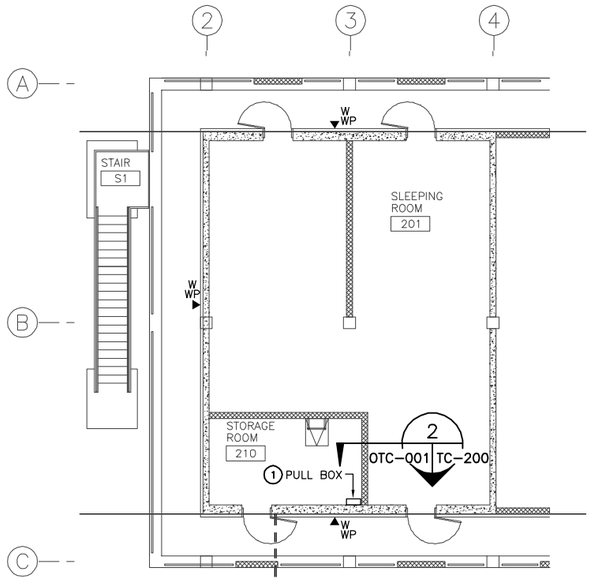
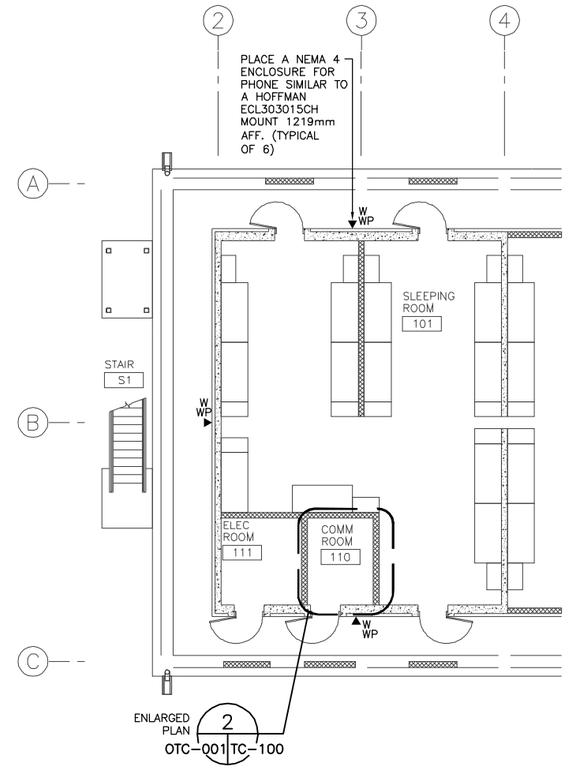


FIRST FLOOR PLAN (BID OPTION) 2 OTC-001 OTC-001

SCALE = 1:100



GROUND FLOOR PLAN (BID OPTION) 1 OTC-001 OTC-001

SCALE = 1:100

KEYED NOTES:

(1) PROVIDE (1) 19mm CONDUIT FROM PULL BOX IN STORAGE ROOM TO EACH WALL PHONE OUTLET. CONDUIT RUNS SHOULD NOT BE LONGER THAN 30 METERS OR MAKE MORE THAN (2) 90° BENDS WITHOUT A PULL POINT/PULL BOX.

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

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STATE OF NEW YORK
KEVIN CHARLES TERRY
LICENSED
079083
PROFESSIONAL ENGINEER
9/15/10

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

CORRECTED FINAL DESIGN SUBMITTAL

SYMB	DESCRIPTION	DATE	
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B	FINAL DESIGN SUBMITTAL	09/02/10	KCT
A	MID-POINT DESIGN SUBMITTAL	08/13/10	KCT

DESIGNED BY: JLB
DRAWN BY: SES
CHECKED BY: RSM
DATE: 09/15/10
SUBMITTED BY: TETRA TECH
FILE NO.: AF1081A-OTC001PN

US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS-PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN
GROUND FLOOR
TELECOMMUNICATIONS
LAYOUT PLAN

SHEET REFERENCE NUMBER:
AF1081A
OTC-001

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METRIC COPPER CONDUCTOR CONVERSION CHART		
AWG KCMIL	COMPUTER CONVERSION mm^2	ADVISED CROSS SECTION mm^2
24	.2	0.25
20	.5	0.75
18	.8	1
16	1.3	1.5
14	2.1	2.5
12	3.3	4
10	5.27	6
8	8.4	10
6	13.3	16
4	21.2	25
3	26.7	25
2	33.6	35
1	42.4	50
1/0	53.4	50
2/0	67.5	70
3/0	85.0	95
4/0	107.2	120

EQUIVALENT CONDUIT SIZE	
mm	INCH
20	3/4
25	1
32	1 1/4
38	1 1/2
50	2
64	2 1/2
76	3
90	3 1/2
100	4

PLAN LEGEND (TELECOM)

▼ W / WP — WALL PHONE OUTLET

19mm PLYWOOD

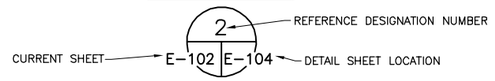
PLAN LEGEND (SITE)

C — UNDERGROUND COMMUNICATIONS

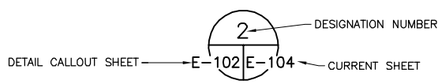
MANHOLE (COMMUNICATIONS)

HANDHOLE (COMMUNICATIONS)

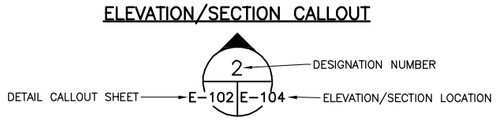
DETAIL CALLOUT



DETAIL TITLE



ELEVATION/SECTION CALLOUT



UNLESS NOTED ELSEWHERE ON THE CONTRACT DOCUMENTS, THE FOLLOWING LIST REPRESENTS THE TYPICAL MOUNTING HEIGHTS FOR THE DEVICES SHOWN:

a. WALL(W) TELE. AND/OR CALL SWITCHES 1,219mm (TO TOP)

GENERAL NOTES:

1. ALL CONDUIT PENETRATIONS THRU WALLS OR CEILINGS SHALL BE SEALED/FIRESTOPPED.
2. FOR ELECTRICAL INSTALLATION SEISMIC REQUIREMENTS, SEE SPECIFICATION 26 05 48 00.10.

