OPPOSED BLADE DAMPERS. BALANCE EACH GRILLE TO 0.055 CMS.
6. 150x150 (6x6) ALUMINUM DUCT MOUNTED EXHAUST GRILLE WITH ADJUSTABLE OPPOSED BLADE DAMPERS. BALANCE EACH GRILLE TO 0.055 CMS.
7. SEE CONTINUATION THIS SHEET.
8. THERMOSTAT MOUNTED AS HIGH AS POSSIBLE. INTERLOCK STAT WITH CORRESPONDING EXHAUST FAN, SET FAN TO ENERGIZE ON RISE IN TEMPERATURE ABOVE 25°C (77°F).

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.

SYMBOLS:

- (X) KEY NOTE
- (0.050) AIR VOLUME IN CUBIC METERS PER SECOND (CMS)
- UC DOOR UNDERCUT
- TG 200x400 (8x16) TRANSFER GRILLE
- $ SINGLE POLE SWITCH – 20A RATED
- $³ 3 WAY SWITCH – 20A RATED

ABBREVIATIONS:

AFF	ABOVE FINISH FLOOR
CF	CEILING FANS
CMS	CUBIC METERS PER SECOND
STATS	THERMOSTATS

EXHAUST FAN SCHEDULE

NO.	TYPE	FAN CMS	DRIVE	HP	SP mmH20	ELECTRICAL DATA	SWITCH
EF-1	WALL	0.330	DIRECT	FRACT	13	220/1/50	@ WALL
EF-2	WALL	0.330	DIRECT	FRACT	13	220/1/50	@ WALL
EF-3	WALL	0.035	DIRECT	FRACT	9.5	220/1/50	@ WALL
EF-4	WALL	0.035	DIRECT	FRACT	9.5	220/1/50	W/ STAT

NOTES:
1. FANS SHALL HAVE LOW LEAKAGE GRAVITY LOUVER.

MAKE UP AIR HEATERS

NO.	BLOWER CMS	FUSE	KW	MIN. TEMP RISE °C	SP mmH20	ELECTRICAL DATA	CONTROL
MUA-1	0.280	60	10	20	13	220/1/50	REMOTE
MUA-2	0.280	60	10	20	13	220/1/50	REMOTE

NOTES:
1. PROVIDE REMOTE MOUNTED THERMOSTAT WITH LOCKING COVER.
2. INTERLOCK BLOWER OPERATION WITH EXHAUST FANS EF-1 & STAT.
3. PROVIDE AIR SENSING SWITCH FOR HEATING OPERATION.

ELECTRIC UNIT HEATER SCHEDULE

NO.	CMS	KW	F.A.T. °C	ELECT. CHAR.	MOUNTING
EH-2	0.200	2.6	38	380/1/50	WALL HUNG
EH-4	0.200	4	38	380/1/50	WALL HUNG

NOTES:
1. UNIT HEATERS SHALL HAVE TAMPER PROOF INTEGRAL STATS.
2. COORDINATE LOCATION AND ORIENTATION IN FIELD.

CEILING FAN

NO.	BLADE SIZE mm	BLADE SIZE IN	VOLTAGE	SWITCH	REMARKS
CF-1	1320	52	220/1/50	@ WALL	3 SPEED REVERSIBLE MOTOR

NOTES:
1. INSTALL FANS 2.5M AFF.
2. PROVIDE WITH OUT LIGHT FIXTURE.
3. PROVIDE WITH REMOTE MOUNTED ON-OFF SWITCH SHOWN ON ELECTRICAL DRAWINGS.

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

0 2000 4000
SCALE: 1:100

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
MATTHEW R. SOTOSKY
045576-E

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

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Dwn by: JJN
Ckd by: CJM
Reviewed by: MRS
Submitted by: BAKER
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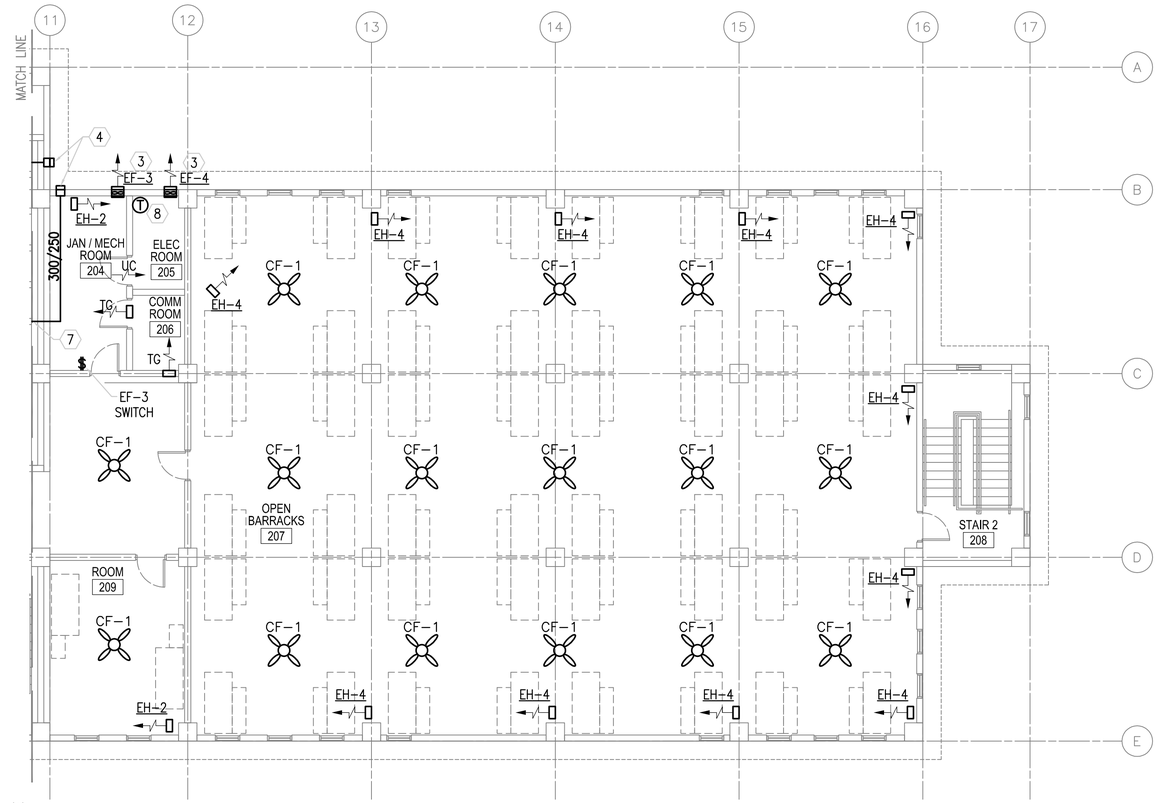
ENLISTED BARRACKS

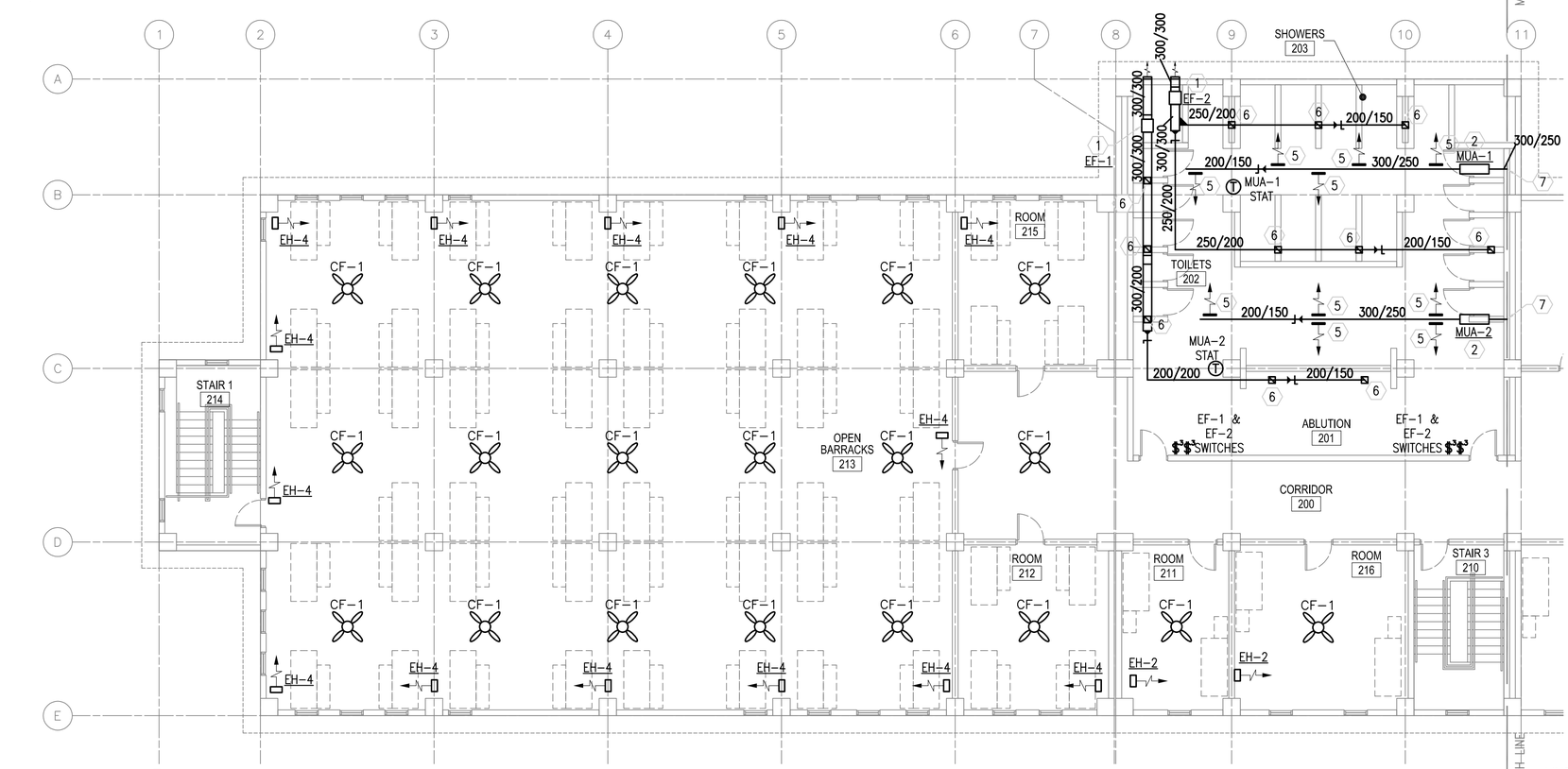
HVAC – FIRST FLOOR PLAN, AND SCHEDULES

Sheet reference number:
M-101



2 M-201 PARTIAL SECOND FLOOR PLAN - HVAC

SCALE: 1:100



1 M-201 PARTIAL SECOND FLOOR PLAN - HVAC

SCALE: 1:100

KEY NOTE:

1. INLINE EXHAUST FAN DUCTED TO WALL CAP WITH LOW LEAKAGE GRAVITY BACK-DRAFT DAMPER. SECURE FAN TO STRUCTURE ABOVE AND INTERLOCK WITH MAKE UP AIR HEATER.
2. ELECTRIC MAKE UP AIR HEATER SECURED TO STRUCTURE ABOVE. BLOWER FOR MUA-1 SHALL BE SET TO ENERGIZE WITH EXHAUST FAN EF-1 & THERMOSTAT, HEAT SHALL BE CONTROLLED BY STAT. BLOWER FOR MUA-2 SHALL BE SET TO ENERGIZE WITH EXHAUST FAN EF-2 & THERMOSTAT, HEAT SHALL BE CONTROLLED BY STAT.
3. WALL EXHAUST FAN WITH LOW SPRING OPERATED BACK-DRAFT DAMPER. SEE DETAIL 3 ON SHEET M501.
4. 600X600 (24X24) INTAKE LOUVER FOR MAKE UP AIR UNIT. PROVIDE WEATHER PROOF LOUVER WITH 50mm (2") WASHABLE FILTER AND SAND TRAP.
5. 200x150 (8x6) ALUMINUM DUCT MOUNTED SUPPLY GRILLE WITH ADJUSTABLE OPPOSED BLADE DAMPERS. BALANCE EACH GRILLE TO 0.055 CMS.
6. 150x150 (6x6) ALUMINUM DUCT MOUNTED EXHAUST GRILLE WITH ADJUSTABLE OPPOSED BLADE DAMPERS. BALANCE EACH GRILLE TO 0.055 CMS.
7. SEE CONTINUATION THIS SHEET.
8. THERMOSTAT MOUNTED AS HIGH AS POSSIBLE. INTERLOCK STAT WITH CORRESPONDING EXHAUST FAN, SET FAN TO ENERGIZE ON RISE IN TEMPERATURE ABOVE 25°C (77°F).

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.

SYMBOLS:

- (X) KEY NOTE
- (0.050) AIR VOLUME IN CUBIC METERS PER SECOND (CMS)
- UC DOOR UNDERCUT
- $ SINGLE POLE SWITCH – 20A RATED
- $3 3 WAY SWITCH – 20A RATED

ABBREVIATIONS:

AFF	ABOVE FINISH FLOOR
CF	CEILING FANS
CMS	CUBIC METERS PER SECOND
MOD	MOTOR OPERATED DAMPER
STATS	THERMOSTATS

EXHAUST FAN SCHEDULE

NO.	TYPE	FAN CMS	DRIVE	HP	SP mmH20	ELECTRICAL DATA	SWITCH
EF-1	WALL	0.330	DIRECT	FRACT	13	220/1/50	@ WALL
EF-2	WALL	0.330	DIRECT	FRACT	13	220/1/50	@ WALL
EF-3	WALL	0.035	DIRECT	FRACT	9.5	220/1/50	@ WALL
EF-4	WALL	0.035	DIRECT	FRACT	9.5	220/1/50	W/ STAT

NOTES:
1. FANS SHALL HAVE LOW LEAKAGE GRAVITY LOUVER.

MAKE UP AIR HEATERS

NO.	BLOWER CMS	FUSE	KW	MIN. TEMP RISE °C	SP mmH20	ELECTRICAL DATA	CONTROL
MUA-1	0.284	60	10	20	13	220/1/50	REMOTE
MUA-2	0.284	60	10	20	13	220/1/50	REMOTE

NOTES:
1. PROVIDE REMOTE MOUNTED THERMOSTAT WITH LOCKING COVER.
2. INTERLOCK BLOWER OPERATION WITH EXHAUST FANS EF-1 AND THERMOSTAT.
3. PROVIDE AIR SENSING SWITCH FOR HEATING OPERATION.

ELECTRIC UNIT HEATER SCHEDULE

NO.	CMS	KW	F.A.T. °C	ELECT. CHAR.	MOUNTING
EH-2	0.200	2.6	38	380/1/50	WALL HUNG
EH-4	0.200	4	38	380/1/50	WALL HUNG

NOTES:
1. UNIT HEATERS SHALL HAVE TAMPER PROOF INTEGRAL STATS.
2. COORDINATE LOCATION AND ORIENTATION IN FIELD.

CEILING FAN

NO.	BLADE SIZE mm	BLADE SIZE IN	VOLTAGE	SWITCH	REMARKS
CF-1	1320	52	220/1/50	@ WALL	3 SPEED REVERSIBLE MOTOR

NOTES:
1. INSTALL FANS 2.5M AFF.
2. PROVIDE WITH OUT LIGHT FIXTURE.
3. PROVIDE WITH REMOTE MOUNTED ON-OFF SWITCH SHOWN ON ELECTRICAL DRAWINGS.

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

0 2000 4000
SCALE: 1:100

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW R. SOTOSKY
ENGINEER
045576-E

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

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Dwn by: JJN
Ckd by: CJM
Reviewed by:
Submitted by: BAKER
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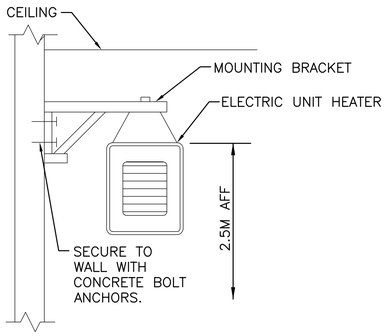
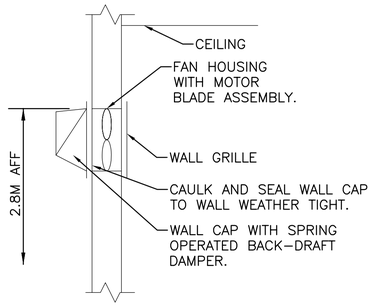
HVAC – SECOND FLOOR PLAN, SCHEDULES AND DETAILS

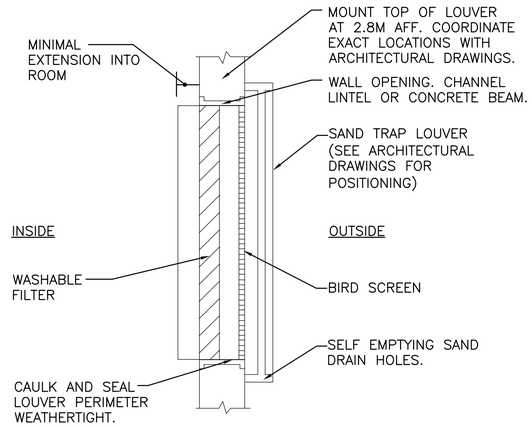
Sheet reference number:
M-102



1 M-501 ELECTRIC UNIT HEATER MOUNTING DETAIL
N.T.S.



2 M-501 THROUGH THE WALL EXHAUST FAN DETAIL
N.T.S.



3 M-501 FILTERED SAND TRAP LOUVER
N.T.S.

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

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DETAILS

Sheet reference number:
M-501

POWER

- DISTRIBUTION PANELBOARD
- NEW PANELBOARD – SURFACE
- NEW PANELBOARD – RECESSED
- GENERATOR
- TRANSFORMER (DRAWN TO SIZE)
- JUNCTION BOX
- JUNCTION BOX – CEILING
- FUSIBLE SAFETY SWITCH
- MOTOR
- MOTOR STARTING SWITCH – 220V, 20A RATED UNLESS OTHERWISE NOTED
- ELECTRIC WATER HEATER
- CEILING FAN – REFER TO SPECIFICATION SECTION 26 20 00

RECEPTACLES

- DUPLEX 20A TYPE CEE 7/7 "SCHUKO STYLE" UNSWITCHED RECEPTACLE
- GF — DUPLEX 20A TYPE CEE 7/7 "SCHUKO STYLE" UNSWITCHED RECEPTACLES – 10mA GROUND FAULT INTERRUPTER TYPE
- WP — DUPLEX 20A TYPE CEE 7/7 "SCHUKO STYLE" UNSWITCHED TYPE WITH WEATHERPROOF COVER – 10mA GROUND FAULT INTERRUPTER TYPE
- EXP — DUPLEX 20A TYPE CEE 7/7 "SCHUKO STYLE" UNSWITCHED RECEPTACLES – EXPLOSION PROOF
- * — INDICATES MOUNT DEVICE ABOVE COUNTERTOP OR AT 1070mm ABOVE FINISHED FLOOR WHERE NO COUNTER IS TO BE INSTALLED.

LIGHTNING PROTECTION

- AIR TERMINAL 20mm O.D. X 450mm 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 ROD TRIPOD, SPACED 3 METERS APART.
- LEVEL TO LEVEL CABLE

LIGHTING

- LIGHTING FIXTURE – SEE FIXTURE SCHEDULE FOR MORE INFORMATION
- EMERGENCY 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
- REMOTE HEAD FOR BATTERY PACK
- $ — SINGLE POLE SWITCH – 20A RATED
- $3 — 3-WAY SWITCH – 20A RATED
- $4 — 4-WAY SWITCH – 20A RATED
- 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.

TELECOMMUNICATIONS

- TELEPHONE OUTLET(S) @ 45cm AFF. U.N.O. WITH 20mm RACEWAY TERMINATED TO TELEDATA TERMINAL BOARD.
- DATA OUTLET(S) @ 45cm AFF. U.N.O. WITH 20mm RACEWAY TERMINATED TO TELEDATA TERMINAL BOARD.

TELECOMMUNICATIONS (CONTINUED)

- COMBINATION TELEPHONE/DATA OUTLET(S) @ 45cm AFF. U.N.O. WITH 27mm RACEWAY TERMINATED TO TELEDATA TERMINAL AREA.
- W — WALL MTD. TELEPHONE OUTLET WITH 20mm RACEWAY TO TELEDATA TERMINAL BOARD.
- (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
- GROUND
- CONTACT (NORMALLY OPEN)
- CONTACT (NORMALLY CLOSED)
- TRANSFER SWITCH
- CURRENT TRANSFORMER
- INDICATES NEW ELECTRICAL EQUIPMENT
- C — INDICATES NEW CONTROL WIRING AND CONDUIT
- EQUIPMENT OUTLINE

MISCELLANEOUS

- BRANCH CIRCUIT WIRING, SURFACE MOUNTED ON WALLS
- BRANCH CIRCUIT WIRING – 6mm²
- BRANCH CIRCUIT WIRING – UNDER FLOOR
- HOME RUN BACK TO PANEL
- CONDUIT TURNED DOWN
- CONDUIT TURNED UP
- LV — LOW VOLTAGE WIRING AND CONDUIT
- 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 – WALL MOUNTED
- F — FIRE ALARM HORN/STROBE – WALL MOUNTED
- 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
GF	GROUND FAULT INTERRUPTER
GC	GENERAL CONTRACTOR
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
SL	SINGLE LINE
T	TELEPHONE

DENOTATIONS & ABBREVIATIONS (CONT.)

TP	TAMPER PROOF
UE	UNDERGROUND ELECTRIC
W	WALL MOUNTED
WP	WEATHERPROOF WITH GROUND FAULT INTERRUPTION
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. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE CONSTRUCTION AREA THREE (3) WORKING DAYS NOTICE BEFORE COMMENCING DIGGING. NOTIFY THE LOCAL AUTHORITY HAVING JURISDICTION AND WAIT THE REQUIRED TIME BEFORE COMMENCING TO DIG.

G3. THE CONTRACTOR SHALL COORDINATE CONDUIT RUNS, LIGHTING FIXTURES AND OTHER EQUIPMENT LOCATIONS WITH THE OTHER TRADE CONTRACTORS TO AVOID CONFLICTS.

G4. 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.

G5. 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.

G6. THE CONTRACTOR SHALL PUT A MAXIMUM OF 6 DUPLEX RECEPTACLES ON A 20A SINGLE POLE CIRCUIT.

G7. 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.

G8. ALL CONDUIT AND DEVICES SHALL BE SURFACE MOUNTED UNLESS OTHERWISE INDICATED.

G9. CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL OTHER TRADES TO ENSURE ALL WORK IS COMPLETED IN A PROFESSIONAL, WORKMAN-LIKE MANNER.

APPROVED:

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SEAL:

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REGISTERED PROFESSIONAL
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1/29/10
ENGINEER
PE-074251

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Mark	Description	Date	Appr.	Mark	Description	Date	Appr.

Date: 0
Date: 2/23/10
Design file no.
Drawing code:
File name:
Plot date:
Plot scale:

Designed by: RAJ
Dwn by: BJB
Ckd by: JRG
Reviewed by: JRG
Submitted by: BAKER

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AFGHAN NATIONAL ARMY
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ENLISTED BARRACKS
ELECTRICAL SYMBOLS & ABBREVIATIONS

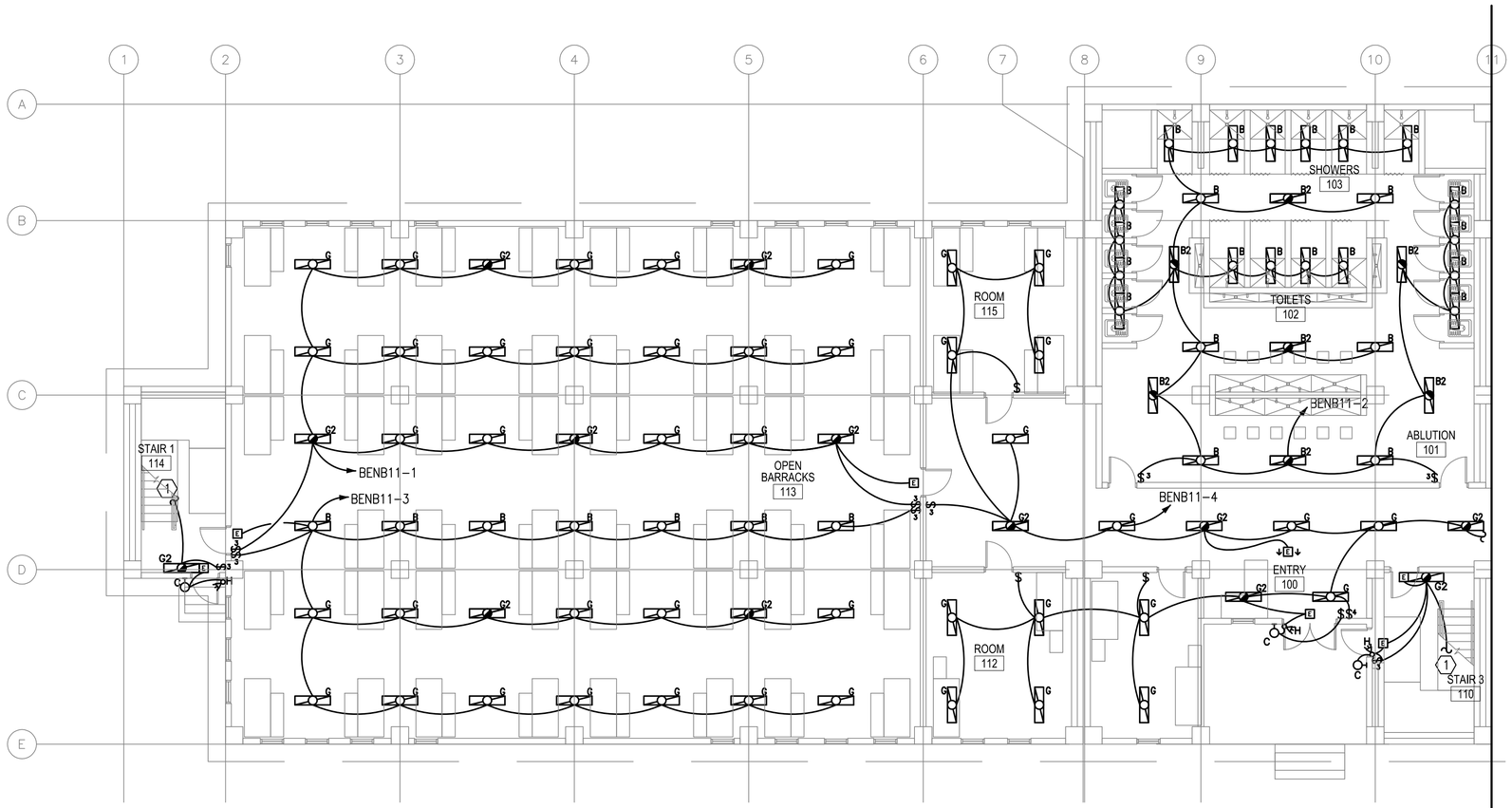
Sheet reference number:
E-001

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. EXIT SIGNS SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING ON CIRCUITS. SEE WIRING DIAGRAM DETAIL 8, DRAWING # E-501.
3. REFER TO DRAWING #E-601 FOR THE LIGHTING FIXTURE SCHEDULE.
4. REFER TO DRAWING #E-501 FOR THE POWER RISER.
5. REFER TO DRAWING #E-602 FOR PANEL SCHEDULES.
6. LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A BATTERY BACKUP BALLAST.