ABBREVIATIONS

AFG	ABOVE FINISHED GRADE
AFF	ABOVE FINISHED FLOOR
A	AMPERE
AIC	AMPERE INTERRUPTING CAPACITY
BFG	BELOW FINISHED GRADE
BLDG	BUILDING
CKT	CIRCUIT
C	CONDUIT
CND	CONDUCTOR
EC	CONTRACTOR RESPONSIBLE FOR ELECTRICAL WORK
FOC	FIBER OPTIC CABLE
GFE	GOVERNMENT FURNISHED CONTRACTOR INSTALLED
GFGI	GOVERNMENT FURNISHED GOVERNMENT INSTALLED
GFI	GROUND FAULT INTERRUPTING
GRS	GALVANIZIED RIGID STEEL CONDUIT
HZ	HERTZ
M	METERS
mm	MILLIMETERS
MH	MANHOLE
MTD	MOUNTED
OSP	OUTSIDE PLANT
PET	PROTECTED ENTRANCE TERMINATION
PP	PATCH PANEL
RM	ROOM
SM	SINGLEMODE
TC	CONTRACTOR RESPONSIBLE FOR TELECOMMUNICATIONS WORK
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS
TR	TELECOMMUNICATIONS ROOM
UTP	UNSHIELDED TWISTED PAIR
WM	WALL MOUNTED
WP	WEATHER-PROOF

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DESIGNED BY: JLB | DRAWN BY: SES | CHECKED BY: RSM | DATE: 09/15/10 | SUBMITTED BY: TETRA TECH | FILE NO.: AF1081A-TC001GN

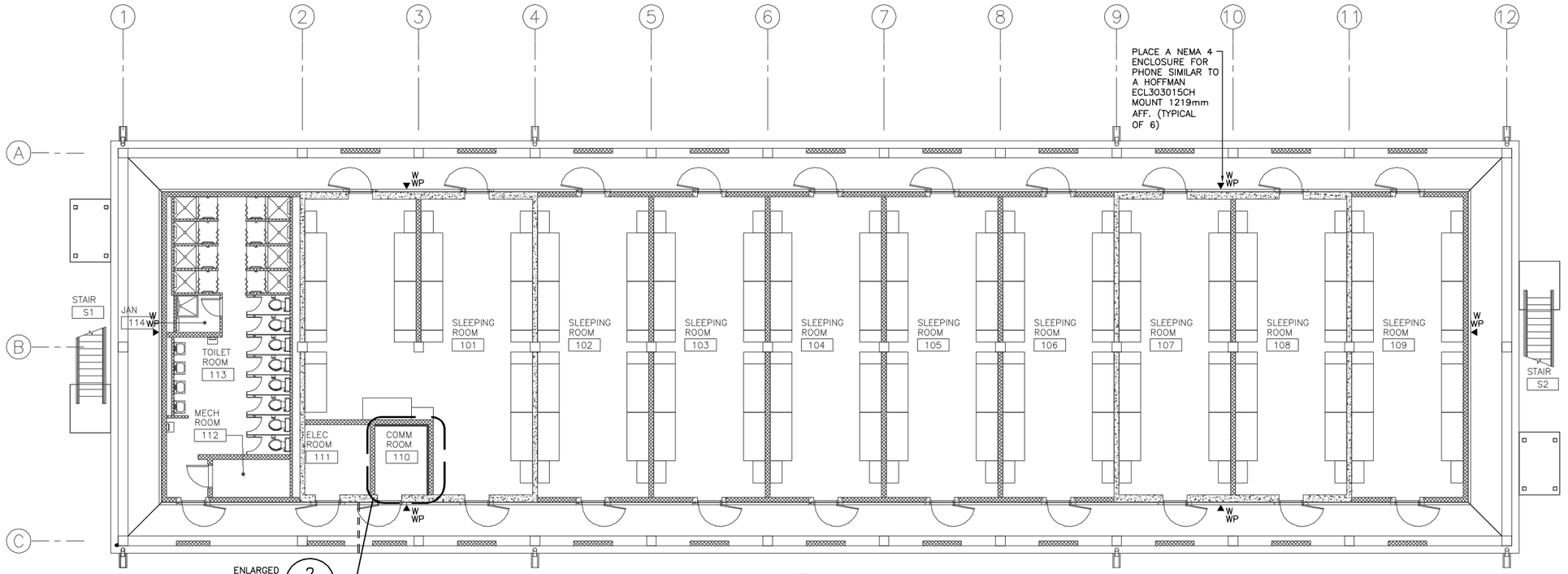
US Army Corps of Engineers
Middle East District

TETRA TECH

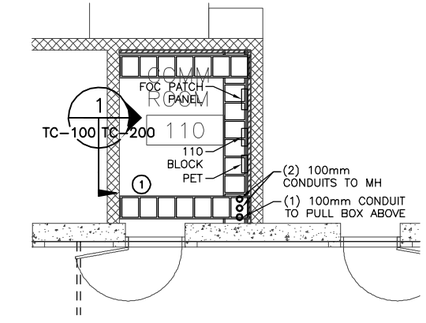
AUSTERE STANDARD DESIGNS-PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS
LEGEND, ABBREVIATIONS,
SYMBOLS AND GENERAL NOTES

SHEET REFERENCE NUMBER:
AF1081A
TC-001



GROUND FLOOR PLAN 1 TC-100 TC-100
SCALE = 1:100



ENLARGED PLAN – COMM ROOM 110 2 TC-100 TC-100
SCALE = 1:50

KEYED NOTES:

(1) PROVIDE (1) 19mm CONDUIT FROM COMMUNICATIONS ROOM TO EACH WALL PHONE OUTLET. CONDUIT RUNS SHOULD NOT BE LONGER THAN 30 METERS OR MAKE MORE THAN (2) 90° BENDS WITHOUT A PULL POINT/PULL BOX.

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1 0 1 2 3 4
1:50

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

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US Army Corps of Engineers
Middle East District