NUMBERED NOTES:

(1) CIRCUIT SHALL BE CONTINUED TO THE FLOOR ABOVE.

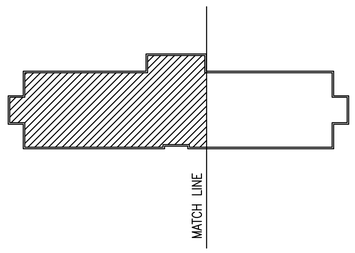


1 E-101

ENLISTED BARRACKS PARTIAL FLOOR PLAN - LIGHTING

SCALE: 1:100

KEY PLAN:



0 2000 4000
SCALE: 1:100

APPROVED:

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SEAL:

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PE-074251
1/29/10

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Dwn by: BJB	Ckd by: JRG
Reviewed by: JRG	Drawing code:
Submitted by: BAKER	File name:
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ENLISTED BARRACKS
FIRST FLOOR ELECTRICAL LIGHTING PLAN
PART A

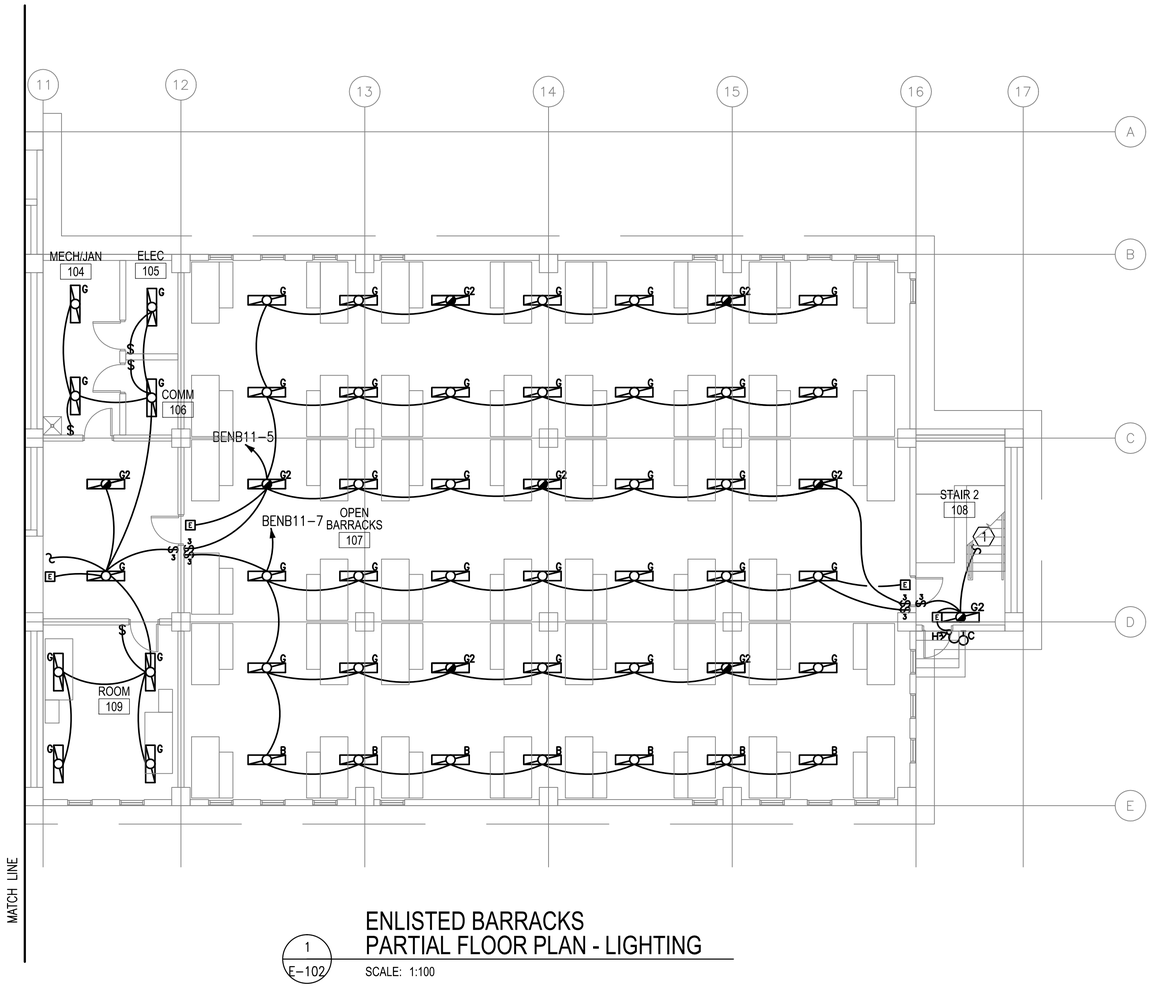
Sheet reference number:
E-101

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. EXIT SIGNS SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING ON CIRCUITS. SEE WIRING DIAGRAM DETAIL 8, DRAWING #E-501.
3. REFER TO DRAWING #E-601 FOR THE LIGHTING FIXTURE SCHEDULE.
4. REFER TO DRAWING #E-501 FOR THE POWER RISER.
5. REFER TO DRAWING #E-602 FOR PANEL SCHEDULES.
6. LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A BATTERY BACKUP BALLAST. SEE WIRING DIAGRAM 7, DRAWING #E-501

NUMBERED NOTES:

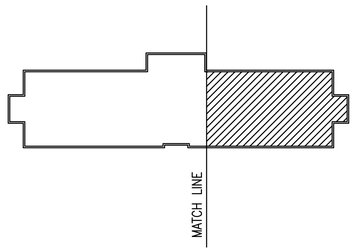
(1) CIRCUIT SHALL BE CONTINUED TO THE FLOOR ABOVE.



1 / E-102 ENLISTED BARRACKS PARTIAL FLOOR PLAN - LIGHTING

SCALE: 1:100

KEY PLAN:



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SCALE: 1:100

APPROVED:

A/E DESIGNER OF RECORD

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REGISTERED PROFESSIONAL ENGINEER
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1/29/10

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AFGHANISTAN ENGINEER DISTRICT

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Dwn by: BJB
Ckd by: JRG
Reviewed by: JRG
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ENLISTED BARRACKS
FIRST FLOOR ELECTRICAL LIGHTING PLAN
PART B

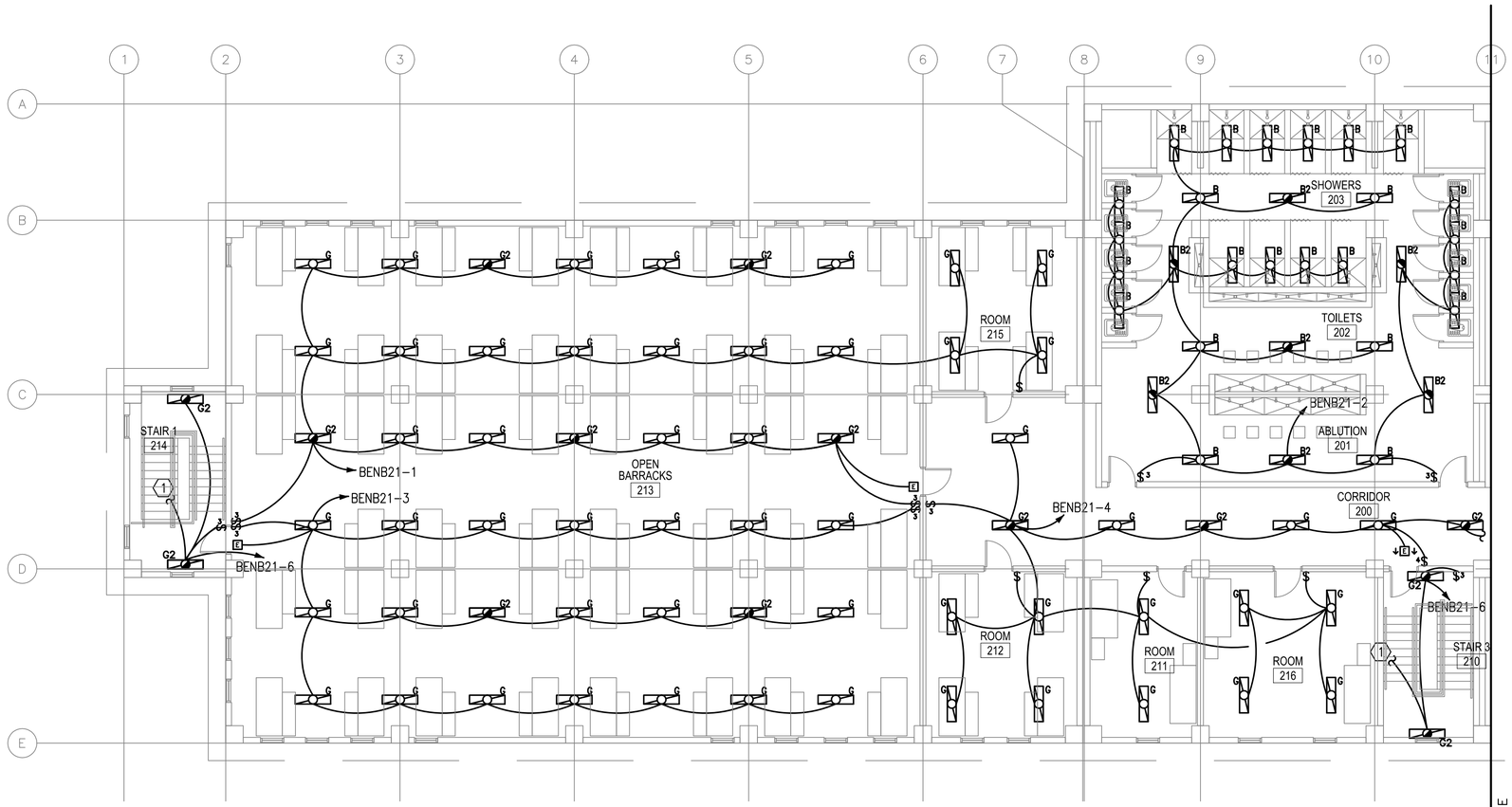
Sheet reference number:
E-102

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. EXIT SIGNS SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING ON CIRCUITS.
3. REFER TO DRAWING #E-400 FOR THE LIGHTING FIXTURE SCHEDULE.
4. REFER TO DRAWING #E-500 FOR THE POWER RISER.
5. REFER TO DRAWING #E-600 FOR PANEL SCHEDULES.
6. LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A BATTERY BACKUP BALLAST.

NUMBERED NOTES:

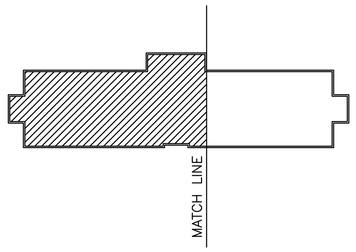
(1) CIRCUIT SHALL BE CONTINUED TO THE FLOOR BELOW.



1 E-103 ENLISTED BARRACKS PARTIAL FLOOR PLAN - LIGHTING

SCALE: 1:100

KEY PLAN:



0 2000 4000

SCALE: 1:100

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ENLISTED BARRACKS
SECOND FLOOR ELECTRICAL LIGHTING
PLAN PART A

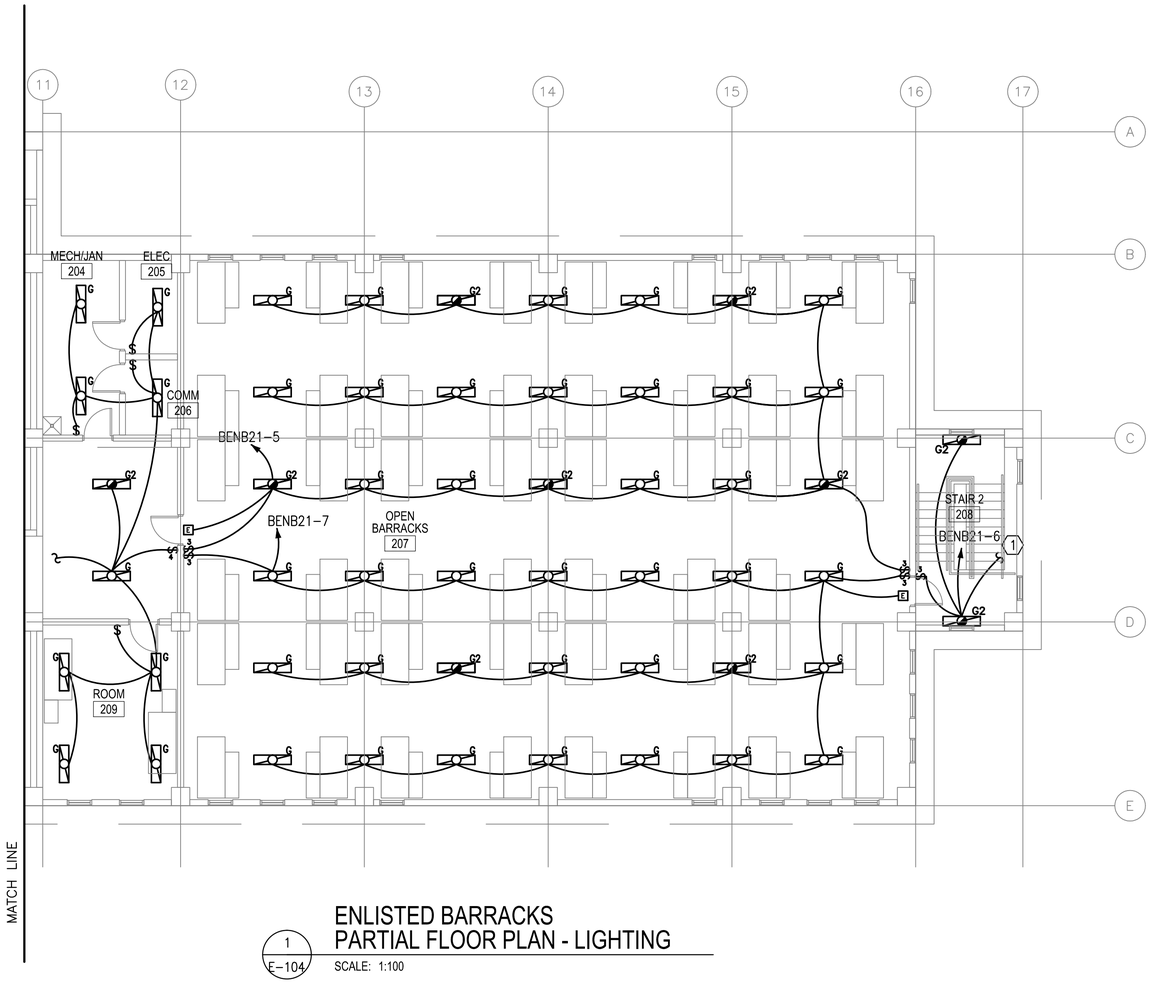
Sheet reference number:
E-103

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. EXIT SIGNS SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING ON CIRCUITS. SEE WIRING DIAGRAM 8, DRAWING #E-501.
3. REFER TO DRAWING #E-601 FOR THE LIGHTING FIXTURE SCHEDULE.
4. REFER TO DRAWING #E-501 FOR THE POWER RISER.
5. REFER TO DRAWING #E-602 FOR PANEL SCHEDULES.
6. LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A BATTERY BACKUP BALLAST. SEE WIRING DIAGRAM DETAIL 7, DRAWING #E-501.

NUMBERED NOTES:

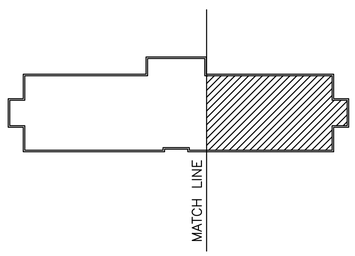
(1) CIRCUIT SHALL BE CONTINUED TO THE FLOOR BELOW.



1 / E-104 ENLISTED BARRACKS PARTIAL FLOOR PLAN - LIGHTING

SCALE: 1:100

KEY PLAN:



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ENLISTED BARRACKS
SECOND FLOOR ELECTRICAL LIGHTING
PLAN PART B

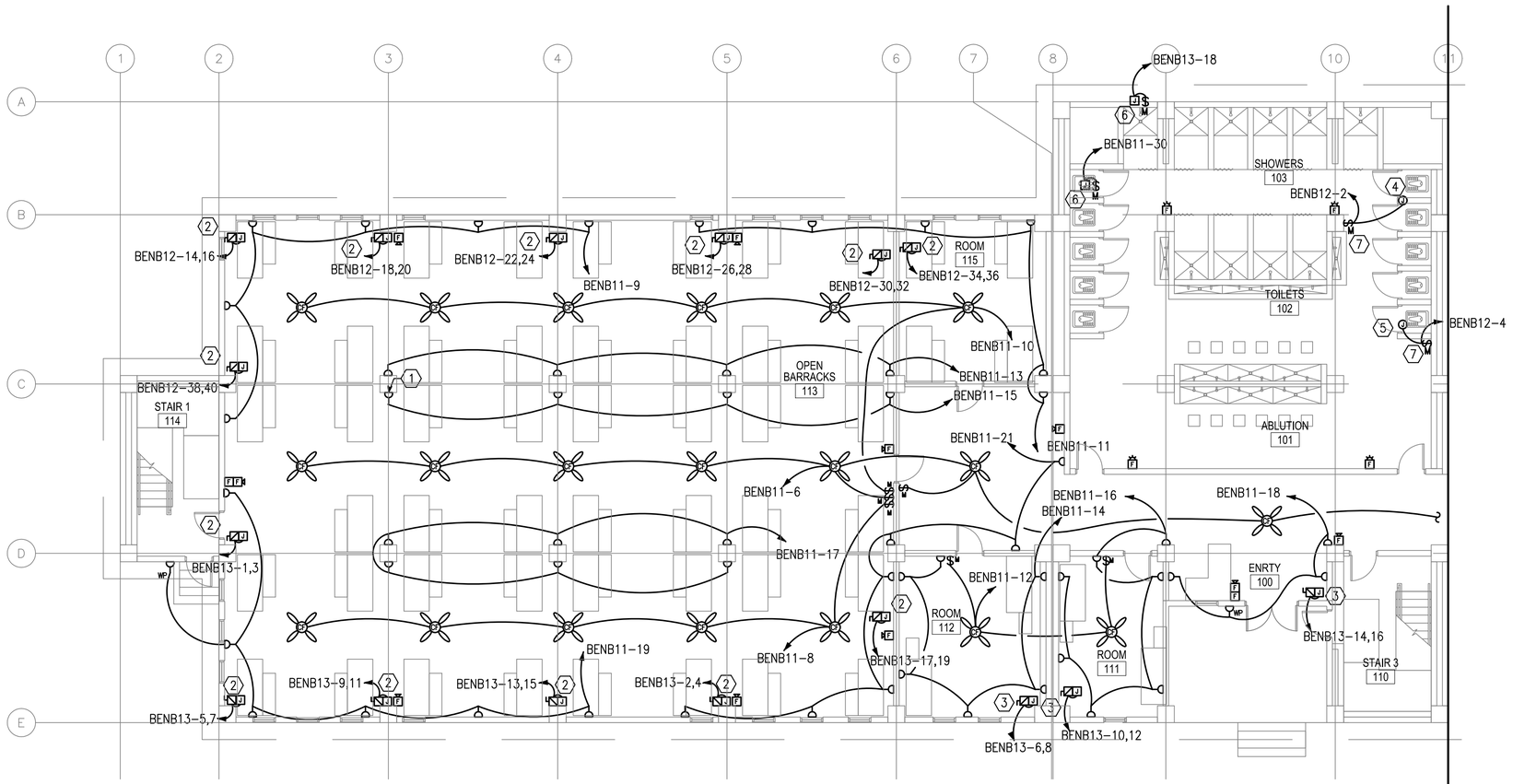
Sheet reference number:
E-104

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. REFER TO DRAWING #E-501 FOR THE POWER RISER.
3. REFER TO DRAWING #E-602 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.
5. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PER THIS PACKAGE.

NUMBERED NOTE:

1. SURFACE MOUNTED ON COLUMN
2. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #4. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
3. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #2. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
4. PROVIDE POWER CONNECTION TO MAKE-UP AIR UNIT #1. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
5. PROVIDE POWER CONNECTION TO MAKE-UP AIR UNIT #2. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
6. PROVIDE POWER CONNECTION TO EXHAUST FANS. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
7. PROVIDE 220V, 1ø, 60A MOTOR SNAP SWITCH IN NEMA 3R ENCLOSURE.

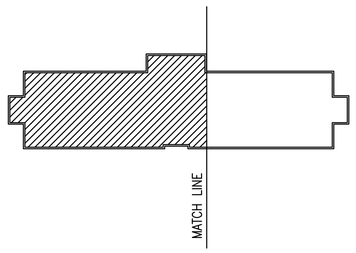


1
E-105

ENLISTED BARRACKS
PARTIAL FLOOR PLAN - POWER & SYSTEMS

SCALE: 1:100

KEY PLAN:



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SCALE: 1:100

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AFGHANISTAN ENGINEER DISTRICT

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Reviewed by: JRG	Drawing code:
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	Plot date:
	Plot scale:
	Design file no. 0

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ENLISTED BARRACKS
FIRST FLOOR ELECTRICAL POWER AND SYSTEMS PLAN PART A

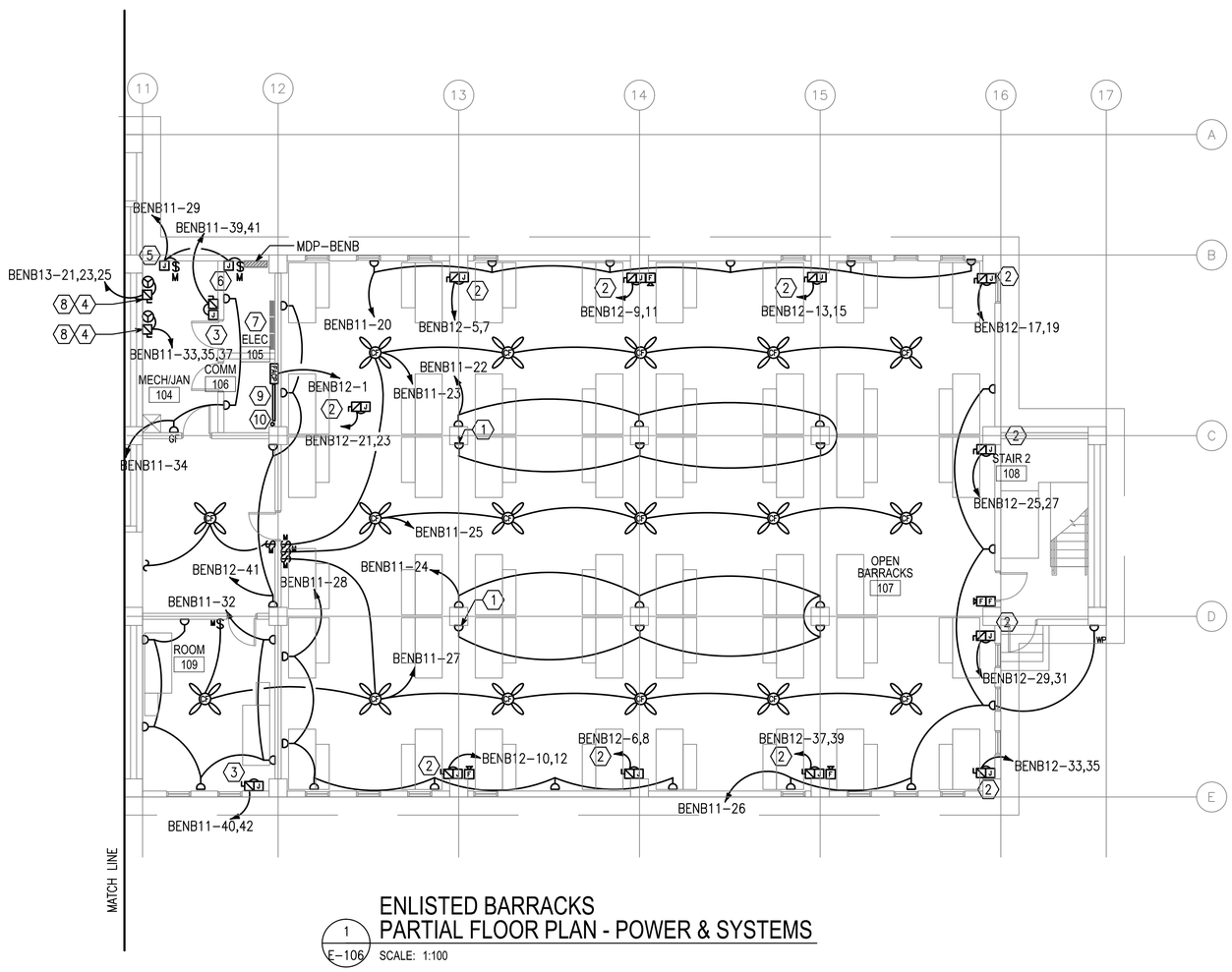
Sheet reference number:
E-105

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. REFER TO DRAWING #E-501 FOR THE POWER RISER.
3. REFER TO DRAWING #E-602 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.
6. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PER THIS PACKAGE.

NUMBERED NOTES:

1. SURFACE MOUNTED ON COLUMN
2. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #4. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
3. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #2. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
4. SEE DRAWING #E-602 FOR WIRE AND CONDUIT SIZE.
5. PROVIDE POWER CONNECTION TO EXHAUST FAN #3. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
6. PROVIDE POWER CONNECTION TO EXHAUST FAN #4. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
7. PANEL BENB11, BENB12 AND BENB13.
8. NEMA 3R, 380V, 3P, 60A FUSED DISCONNECT FUSED AT 40A. SEE PLUMBING DRAWINGS FOR EXACT LOCATION OF WATER HEATER.
9. PROVIDE A 1200mm X 2400mm SHEET OF PLYWOOD PAINTED WITH FIRE RESISTANT PAINT FOR MOUNTING TELECOMMUNICATIONS EQUIPMENT.
10. PROVIDE CONDUIT STUB UP IN THE ROOM FOR INCOMING TELECOMMUNICATIONS SERVICES FROM THE CENTRAL COMMUNICATIONS SYSTEM IN THE GARRISON.