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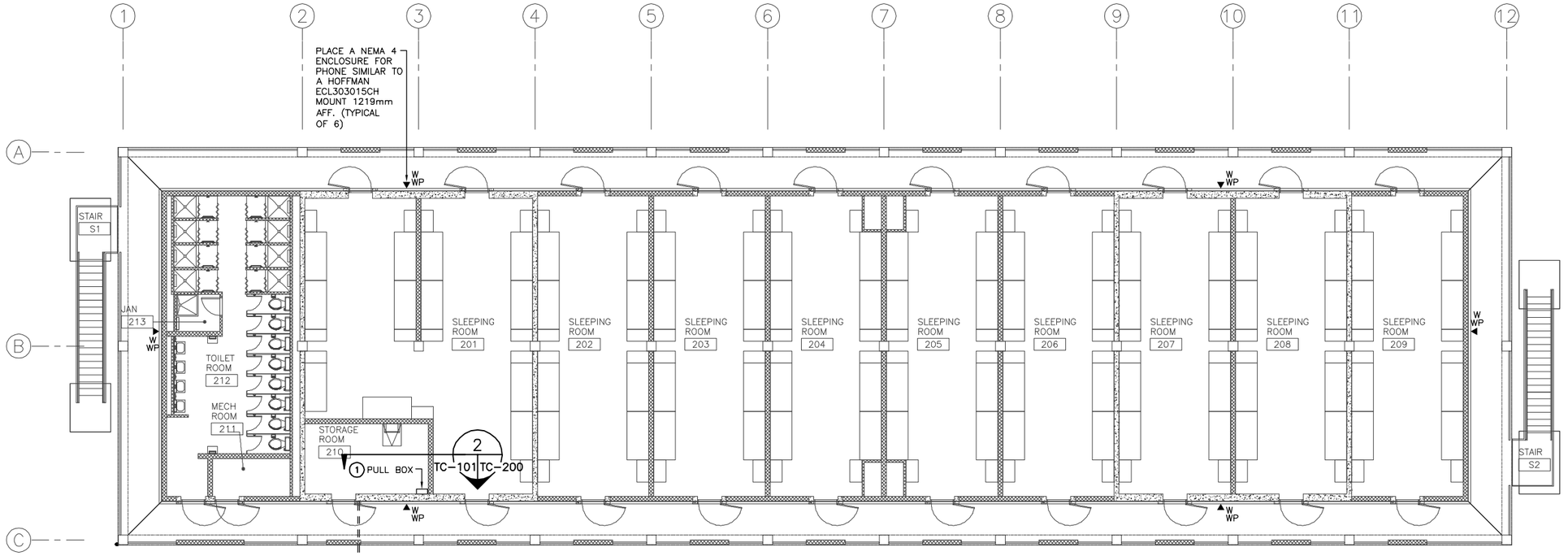
FY11 BARRACKS – PN74127–CLN03
KANDAHAR AIR BASE, AFGHANISTAN

GROUND FLOOR
TELECOMMUNICATIONS
LAYOUT PLAN

SHEET REFERENCE NUMBER:
AF1081A
TC–100



FIRST FLOOR PLAN (1 / TC-101 | TC-101)
SCALE = 1:100

KEYED NOTES:

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1:100

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STATE OF NEW YORK
KEVIN CHARLES TERRY
079083
LICENSED PROFESSIONAL ENGINEER
9/15/10

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FILE NO.: AF1081A-TC101PN

US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS-PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

FIRST FLOOR
TELECOMMUNICATIONS
LAYOUT PLAN

SHEET REFERENCE NUMBER:
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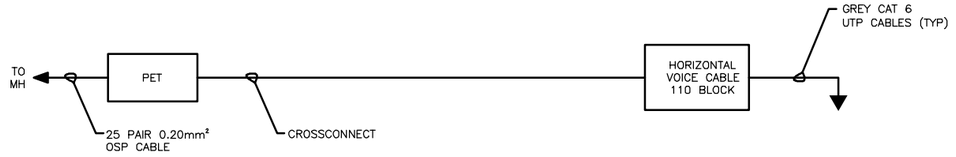
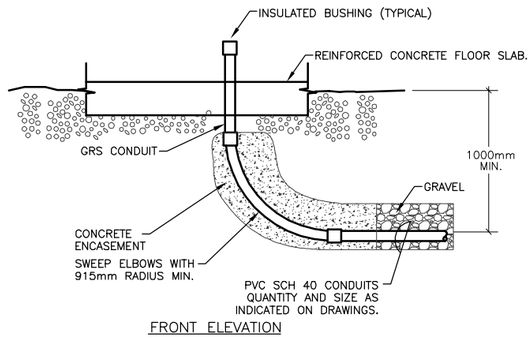
TC-101



VOICE ONE-LINE DIAGRAM
N.T.S.



COMMUNICATIONS SERVICE ELEVATION
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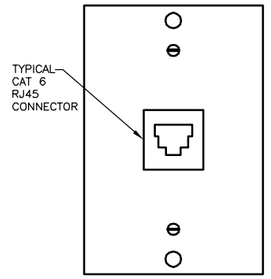
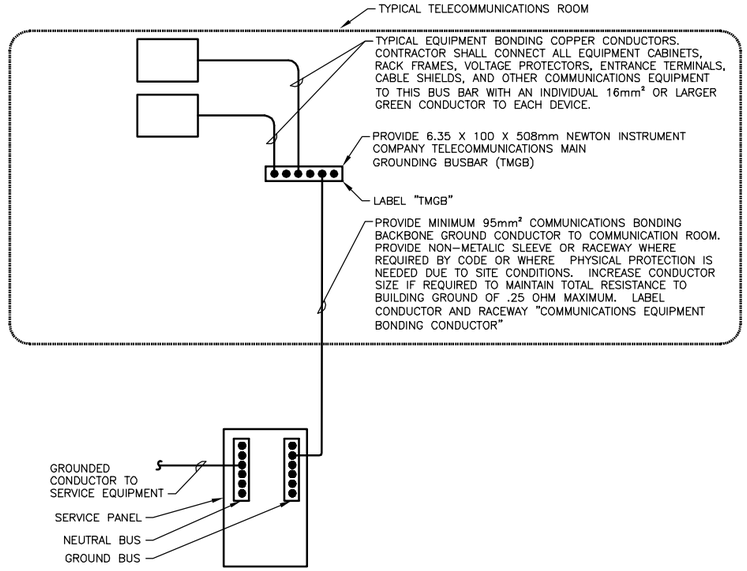


TYPICAL WALL TELEPHONE OUTLET
N.T.S.



ELECTRICAL SYSTEM AND ANSI J-STD-607-A COMMUNICATIONS GROUNDING AND BONDING
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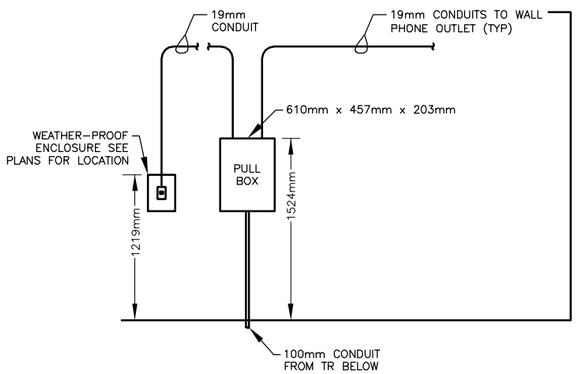
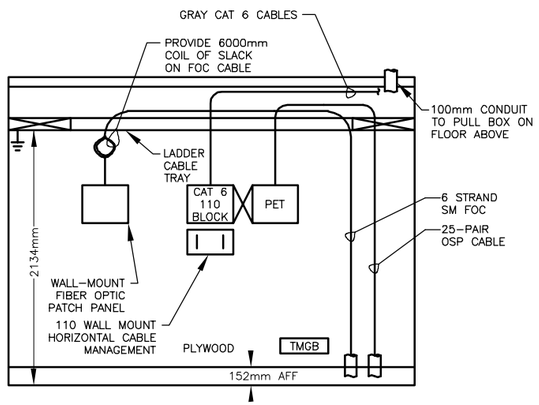
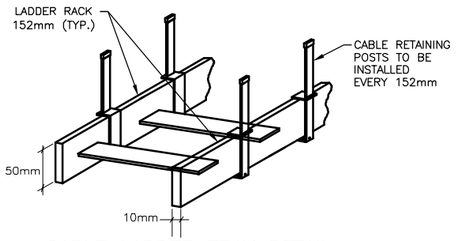


WALL ELEVATION 2
SCALE 1:25 — TC-100 | TC-200



WALL ELEVATION 1
SCALE 1:25 — TC-100 | TC-102



CABLE LADDER TRAY DETAIL COMMUNICATION ROOM ONLY
N.T.S.

1 .50 0 1 1.5
1:25

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STATE OF NEW YORK · KEVIN CHARLES TERRY · 079083 · LICENSED PROFESSIONAL ENGINEER
9/15/10

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DESIGNED BY: JLB
DRAWN BY: SES
CHECKED BY: RSM
DATE: 09/15/10
SUBMITTED BY: TETRA TECH
FILE NO.: AF1081A-TC200DT

US Army Corps of Engineers Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS-PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS DETAILS

SHEET REFERENCE NUMBER:
AF1081A
TC-200

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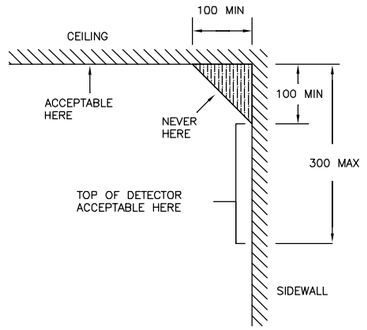
FIRE ALARM NOTES

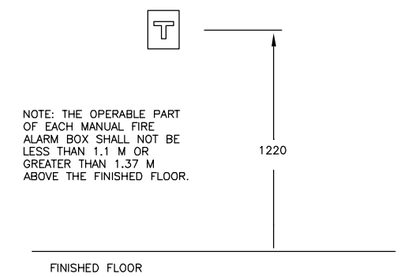
1. ANY EXPOSED WIRING SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING (EMT) WITH SET SCREW TYPE FITTING. ALL CONDUIT SHALL RUN PERPENDICULAR AND / OR PARALLEL WITH THE RESPECTIVE BUILDING LINES.
2. CONTRACTOR SHALL UTILIZE ALARM VERIFICATION AS A STANDARD FEATURE FOR ALL ADDRESSABLE SMOKE DETECTORS.
3. THE CONTRACTOR, BEFORE INSTALLATION OR PROCUREMENT OF EQUIPMENT COMMENCES SHALL SUBMIT TO THE AUTHORITY HAVING JURISDICTION AND TO THE ENGINEER A COMPLETE SET OF SHOP DRAWINGS THAT DELINEATE ALL THE DEVICES BEING SUPPLIED FOR THIS PROJECT. THE SHOP DRAWING SHALL INDICATE MANUFACTURER'S NAMES AND CATALOG NUMBERS. IN DIAGRAM INDICATING HOW THE SYSTEM WILL OPERATE IS REQUIRED AS A PART OF THE SUBMITTAL PACKAGE.
4. ALL PULL AND JUNCTION BOXES AS WELL AS 150MM OF ANY CONDUIT ENTERING OR LEAVING ANY PULL OR JUNCTION BOX SHALL BE PAINTED RED.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR A SET OF AS-BUILT DRAWINGS OF THE FIRE ALARM SYSTEM. AS-BUILT DRAWINGS SHALL INDICATE THE LOCATION OF THE CONTROL PANEL, ALL FIRE ALARM DEVICES AND WIRING INSTALLED. AS-BUILT DRAWINGS SHALL BE TURNED OVER TO OWNER'S PROJECT REPRESENTATIVE.
6. THE FIRE ALARM SYSTEM SHALL BE IN ACCORDANCE WITH NFPA 72 AND THE CONTRACT DRAWINGS, ANY CHANGES TO THE SYSTEM DESIGN SHALL BE PRE-APPROVED BY THE AUTHORITY HAVING JURISDICTION (OR AUTHORIZED REPRESENTATIVE).
7. EXTERIOR MANUAL PULL STATIONS AND GRAPHIC ANNUNCIATOR SHALL BE COVERED TO PROTECT FROM THE ELEMENTS.
8. FIRE ALARM RISER DIAGRAM IS ONLY DIAGRAMMATIC. REFER TO FIRE ALARM PLANS FOR EXACT NUMBER OF DEVICES.
9. ALL AUDIO/VISUAL DEVICES SHALL BE SYNCHRONIZED CODE 3, TEMPORAL PATTERN.
10. DUCT SMOKE SENSORS WILL SEND A SUPERVISORY SIGNAL TO THE FIRE ALARM PANEL FOR RE-TRANSMISSION TO THE CENTRAL STATION OR OTHER MONITORING. IN ADDITION, THE DUCT SMOKE SENSOR WILL SHUT DOWN THE HVAC FAN IN ACCORDANCE WITH NFPA 90A.
11. HEAT DETECTORS SHALL NOT BE LOCATED WITHIN 2.14M OF UNIT HEATERS. LISTED SPACING FOR HEAT DETECTORS SHALL BE REDUCED IN ACCORDANCE WITH NFPA 72 BASED ON CEILING HEIGHT. RATE-OF-RISE HEAT DETECTORS SHALL NOT BE USED.
12. SLEEPING ROOM SINGLE STATION SMOKE DETECTORS WILL ONLY ACTIVATE SOUNDER BASES LOCATED WITHIN THE FIRE COMPARTMENT WHEN SMOKE IS DETECTED. HEAT DETECTORS, MANUAL PULL STATIONS, AND MECHANICAL/ELECTRICAL/STORAGE RM. SMOKE DETECTORS SHALL ACTIVATE AUDIBLE AND VISUAL NOTIFICATION DEVICES.
13. SPEAKER/STROBES SHALL HAVE A CLEAR STROBE LENS. SPEAKER/STROBE HOUSING SHALL BE RED AND MARKED WITH THE WORD "ALERT".
14. SEE FIRE HAZARD ANALYSIS (SPECIFICATION SECTION 01 80 00.12 10 – TECHNICAL REQUIREMENTS) FOR ADDITIONAL BUILDING REQUIREMENTS/RESTRICTIONS.