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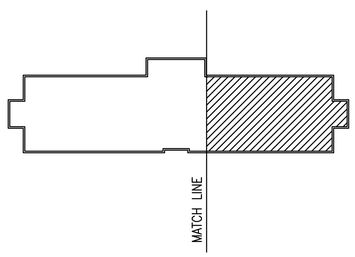
E-106
ENLISTED BARRACKS
PARTIAL FLOOR PLAN - POWER & SYSTEMS
SCALE: 1:100

KEY PLAN:



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SCALE: 1:100

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ENGINEER
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AFGHANISTAN ENGINEER DISTRICT

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ENLISTED BARRACKS
FIRST FLOOR ELECTRICAL POWER AND SYSTEMS PLAN PART B

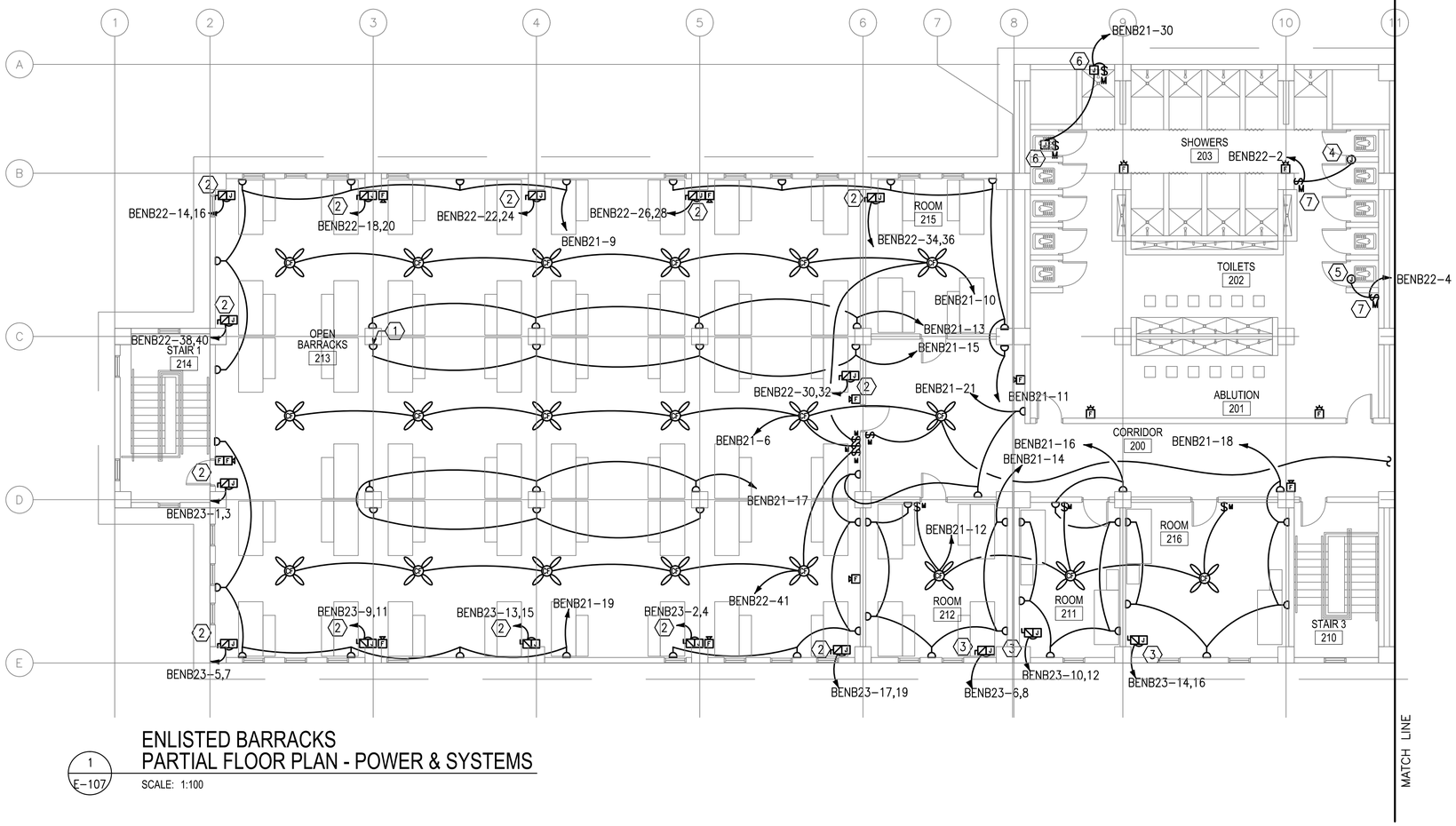
Sheet reference number:
E-106

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. REFER TO DRAWING #E-501 FOR THE POWER RISER.
3. REFER TO DRAWING #E-602 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.
6. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PER THIS PACKAGE.

NUMBERED NOTE:

1. SURFACE MOUNTED ON COLUMN
2. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #4. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
3. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #2. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
4. PROVIDE POWER CONNECTION TO MAKE-UP AIR UNIT #1. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
5. PROVIDE POWER CONNECTION TO MAKE-UP AIR UNIT #2. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
6. PROVIDE POWER CONNECTION TO EXHAUST FAN. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
7. PROVIDE 220V, 1Ø, 60A MOTOR SNAP SWITCH IN NEMA 3R ENCLOSURE.

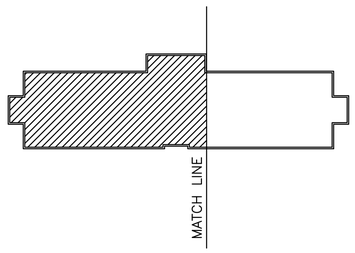


1
E-107

ENLISTED BARRACKS
PARTIAL FLOOR PLAN - POWER & SYSTEMS

SCALE: 1:100

KEY PLAN:



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SCALE: 1:100

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1/29/10
ENGINEER
PE-074251

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AFGHANISTAN ENGINEER DISTRICT

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ENLISTED BARRACKS
SECOND FLOOR POWER AND SYSTEMS
PLAN PART A

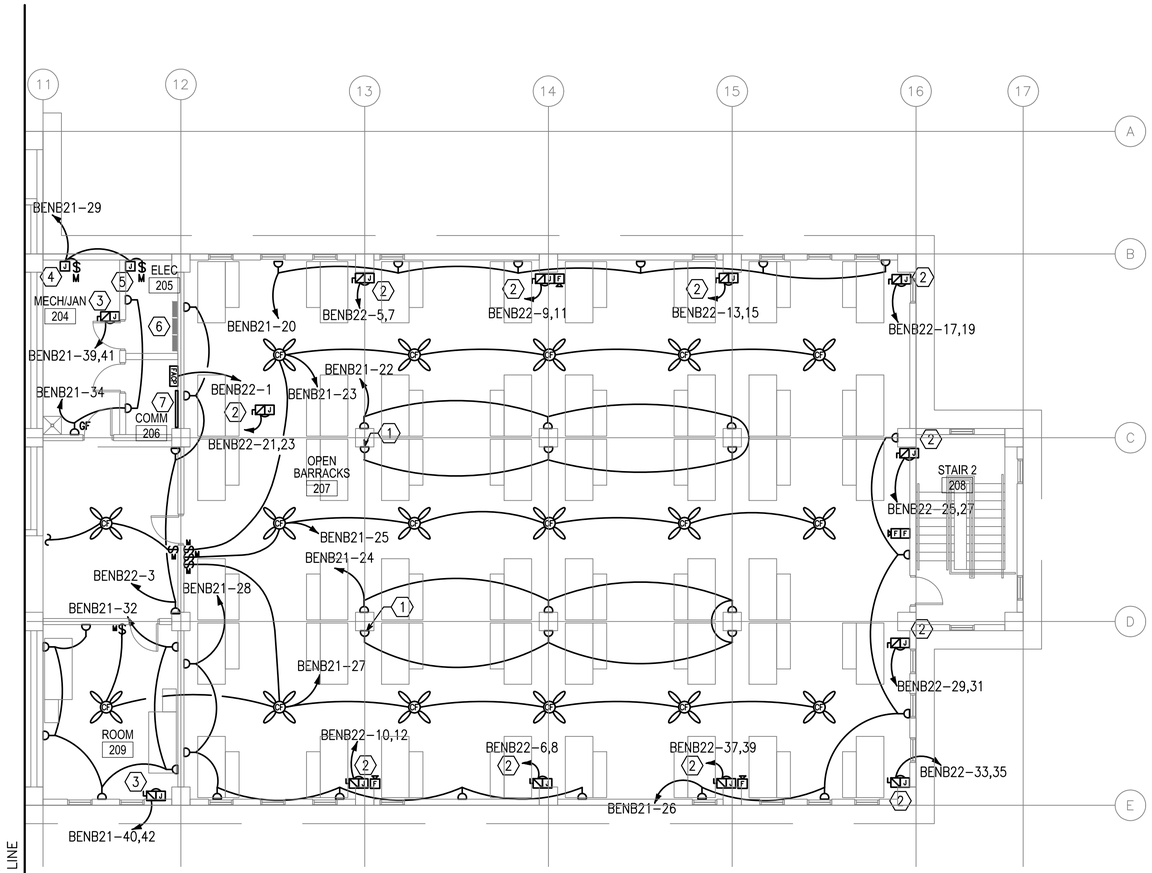
Sheet reference number:
E-107

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
2. REFER TO DRAWING #E-501 FOR THE POWER RISER.
3. REFER TO DRAWING #E-602 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.
6. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PER THIS PACKAGE.

NUMBERED NOTES:

1. SURFACE MOUNTED ON COLUMN
2. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #4. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
3. PROVIDE POWER CONNECTION TO ELECTRIC UNIT HEATER #2. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
4. PROVIDE POWER CONNECTION TO EXHAUST FAN #3. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
5. PROVIDE POWER CONNECTION TO EXHAUST FAN #4. SEE DRAWINGS #E-602 AND #M-101 FOR MORE INFORMATION.
6. PANEL BENB21, BENB22, AND BENB23
7. PROVIDE A 1200mm X 2400mm SHEET OF PLYWOOD PAINTED WITH FIRE RESISTANT PAINT FOR MOUNTING TELECOMMUNICATIONS EQUIPMENT.

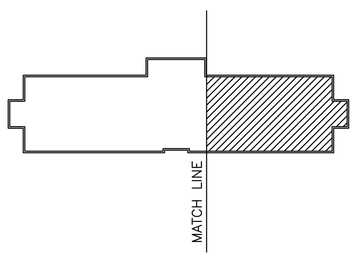


1
E-108

ENLISTED BARRACKS
PARTIAL FLOOR PLAN - POWER & SYSTEMS

SCALE: 1:100

KEY PLAN:



0 2000 4000
SCALE: 1:100

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

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REGISTERED PROFESSIONAL
JOSEPH R. GAUS
ENGINEER
PE-074251

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

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Designed by: KJR
Dwn by: BJB
Ckd by: JRG
Reviewed by: JRG
Submitted by: BAKER
Date: 2/23/10
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Drawing code:
File name:
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ENLISTED BARRACKS
SECOND FLOOR ELECTRICAL POWER AND SYSTEMS PLAN PART B

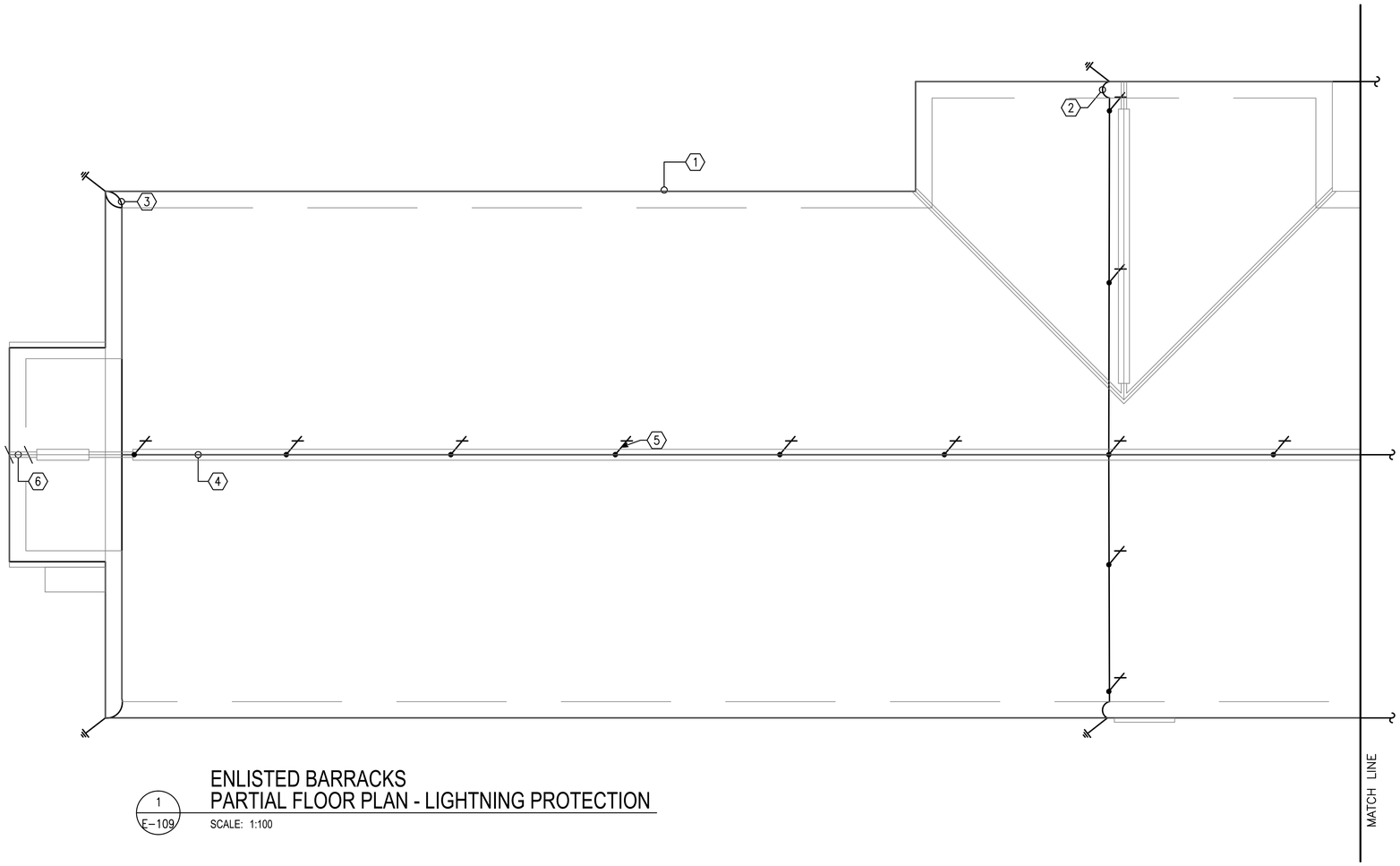
Sheet reference number:
E-108

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.