FIRE ALARM SYMBOLS

- FACP — FIRE ALARM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR (WEATHERPROOF)
- RT — RADIO TRANSMITTER
- S — SMOKE DETECTOR
- S_A — SMOKE DETECTOR W/ SOUNDER BASE
- I — HEAT DETECTOR
- D — DUCT SMOKE SENSOR
- P — MANUAL PULL STATION (WEATHERPROOF)
- SPEAKER/STROBE NOTIFICATION DEVICE
- EXTERIOR STROBE



PROPER MOUNTING FOR DETECTORS
N.T.S.



PROPER MOUNTING FOR MANUAL PULL STATIONS
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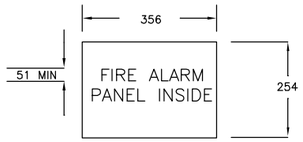
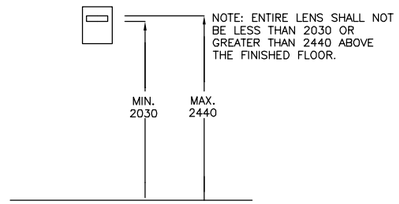


ROOM 111 – DOOR SIGN
N.T.S.

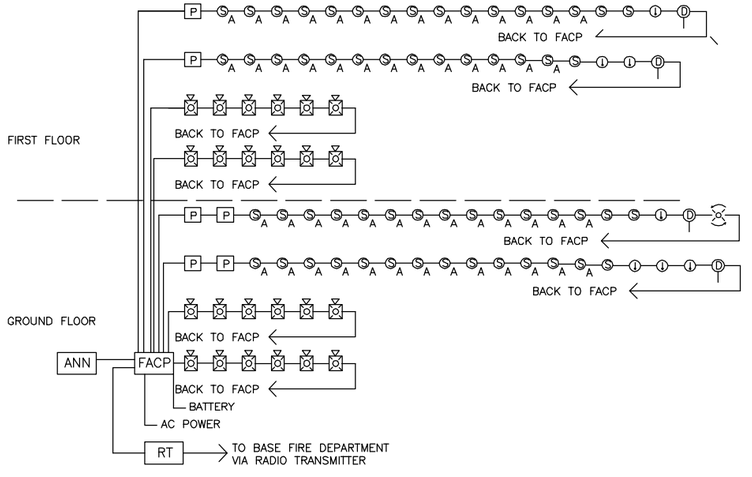


TYPICAL STROBE MOUNTING HEIGHT
N.T.S.

	ACTUATE OFF-PREMISE NOTIFICATION	ACTUATE ALARM SIGNAL AUDIO & VISUAL INDICATOR ON FACP & ANN	ACTUATE TROUBLE SIGNAL AUDIO & VISUAL INDICATOR AT FACP & ANN	ACTUATE SUPERVISORY SIGNAL AUDIO & VISUAL INDICATOR AT FACP & ANN	ACTUATE GRAPHIC DISPLAY	ACTUATE EVACTUATION SEQUENCE	ACTIVATE SOUNDER BASES WITHIN FIRE COMPARTMENT	SHUTDOWN ASSOCIATED MECHANICAL EQUIPMENT
MANUAL PULL STATION	X	X			X	X		
SINGLE STATION SMOKE DETECTOR	X			X	X		X	
SMOKE DETECTOR (MECH RM., ETC.)	X	X			X	X		
HEAT DETECTOR	X	X			X	X		
DUCT MOUNTED SMOKE DETECTOR	X			X	X			X
FIRE ALARM SYS. AC POWER FAILURE	X		X		X			
FIRE ALARM SYS. LOW BATTERY	X		X		X			
ANNUNCIATOR DISCONNECT/DISARRANGE	X		X		X			
SIGNAL LINE CIRCUIT OPEN	X		X		X			
SIGNAL LINE CIRCUIT GROUND	X		X		X			
STROBE CIRCUIT OPEN	X		X		X			
STROBE CIRCUIT GROUND	X		X		X			
AUDIO CIRCUIT OPEN	X		X		X			
AUDIO CIRCUIT GROUND	X		X		X			

NOTE: FACP SHALL SEND THE FOLLOWING INPUTS TO TRANSMITTER:
- PULL STATION/SMOKE OR HEAT DETECTOR — ALARM SIGNAL
- SINGLE STATION SD/DUCT DETECTOR — SUPERVISORY
- OTHER FA TROUBLES (OPEN CIRCUITS, SHORTS, ETC.) — TROUBLE

FIRE ALARM OPERATIONAL MATRIX



FIRE ALARM RISER DIAGRAM
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COMMONWEALTH OF MASSACHUSETTS — JEFFREY L. DeMAINE — FIRE PROTECTION — No. 41002 — REGISTERED PROFESSIONAL ENGINEER — 9/15/10

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DRAWN BY: RDV
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FILE NO.: AF1081A-FA001GN

US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS–PHASE 4
FY11 BARRACKS – PN74127–CLN03
KANDAHAR AIR BASE, AFGHANISTAN

FIRE ALARM SYMBOLS, GENERAL NOTES AND DETAILS

SHEET REFERENCE NUMBER:
AF1081A
FA–001

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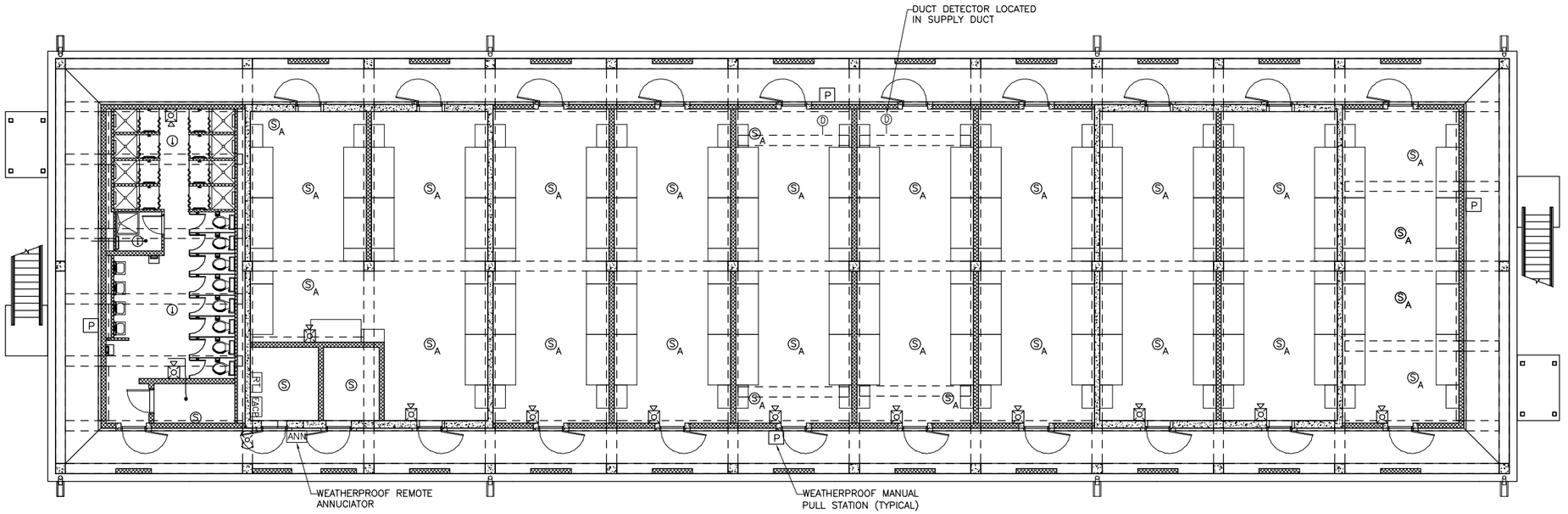
NOTES:
- STRUCTURAL BEAMS EXTEND 400 MM BELOW CEILING.



GROUND FLOOR
FIRE ALARM PLAN
SCALE 1:100

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

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COMMONWEALTH OF MASSACHUSETTS
JEFFREY L. DeMAINE
FIRE PROTECTION
No. 41002
REGISTERED
PROFESSIONAL ENGINEER
9/15/10

CORRECTED FINAL DESIGN SUBMITTAL

	DESCRIPTION	DATE	APR
0	CORRECTED FINAL DESIGN SUBMITTAL	09/15/10	JLD
B	FINAL DESIGN SUBMITTAL	09/02/10	JLD
A	MID-POINT DESIGN SUBMITTAL	08/13/10	JLD
SYMB			

DESIGNED BY: RDV
DRAWN BY: RDV
CHECKED BY: JLD
DATE: 09/15/10
SUBMITTED BY: TETRA TECH
FILE NO.: AF1081A-FA100PN

US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS–PHASE 4
FY11 BARRACKS – PN74127–CLN03
KANDAHAR AIR BASE, AFGHANISTAN

GROUND FLOOR
FIRE ALARM PLAN

SHEET REFERENCE NUMBER:
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FA–100

NOTES:
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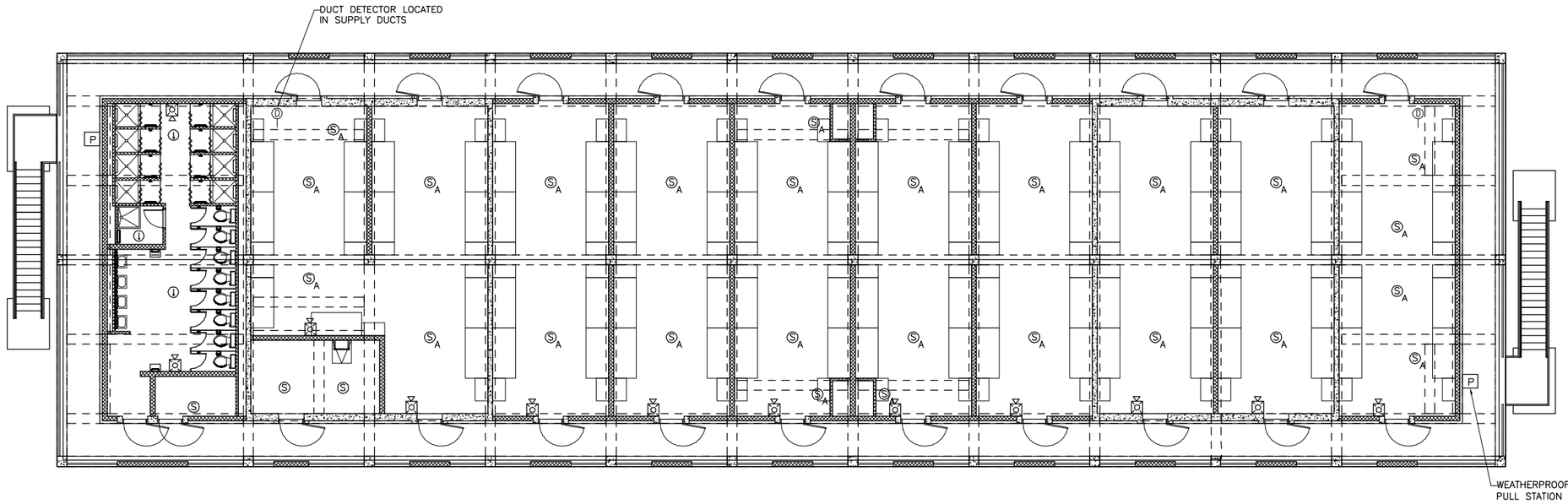

FIRST FLOOR
FIRE ALARM PLAN
SCALE 1:100

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

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US Army Corps of Engineers
Middle East District

TETRA TECH

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KANDAHAR AIR BASE, AFGHANISTAN