NUMBERED NOTES:

1. (1) 120.0mm² BARE, TINNED, COPPER COUNTERPOISE GROUND 700mm BELOW GRADE.
2. INSTALL DOWN CONDUCTOR IN 25mm SCHEDULE 80 PVC CONDUIT TO 20mm DIAMETER X 3 METERS SOLID COPPER TINNED GROUND ROD. (TYPICAL)
3. CADWELD TO BUILDING STRUCTURE AT 18 METERS ON CENTER AROUND THE ENTIRE PERIMETER OF THE BUILDING. (TYPICAL)
4. 120mm² LIGHTNING PROTECTION CABLE.
5. AIR TERMINAL. TERMINALS SHALL BE PLACED AT A MAXIMUM OF 6M ON CENTER PER NFPA 780 PARA. 4.8.2.1, AND WITHIN 0.6M OF RIDGE ENDS PER NFPA 780 PARA. 4.8 (TYPICAL)
6. 700mm MIN. (TYP) BETWEEN FOUNDATION AND GROUND LOOP.

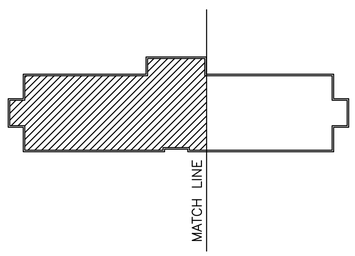


1
E-109

ENLISTED BARRACKS
PARTIAL FLOOR PLAN - LIGHTNING PROTECTION

SCALE: 1:100

KEY PLAN:



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SCALE: 1:100

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ENLISTED BARRACKS
ELECTRICAL LIGHTNING PROTECTION PLAN

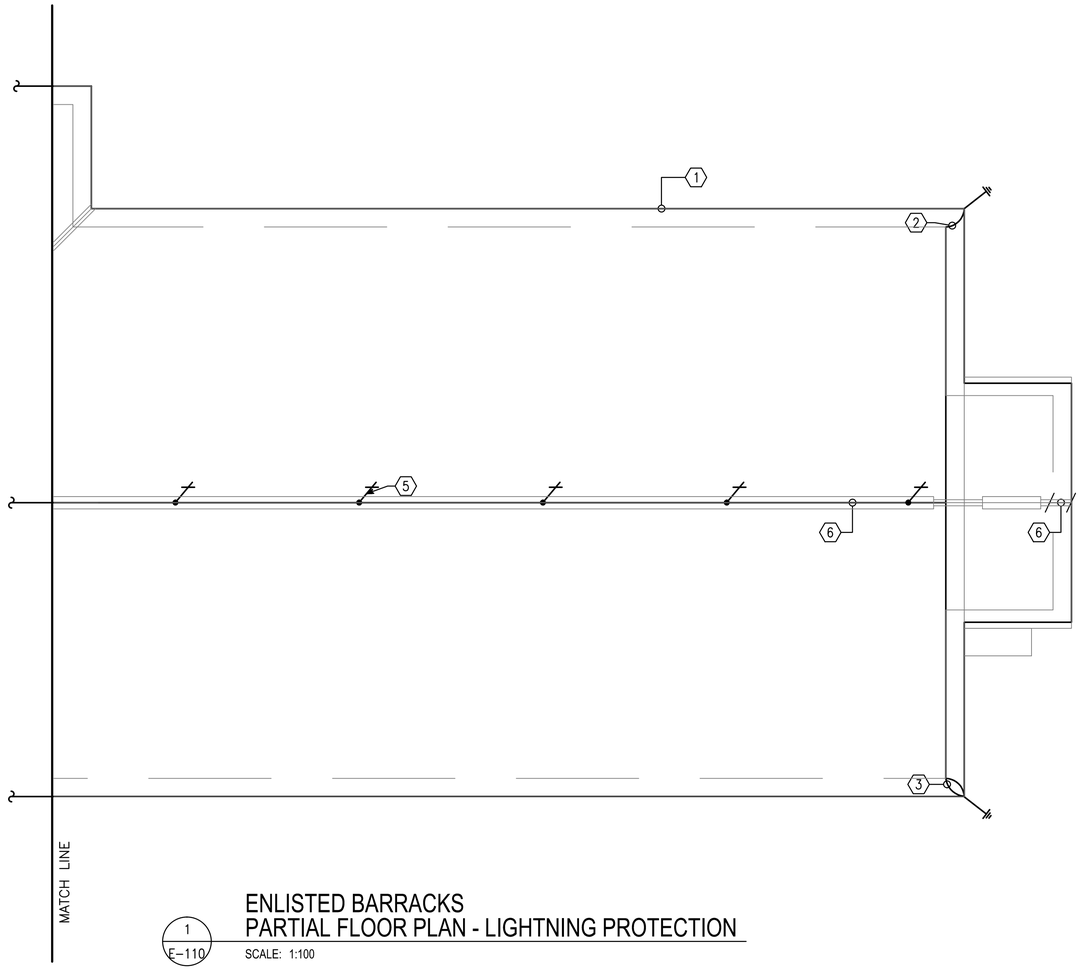
Sheet reference number:
E-109

GENERAL NOTES:

1. REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.

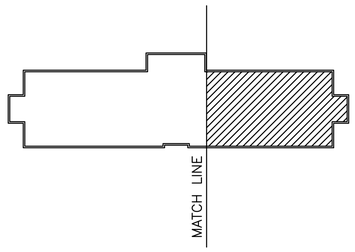
NUMBERED NOTES:

1. (1) 120.0mm² BARE, TINNED, COPPER COUNTERPOISE GROUND 700mm BELOW GRADE.
2. INSTALL DOWN CONDUCTOR IN 25mm SCHEDULE 80 PVC CONDUIT TO 20mm DIAMETER X 3 METERS SOLID COPPER TINNED GROUND ROD. (TYPICAL)
3. CADWELD TO BUILDING STRUCTURE AT 18 METERS ON CENTER AROUND THE ENTIRE PERIMETER OF THE BUILDING. (TYPICAL)
4. 120mm² LIGHTNING PROTECTION CABLE.
5. AIR TERMINAL. TERMINALS SHALL BE PLACED AT A MAXIMUM OF 6M ON CENTER PER NFPA 780 PARA. 4.8.2.1, AND WITHIN 0.6M OF RIDGE ENDS PER NFPA 780 PARA. 4.8 (TYPICAL)
6. 700mm MIN. (TYP) BETWEEN FOUNDATION AND GROUND LOOP.



1 / E-110 ENLISTED BARRACKS
PARTIAL FLOOR PLAN - LIGHTNING PROTECTION
SCALE: 1:100

KEY PLAN:



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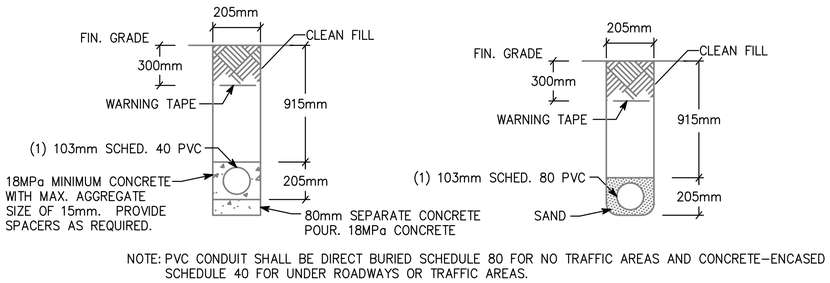
ENLISTED BARRACKS
ELECTRICAL LIGHTNING PROTECTION PLAN

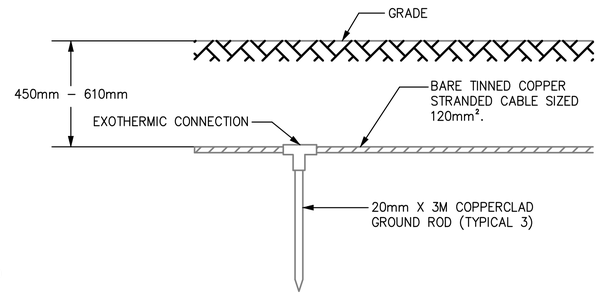
Sheet reference number:
E-110



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

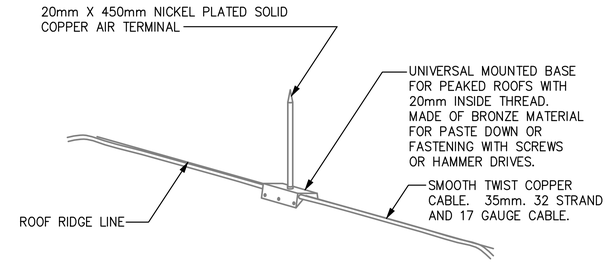
1 / E-501 TYPICAL DUCT BANK DETAILS FOR CONDUIT IN SAND OR CONCRETE

SCALE: N.T.S.



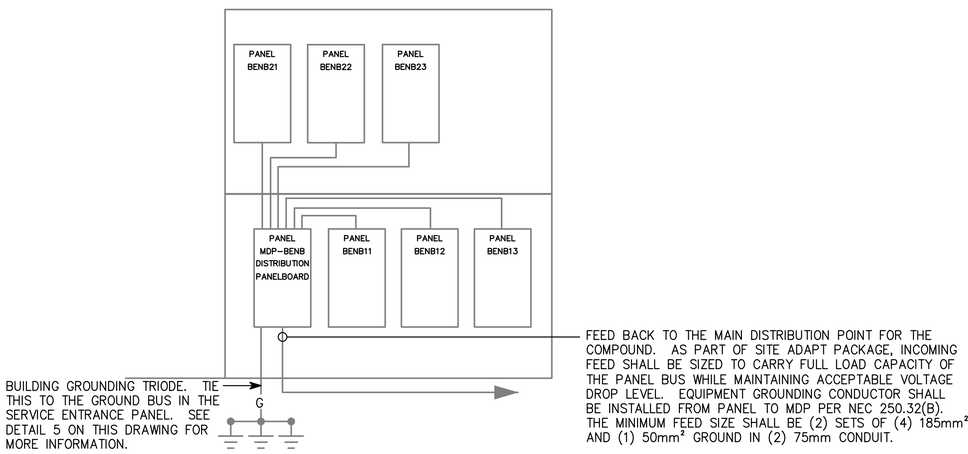
2 / E-501 GROUND TRIPOD SYSTEM DETAIL - ELEVATION

SCALE: N.T.S.



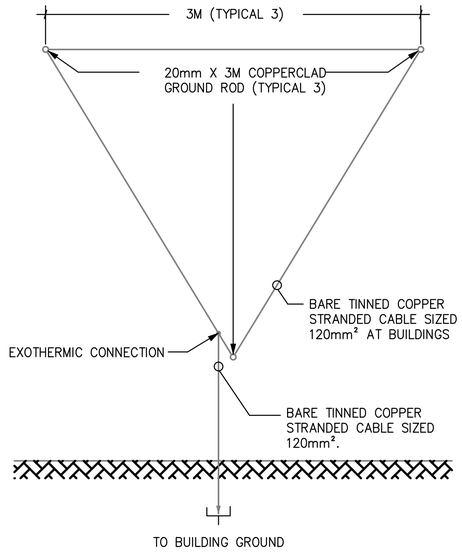
3 / E-501 LIGHTNING PROTECTION AIR TERMINAL DETAIL

SCALE: N.T.S.



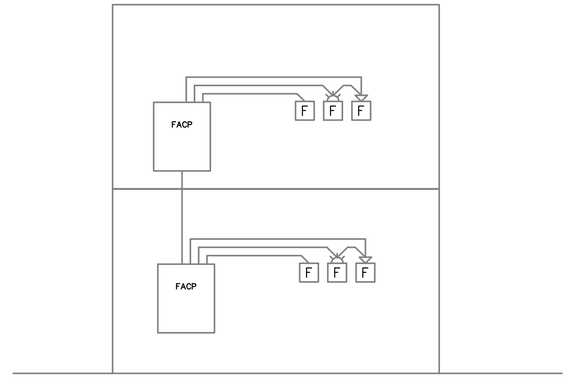
4 / E-501 BENB RISER DIAGRAM

SCALE: N.T.S.