FIRST FLOOR
FIRE ALARM PLAN

SHEET REFERENCE NUMBER:
AF1081A
FA–101

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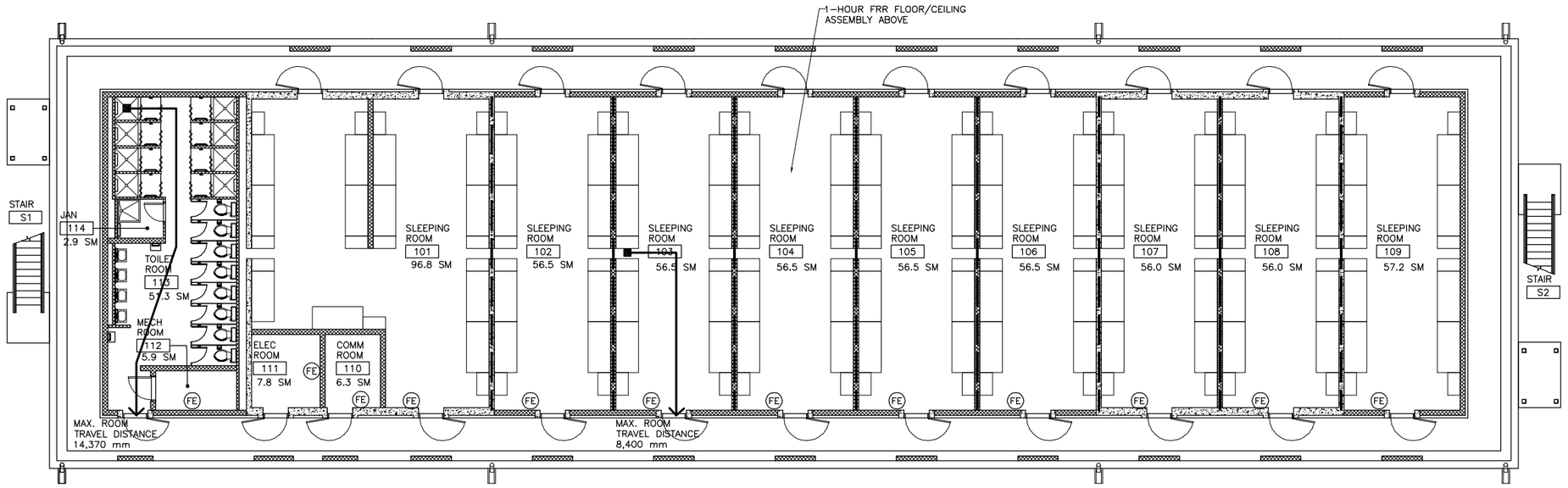

GROUND FLOOR LIFE SAFETY PLAN

SCALE 1:100

1-HOUR FRR WALL

(FE) FIRE EXTINGUISHER

1 0 1 2 3 4 5 6 7 8 9

1:100

BUILDING CODE AND CONSTRUCTION DATA

APPLICABLE CODES:

THE UNIFIED FACILITIES CRITERIA (UFC 3-600-01), JULY 2009
CONTINGENCY STANDARD DESIGNS PROGRAM - FY10 ARCENT/AED DESIGN EXECUTION
INTERNATIONAL BUILDING CODE (IBC), 2009 ED.
INTERNATIONAL FIRE CODE (IFC), 2009 ED.
THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES & STANDARDS, INCLUDING BUT NOT LIMITED TO:
- NFPA 101 - THE LIFE SAFETY CODE 2009 ED.
- NFPA 10, - STANDARD FOR PORTABLE FIRE EXTINGUISHERS 2010 ED.
- NFPA 70 - THE NATIONAL ELECTRICAL CODE, 2008 ED.
- NFPA 72, - NATIONAL FIRE ALARM AND SIGNALING CODE, 2010 ED.

NUMBER OF FLOORS:	2 STORY
STRUCTURAL SYSTEM:	CONCRETE FRAME
FLOOR CONSTRUCTION:	GROUND FLOOR: SLAB ON GRADE FIRST FLOOR: CAST IN PLACE NON-COMPOSITE CONCRETE SUPPORTED ON CONCRETE BEAMS
CONSTRUCTION CLASS:	II-B, NON-COMBUSTIBLE, NON-PROTECTED
USE GROUP:	R-1 (BASED ON MOST RESTRICTIVE)
INTERIOR FINISH:	CLASS C
SPRINKLERS:	NO
FIRE ALARM:	YES
FIRE EXTINGUISHERS;	YES, MINIMUM 4A : 80B : C

HEIGHT AND AREA LIMITATIONS:

ALLOWABLE HEIGHT:	3 STORIES, PER ARCENT MEMO
ACTUAL HEIGHT:	2 STORIES
ALLOWABLE AREA:	1486 SM
INCREASE DUE TO SPRINKLERS:	0
INCREASE DUE TO FRONTAGE:	0
ACTUAL AREA:	977 SM GROUND FLOOR 977 SM FIRST FLOOR

FIRE RESISTANCE RATINGS:

0 HOUR:	STRUCTURAL FRAMING (COLUMNS, GIRDERS, TRUSSES)
0 HOUR:	BEARING WALLS
0 HOUR:	NON BEARING WALLS (INTERIOR/EXTERIOR)
0 HOUR:	ROOF CONSTRUCTION
1 HOUR:	STORAGE ROOMS > 9.3 SM
1 HOUR:	SLEEPING ROOM SEPARATIONS, WALLS
1 HOUR:	SLEEPING ROOM SEPARATIONS, FLOOR/CEILING

OCCUPANT LOAD:

	CALCULATED (18.6 SM/PERSON)	ACTUAL
GROUND FLOOR:	51 OCCUPANTS	71 OCCUPANTS
FIRST FLOOR:	51 OCCUPANTS	71 OCCUPANTS

EGRESS:

EGRESS WIDTH PER OCCUPANT	
DOORS, CORRIDORS:	0.0050 M
STAIRS	0.0076 M
NUMBER OF EXITS REQUIRED:	2
EGRESS CAPACITY PER DOOR:	165 PEOPLE
EGRESS CAPACITY PER STAIR:	147 PEOPLE
MAX. TRAVEL DISTANCE	
WITHIN SLEEPING ROOM	23 M
FROM DOOR TO EXIT	61 M
MAX. DEAD END LENGTH	10.7 M

NOTE:
SEE FIRE HAZARD ANALYSIS (SPECIFICATION SECTION 01 80 00.12 10 - TECHNICAL REQUIREMENTS) FOR ADDITIONAL BUILDING REQUIREMENTS/RESTRICTIONS.

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JEFFREY L. DeMAINE
FIRE PROTECTION
No. 41002
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PROFESSIONAL ENGINEER
9/15/10

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FILE NO.: AF1081A-LS100LP

US Army Corps of Engineers Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS-PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