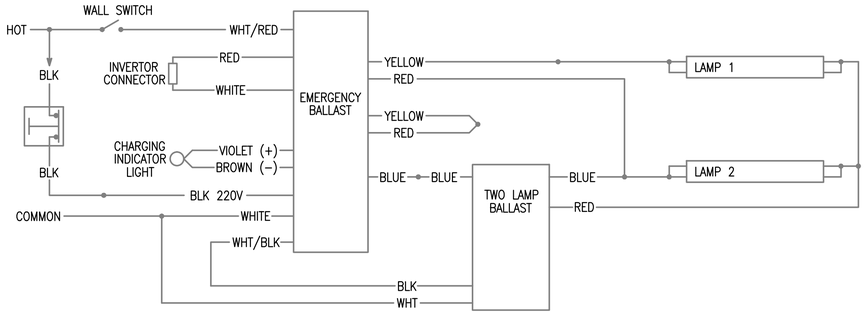
5 / E-501 GROUND TRIPOD SYSTEM DETAIL - PLAN

SCALE: N.T.S.



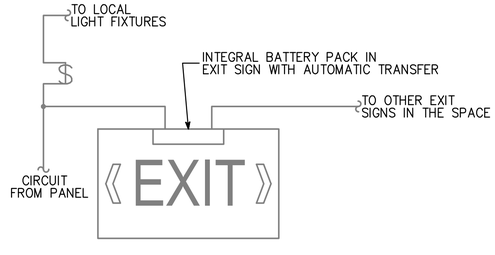
6 / E-501 TYPICAL TWO STORY FIRE ALARM RISER

SCALE: N.T.S.



7 / E-501 EMERGENCY FIXTURE WIRING DIAGRAM

SCALE: N.T.S.



8 / E-501 EXIT SIGN WIRING DIAGRAM

SCALE: N.T.S.

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AFGHANISTAN ENGINEER DISTRICT

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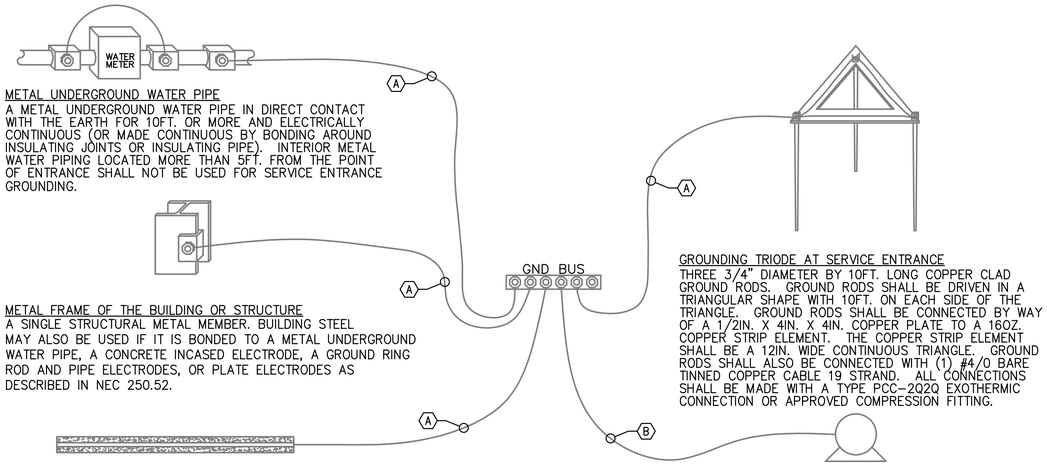
ENLISTED BARRACKS
ELECTRICAL DETAILS

Sheet reference number:
E-501

(A) LARGER OF THE TWO SIZES GIVEN IN THE TABLES BELOW	
GROUNDING ELECTRODE CONDUCTOR (BASED ON AIC RATING)	
AIC RATING OF SERVICE EQUIPMENT	NECESSARY GROUNDING ELECTRODE CONDUCTOR SIZE
10K	(1) 35mm²
14K	(1) 50mm²
18K	(1) 70mm²
22K	(1) 70mm²
25K	(1) 70mm²
30K	(1) 95mm²
35K	(1) 120mm²
42K	(1) 150mm²
65K	(1) 185mm²
100K	(1) 300mm²
125K	(2) 185mm²
200K	(2) 300mm²
GROUNDING ELECTRODE CONDUCTOR (BASED ON NEC TABLE 250.66)	
SIZE OF LARGEST UNGROUNDED SERVICE CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS	NECESSARY GROUNDING ELECTRODE CONDUCTOR SIZE
350 kcmil OR SMALLER	35mm²
OVER 350 kcmil TO 600 kcmil	70mm²
OVER 600 kcmil TO 1100 kcmil	70mm²
OVER 1100 kcmil	95mm²
NOTE: ALL SIZES ARE BASED ON COPPER CONDUCTORS.	

(B) EQUIPMENT GROUNDING CONDUCTOR	
RATING OR SETTING OF AUTOMATIC OVERCURRENT DEVICE IN CIRCUIT AHEAD OF EQUIPMENT, CONDUIT, ETC, NOT EXCEEDING (AMPERES)	NECESSARY EQUIPMENT GROUNDING CONDUCTOR SIZE
15	2.5mm²
20	4.0mm²
30	6.0mm²
40	6.0mm²
60	6.0mm²
100	10mm²
200	16mm²
300	25mm²
400	25mm²
500	35mm²
600	50mm²
800	70mm²
1000	70mm²
1200	95mm²
1600	120mm²
2000	150mm²
2500	185mm²
3000	240mm²
4000	300mm²
5000	400mm²
6000	400mm²
NOTE: ALL SIZES ARE BASED ON COPPER CONDUCTORS.	



METAL UNDERGROUND WATER PIPE
A METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH THE EARTH FOR 10FT. OR MORE AND ELECTRICALLY CONTINUOUS (OR MADE CONTINUOUS BY BONDING AROUND INSULATING JOINTS OR INSULATING PIPE). INTERIOR METAL WATER PIPING LOCATED MORE THAN 5FT. FROM THE POINT OF ENTRANCE SHALL NOT BE USED FOR SERVICE ENTRANCE GROUNDING.

METAL FRAME OF THE BUILDING OR STRUCTURE
A SINGLE STRUCTURAL METAL MEMBER. BUILDING STEEL MAY ALSO BE USED IF IT IS BONDED TO A METAL UNDERGROUND WATER PIPE, A CONCRETE INCASED ELECTRODE, A GROUND RING ROD AND PIPE ELECTRODES, OR PLATE ELECTRODES AS DESCRIBED IN NEC 250.52.

CONCRETE ENCASED ELECTRODE
AN ELECTRODE ENCASED BY AT LEAST 2IN. OF CONCRETE , LOCATED WITHIN AND NEAR THE BOTTOM OF A CONCRETE FOUNDATION OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH, CONSISTING OF AT LEAST 20FT. OF ONE OR MORE BARE OR ZINC GALVANIZED OR OTHER ELECTRICALLY CONDUCTIVE COATED STEEL REINFORCING BARS OR RODS OF NOT LESS THAN 1/2" DIAMETER OR BARE COPPER CONDUCTOR NOT SMALLER THAN 4AWG.

GROUNDING TRIODE AT SERVICE ENTRANCE
THREE 3/4" DIAMETER BY 10FT. LONG COPPER CLAD GROUND RODS. GROUND RODS SHALL BE DRIVEN IN A TRIANGULAR SHAPE WITH 10FT. ON EACH SIDE OF THE TRIANGLE. GROUND RODS SHALL BE CONNECTED BY WAY OF A 1/2IN. X 4IN. X 4IN. COPPER PLATE TO A 16OZ. COPPER STRIP ELEMENT. THE COPPER STRIP ELEMENT SHALL BE A 12IN. WIDE CONTINUOUS TRIANGLE. GROUND RODS SHALL ALSO BE CONNECTED WITH (1) #4/0 BARE TINNED COPPER CABLE 19 STRAND. ALL CONNECTIONS SHALL BE MADE WITH A TYPE PCC-2Q2Q EXOTHERMIC CONNECTION OR APPROVED COMPRESSION FITTING.

LOAD OR DOWNSTREAM PANEL
ALL LOADS IN THE BUILDING SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR PULLED TO THEM.

1
E-502

SERVICE ENTRANCE GROUNDING DETAIL

SCALE: N.T.S.

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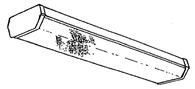
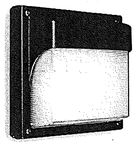
ENLISTED BARRACKS
ELECTRICAL DETAILS

Sheet reference number:
E-502

FIXTURE MARK 'B'



FIXTURE MARK 'C'



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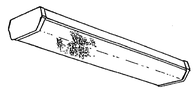
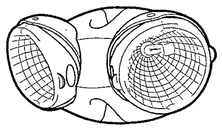


FIXTURE MARK 'H'



FIXTURE MARK 'E'

LIGHT 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	SURFACE MOUNTED	FURNISHED WITH ELECTRONIC BALLAST, VIRGIN ACRYLIC WRAP AROUND LENS.
B2	SAME AS FIXTURE 'B' WITH EMERGENCY BALLAST	(2) 32W 3500K	220V – 1ø 50HZ	SURFACE MOUNTED	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	
G	WRAP AROUND SURFACE/PENDANT MOUNTED FLUORESCENT FIXTURE WITH PRISMATIC ACRYLIC LENS AND ELECTRONIC BALLAST	(2) 32W 3500K	220V – 1ø 50HZ	SURFACE MOUNTED	FURNISHED WITH ELECTRONIC BALLAST, VIRGIN ACRYLIC WRAP AROUND LENS.
G2	SAME AS FIXTURE 'G' WITH EMERGENCY BALLAST	(2) 32W 3500K	220V – 1ø 50HZ	SURFACE MOUNTED	FURNISHED WITH ELECTRONIC BALLAST, VIRGIN ACRYLIC WRAP AROUND LENS. EMERGENCY BALLAST WITH SELF TEST SWITCH.
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	

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ENLISTED BARRACKS
ELECTRICAL LIGHT FIXTURE SCHEDULE

Sheet reference number:
E–601

PANELBOARD BENB11 SURFACE MOUNTED
AMP. MAIN LUGS (OR) 125 AMP. MAIN BREAKER W/ 125 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 225 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	20	1	4.0	4.0	20	LIGHTING – RM 113–115	1.8			2.2			LIGHTING – RM 101–103	20	4.0	4.0	1	20	2
3	20	1	4.0	4.0	20	LIGHTING – RM 113		1.5			1.9		LIGHTING – RM 100, 104–112	20	4.0	4.0	1	20	4
5	20	1	4.0	4.0	20	LIGHTING – RM 107			1.5			1.2	CEILING FANS – RM 113	20	4.0	4.0	1	20	6
7	20	1	4.0	4.0	20	LIGHTING – RM 107	1.5			1.0			CEILING FANS – RM 113	20	4.0	4.0	1	20	8
9	20	1	4.0	4.0	20	RECEPTACLES – RM 113		1.2			1.0		CEILING FANS – RM 113, 115	20	4.0	4.0	1	20	10
11	20	1	4.0	4.0	20	RECEPTACLES – RM 113			1.2			0.4	CEILING FANS – RM 112	20	4.0	4.0	1	20	12
13	20	1	4.0	4.0	20	RECEPTACLES – RM 113	0.8			1.2			RECEPTACLES – RM 112	20	4.0	4.0	1	20	14
15	20	1	4.0	4.0	20	RECEPTACLES – RM 113		0.8			1.2		RECEPTACLES – RM 111	20	4.0	4.0	1	20	16
17	20	1	4.0	4.0	20	RECEPTACLES – RM 113			1.2			1.2	RECEPTACLES – RM 107	20	4.0	4.0	1	20	18
19	20	1	4.0	4.0	20	RECEPTACLES – RM 113	1.4			1.2			RECEPTACLES – RM 107	20	4.0	4.0	1	20	20
21	20	1	4.0	4.0	20	RECEPTACLES – RM 113		1.4			1.2		RECEPTACLES – RM 107	20	4.0	4.0	1	20	22
23	20	1	4.0	4.0	20	CEILING FANS – RM 107			1.0			1.2	RECEPTACLES – RM 107	20	4.0	4.0	1	20	24
25	20	1	4.0	4.0	20	CEILING FANS – RM 107	1.2			1.2			RECEPTACLES – RM 107	20	4.0	4.0	1	20	26
27	20	1	4.0	4.0	20	CEILING FANS – RM 107, 109		1.2			1.2		RECEPTACLES – RM 107	20	4.0	4.0	1	20	28
29	20	1	4.0	4.0	20	EXHAUST FANS #1, #2 – RM 104			1.0			0.5	EXHAUST FAN #1 – RM 100	20	4.0	4.0	1	20	30
31	20	1				SPARE				1.2			RECEPTACLES – RM 109	20	4.0	4.0	1	20	32
33	40	3	10.0	6.0	25	WATER HEATER – RM 104		5.0			0.6		RECEPTACLES – RM 104	20	4.0	4.0	1	20	34
35									5.0				SPARE				2	20	36
37							5.0												38
39	20	2	4.0	4.0	20	ELECTRIC HEAT #2 – RM 104		1.3			1.3		ELECTRIC HEAT #2 – RM 109	20	4.0	4.0	2	20	40
41									1.3			1.3							42
							11.7	12.4	12.2	8.0	8.4	5.8							

TOTAL CONN. LOAD PER PHASE (KVA): A0 19.7 B0 20.8 C0 18.0

TOTAL CONN. LOAD 58.5 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 40.95

* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

PANELBOARD BENB12 SURFACE MOUNTED
AMP. MAIN LUGS (OR) 225 AMP. MAIN BREAKER W/ 225 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 225 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	20	1	4.0	4.0	20	FACP – RM 106	0.5			10.0			MAKE UP AIR #1 – RM 102	25	6.0	25.0	1	60	2
3	20	1				SPARE					10.0		MAKE UP AIR #2 – RM 102	25	6.0	25.0	1	60	4
5	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107		2.0				2.0	ELECTRIC HEAT #4 – RM 107	20	4.0	4.0	2	20	6
7							2.0			2.0									8
9	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107		2.0			2.0		ELECTRIC HEAT #4 – RM 107	20	4.0	4.0	2	20	10
11								2.0				2.0							12
13	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107	2.0			2.0			ELECTRIC HEAT #4 – RM 113	20	4.0	4.0	2	20	14
15								2.0			2.0								16
17	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107			2.0			2.0	ELECTRIC HEAT #4 – RM 113	20	4.0	4.0	2	20	18
19							2.0			2.0									20
21	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107		2.0			2.0		ELECTRIC HEAT #4 – RM 113	20	4.0	4.0	2	20	22
23									2.0			2.0							24
25	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107	2.0			2.0			ELECTRIC HEAT #4 – RM 113	20	4.0	4.0	2	20	26
27								2.0			2.0								28
29	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107			2.0			2.0	ELECTRIC HEAT #4 – RM 113	20	4.0	4.0	2	20	30
31							2.0			2.0									32
33	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107		2.0			2.0		ELECTRIC HEAT #4 – RM 115	20	4.0	4.0	2	20	34
35									2.0			2.0							36
37	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 107	2.0			2.0			ELECTRIC HEAT #4 – RM 113	20	4.0	4.0	2	20	38
39								2.0			2.0								40
41	20	1				RECEPTACLES – RM 107			0.8				SPARE				1	20	42
							12.5	12.0	12.8	22.0	22.0	12.0							

TOTAL CONN. LOAD PER PHASE (KVA): A0 34.5 B0 34.0 C0 24.8

TOTAL CONN. LOAD 93.3 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 65.3

* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

PANELBOARD BENB13 SURFACE MOUNTED
AMP. MAIN LUGS (OR) 100 AMP. MAIN BREAKER W/ 100 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 100 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 113	2.0			2.0			ELECTRIC HEAT #4 – RM 113	20	4.0	4.0	2	20	2
3								2.0			2.0								4
5	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 113			2.0			1.3	ELECTRIC HEAT #2 – RM 112	20	4.0	4.0	2	20	6
7							2.0			1.3									8
9	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 113		2.0			1.3		ELECTRIC HEAT #2 – RM 111	20	4.0	4.0	2	20	10
11									2.0			1.3							12
13	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 113	2.0			1.3			ELECTRIC HEAT #2 – RM 100	20	4.0	4.0	2	20	14
15								2.0			1.3								16
17	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 113			2.0			0.5	EXHAUST FAN #2 – RM 103	20	4.0	4.0	1	20	18
19							2.0						SPARE				1	20	20
21	40	3	10.0	6.0	25	WATER HEATER – RM 104		5.0					SPARE				1	20	22
23									5.0				SPARE				1	20	24
25							5.0						SPARE				1	20	26
27	20	1				SPARE							SPARE				1	20	28
29	20	1				SPARE							SPARE				1	20	30
31	20	1				SPARE							SPARE				1	20	32
33	20	1				SPARE							SPARE				1	20	34
35	20	1				SPARE							SPARE				1	20	36
37	20	1				SPARE							SPARE				1	20	38
39	20	1				SPARE							SPARE				1	20	40
41	20	1				SPARE							SPARE				1	20	42
							13.0	11.0	11.0	4.6	4.6	3.1							

TOTAL CONN. LOAD PER PHASE (KVA): A0 17.6 B0 15.6 C0 14.1

TOTAL CONN. LOAD 47.3 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 33.11

* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

PANELBOARD MDP–BENB SURFACE MOUNTED
AMP. MAIN LUGS (OR) 600 AMP. MAIN BREAKER W/ 600 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 600 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	125	3	50.0	16.0	40	BENB11	19.7			34.5			BENB12	50	25.0	120.0	3	225	2
3								20.8			34.0								4
5									18.0			24.8							6
7	100	3	50.0	10.0	40	BENB13	17.6			14.7			BENB21	40	10.0	50.0	3	100	8
9								15.6			15.8								10
11									14.1			13.4							12
13	225	3	120.0	25.0	50	BENB22	34.5			12.6			BENB23	40	10.0	50.0	3	100	14
15								34.6			9.3								16
17									25.2			8.6							18
19						SPARE							SPARE						20
21																			22
23																			24
							71.8	71.0	57.3	61.8	59.1	46.8							

TOTAL CONN. LOAD PER PHASE (KVA): A0 133.6 B0 130.1 C0 104.1

TOTAL CONN. LOAD 367.8 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 257.5

* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH R. GAUS
ENGINEER
PE-074251

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

Mark	Description	Date	Appr.

Mark	Description	Date	Appr.

Designed by: RAJ
Dwn by: BJB
Ckd by: JRG
Reviewed by: JRG
Submitted by: BAKER
Date: 2/23/10
Design file no.
Drawing code:
Date: 0
File name:
Plot date:
Plot scale:

U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT
APO AE 96338

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AFGHAN NATIONAL ARMY
REGIONAL MILITARY TRAINING CENTER
STANDARD DESIGN

ENLISTED BARRACKS
ELECTRICAL PANEL SCHEDULES

Sheet reference number:
E–602

PANELBOARD BENB21 SURFACE MOUNTED
AMP. MAIN LUGS (OR) 100 AMP. MAIN BREAKER W/ 100 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 100 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	20	1	4.0	4.0	20	LIGHTING – RM 213	1.8			2.2			LIGHTING – RM 201, 202, 203	20	4.0	4.0	1	20	2
3	20	1	4.0	4.0	20	LIGHTING – RM 213		1.5			1.9		LIGHTING – RM 200–216	20	4.0	4.0	1	20	4
5	20	1	4.0	4.0	20	LIGHTING – RM 207			1.5			1.1	LIGHTING – 208, 210, 214	20	4.0	4.0	1	20	6
7	20	1	4.0	4.0	20	LIGHTING – RM 207	1.5			1.0			CEILING FANS – RM 213	20	4.0	4.0	1	20	8
9	20	1	4.0	4.0	20	RECEPTACLES – RM 213		1.2			1.0		CEILING FANS – RM 213, 215	20	4.0	4.0	1	20	10
11	20	1	4.0	4.0	20	RECEPTACLES – RM 200, 213, 215			1.2			0.4	CLNG. FANS – RM 211, 212, 216	20	4.0	4.0	1	20	12
13	20	1	4.0	4.0	20	RECEPTACLES – RM 213	0.8			1.2			RECEPTACLES – RM 212	20	4.0	4.0	1	20	14
15	20	1	4.0	4.0	20	RECEPTACLES – RM 213		0.8			1.2		RECEPTACLES – RM 211	20	4.0	4.0	1	20	16
17	20	1	4.0	4.0	20	RECEPTACLES – RM 213			1.2			1.2	RECEPTACLES – RM 216	20	4.0	4.0	1	20	18
19	20	1	4.0	4.0	20	RECEPTACLES – RM 213	1.4			1.2			RECEPTACLES – RM 207	20	4.0	4.0	1	20	20
21	20	1	4.0	4.0	20	RECEPTACLES – RM 200, 213		1.4			1.2		RECEPTACLES – RM 207	20	4.0	4.0	1	20	22
23	20	1	4.0	4.0	20	CEILING FANS – RM 207			1.0			1.2	RECEPTACLES – RM 207	20	4.0	4.0	1	20	24
25	20	1	4.0	4.0	20	CEILING FANS – RM 207	1.2			1.2			RECEPTACLES – RM 207	20	4.0	4.0	1	20	26
27	20	1	4.0	4.0	20	CEILING FANS – RM 207		1.2			1.2		RECEPTACLES – RM 207	20	4.0	4.0	1	20	28
29	20	1	4.0	4.0	20	EXHAUST FANS #1, #2 – RM 204			1.0			1.0	EXHAUST FANS #3, #4 – RM 203	20	4.0	4.0	1	20	30
31	20	1				SPARE				1.2			RECEPTACLES – RM 209	20	4.0	4.0	1	20	32
33	60	3				SPARE					0.6		RECEPTACLES – RM 204	20	4.0	4.0	1	20	34
35													SPARE				2	20	36
37																			38
39	20	2	4.0	4.0	20	ELECTRIC HEAT #2 – RM 204		1.3			1.3		ELECTRIC HEAT #2 – RM 209	20	4.0	4.0	2	20	40
41									1.3			1.3							42
							6.7	7.4	7.2	8.0	8.4	6.2							

TOTAL CONN. LOAD PER PHASE (KVA): A0 14.7 B0 15.8 C0 13.4

TOTAL CONN. LOAD 43.9 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 30.73 SUPPLIED FROM PANEL BENB-MDP

* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

PANELBOARD BENB22 SURFACE MOUNTED ASYM. A.I.C. MIN.
AMP. MAIN LUGS (OR) 225 AMP. MAIN BREAKER W/ 225 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 225 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	20	1	4.0	4.0	20	FACP – RM 206	0.5			10.0			MAKE UP AIR #1 – RM 202	25	6.0	25.0	1	60	2
3	20	1	4.0	4.0	20	RECEPTACLES – RM 207		0.6			10.0		MAKE UP AIR #2 – RM 202	25	6.0	25.0	1	60	4
5	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207			2.0			2.0	ELECTRIC HEAT #4 – RM 207	20	4.0	4.0	2	20	6
7							2.0			2.0									8
9	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207		2.0			2.0		ELECTRIC HEAT #4 – RM 207	20	4.0	4.0	2	20	10
11									2.0			2.0							12
13	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207	2.0			2.0			ELECTRIC HEAT #4 – RM 213	20	4.0	4.0	2	20	14
15								2.0			2.0								16
17	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207			2.0			2.0	ELECTRIC HEAT #4 – RM 213	20	4.0	4.0	2	20	18
19							2.0			2.0									20
21	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207		2.0			2.0		ELECTRIC HEAT #4 – RM 213	20	4.0	4.0	2	20	22
23									2.0			2.0							24
25	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207	2.0			2.0			ELECTRIC HEAT #4 – RM 213	20	4.0	4.0	2	20	26
27								2.0			2.0								28
29	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207			2.0			2.0	ELECTRIC HEAT #4 – RM 213	20	4.0	4.0	2	20	30
31							2.0			2.0									32
33	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207		2.0			2.0		ELECTRIC HEAT #4 – RM 215	20	4.0	4.0	2	20	34
35									2.0			2.0							36
37	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 207	2.0			2.0			ELECTRIC HEAT #4 – RM 213	20	4.0	4.0	2	20	38
39								2.0			2.0								40
41	20	1	4.0	4.0	20	CEILING FANS – RM 213			1.2				SPARE				1	20	42
							12.5	12.6	13.2	22.0	22.0	12.0							

TOTAL CONN. LOAD PER PHASE (KVA): A0 34.5 B0 34.6 C0 25.2

TOTAL CONN. LOAD 94.3 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 66 SUPPLIED FROM PANEL BENB-MDP

* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

PANELBOARD BENB23 SURFACE MOUNTED ASYM. A.I.C. MIN.
AMP. MAIN LUGS (OR) 100 AMP. MAIN BREAKER W/ 100 AMP. TRIP
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 100 AMP. BUS

CKT. NO.	TRIP AMPS	NO. POLES	WIRE MM²	GND MM²	CONDUIT MM	LOAD SERVED	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD-KVA A0	LOAD-KVA B0	LOAD-KVA C0	LOAD SERVED	CONDUIT MM	GND MM²	WIRE MM²	NO. POLES	TRIP AMPS	CKT. NO.
1	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 213	2.0			2.0			ELECTRIC HEAT #4 – RM 213	20	4.0	4.0	2	20	2
3								2.0			2.0								4
5	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 213			2.0			1.3	ELECTRIC HEAT #2 – RM 212	20	4.0	4.0	2	20	6
7							2.0			1.3									8
9	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 213		2.0			1.3		ELECTRIC HEAT #2 – RM 211	20	4.0	4.0	2	20	10
11									2.0			1.3							12
13	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 213	2.0			1.3			ELECTRIC HEAT #2 – RM 216	20	4.0	4.0	2	20	14
15								2.0			1.3								16
17	20	2	4.0	4.0	20	ELECTRIC HEAT #4 – RM 213			2.0				SPARE				1	20	18
19							2.0						SPARE				1	20	20
21	20	1				SPARE							SPARE				1	20	22
23	20	1				SPARE							SPARE				1	20	24
25	20	1				SPARE							SPARE				1	20	26
27	20	1				SPARE							SPARE				1	20	28
29	20	1				SPARE							SPARE				1	20	30
31	20	1				SPARE							SPARE				1	20	32
33	20	1				SPARE							SPARE				1	20	34
35	20	1				SPARE							SPARE				1	20	36
37	20	1				SPARE							SPARE				1	20	38
39	20	1				SPARE							SPARE				1	20	40
41	20	1				SPARE							SPARE				1	20	42
							8.0	6.0	6.0	4.6	4.6	2.6							

TOTAL CONN. LOAD PER PHASE (KVA): A0 12.6 B0 9.3 C0 8.6

TOTAL CONN. LOAD 30.5 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 21.35 SUPPLIED FROM PANEL BENB-MDP

* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH R. GAUS
PE-074251

US ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT

Mark	Description	Date	Appr.	Mark	Description	Date	Appr.

Designed by: RAJ
Dwn by: BJB
Ckd by: JRG
Reviewed by: JRG
Submitted by: BAKER
Date: 2/23/10
Design file no.
Drawing code:
File name:
Plot date:
Plot scale:
Date: 0

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AFGHANISTAN ENGINEER DISTRICT
APO AE 96338

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REGIONAL MILITARY TRAINING CENTER
STANDARD DESIGN

ENLISTED BARRACKS
ELECTRICAL PANEL SCHEDULES

Sheet reference number:
E–603