GROUND FLOOR
LIFE SAFETY PLAN

SHEET REFERENCE NUMBER:
AF1081A
LS-100

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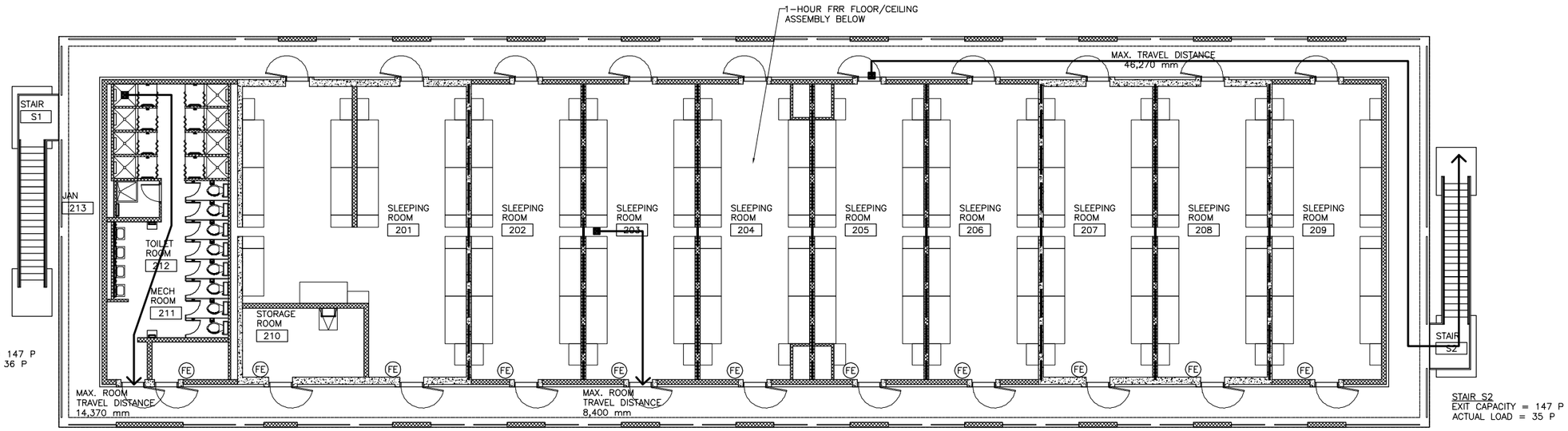

STAIR S1
EXIT CAPACITY = 147 P
ACTUAL LOAD = 36 P

STAIR S2
EXIT CAPACITY = 147 P
ACTUAL LOAD = 35 P

1-HOUR FRR WALL

FE FIRE EXTINGUISHER

FIRST FLOOR
LIFE SAFETY PLAN
SCALE 1:100

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

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Middle East District

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KANDAHAR AIR BASE, AFGHANISTAN

FIRST FLOOR
LIFE SAFETY PLAN

SHEET REFERENCE NUMBER:
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LS-101

DEPARTMENT OF THE ARMY
THIRD ARMY
UNITED STATES ARMY CENTRAL
1881 HARDEE AVE SW
FORT MCPHERSON, GA 30330

REPLY TO ATTENTION OF:

ACEN-OME

JUL 15 2009

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Fire Safety Management & Design Policy for Contingency Construction in USARCENT AOR

1. References:

a. AR 420-1, Facilities Engineering Army Facilities Management, 12 February 2008.

b. NFPA 409, Standard for Aircraft Hangars, 2004 Edition (Revision due Fall 2009)

c. U.S. Central Command Construction and Base Camp Development in the U.S. Central Command AOR, "The Sand Book", 12 December 2007.

d. U.S. Command Lead Component/BOS Integration Matrix, 1 March 2005.

e. DA Pam 385-16 System Safety Management Guide, 13 November 2008.

2. The purpose of this memorandum is to outline mandatory minimum USARCENT fire safety standards in the U.S. Central Command Area of Responsibility (AOR) for all contingency construction. Agencies will complete a Fire Hazard Analysis (FHA) to capture hazard assessments and mitigations. The FHA examines the specifics of the hazards involved, the level of risk and the appropriate control mechanisms. This policy provides the Major Subordinate Commander the ability to construct facilities by incorporating the minimum mandatory fire safety measures that include fire protection and fire notification for specific design criteria. Any facilities that do not meet these minimum requirements or meet the Life Safety Code are not authorized for construction under this policy. The policy will be applied for all contingency military construction for which USARCENT/CFLCC possesses Base Operating Support responsibility as detailed in reference 1.c. above.

3. A fire suppression system is defined as an automatic system consisting of devices that apply various extinguishing agents (water, foam, dry and wet chemical, gaseous) on a fire without any action on the part of people and usually arranged to transmit an alarm to a fire communication center. Reference 1.a. above outlines fire suppression standards for construction in non-contingency areas. Appropriate fire protection in facility and system designs guarantees the most economical and least interruption of essential missions. Installations will not omit fire protection from contingency construction designs and plans for the sake of economy or expediencies, since add-ons are expensive and often less effective. However, ongoing operations in the U.S. Central Command

AOR dictate a risk management approach in order to accommodate the special circumstances of contingency construction in an active theater of war. It is important that these modifications provide as much force protection to our force as possible – even in consideration of the conditions. Reference 1.b. above outlines facility design criteria in the U.S. Central Command AOR. This policy is in addition to reference 1. b.

4. In the U.S. Central Command AOR, the UFC 3–600–01, Fire Protection Engineering for Facilities provides the guidelines for the design for fire suppression for real property and personal property in temporary, semi-permanent and permanent construction. When fire suppression is used, sprinkler systems will comply with NFPA 13 requirements. For barracks and housing buildings that are four stories or less, sprinkler systems will comply with NFPA 13R. During the Design Charrettes, the design and construction agent and the end-user will complete a Fire Hazard Analysis (FHA) (see attached) for the commander. The FHA will be reviewed by a registered professional fire protection engineer. The Fire Hazard Analysis will include a fire protection design analysis per Section 1-4 of UFC 3-600-01. This document will be included in the Project Management Plan and forwarded to USARCENT G7 as part of the FHA notification prior to final contract award. The fire protection engineer will provide equivalent fire safety measures along with justification for any requirement which compliance is not possible.

5. The fire hazard analysis will apply to the below construction as outlined in the AR 420-1. Regardless of the submission of the FHA, there are mandatory fire notification, fire suppression and fire mitigation actions that shall be implemented and which cannot be waived. See paragraph 6 below for these mandatory actions.

a. **New Construction:** Defined as "The erection, installation, or assembly of a new real property facility. This includes utilities, equipment installed and made a part of the unit, and related site preparation (demolition, excavation, filling, landscaping, or other land improvement)." New construction will comply with UFC 3-600-1, Fire Protection Engineering for Facilities.

b. **Existing Construction:** For repair projects, only the new work is required to comply with the requirements for new construction. As a minimum, existing buildings will comply with the requirements of NFPA 101, Life Safety Code. Repair is:

(1) Restoration of a real property facility (RPF) to such condition that it may be used effectively for its designated functional purpose.

(2) Correction of deficiencies in failed or failing components of existing facilities or systems to meet current Army standards and codes where such work, for reasons of economy, should be done concurrently with restoration of failed or failing components.

(3) A utility system or component may be considered "failing" if it is energy inefficient or technologically obsolete.

c. **Relocatable Buildings (Real Property):** Personal property used as a structure, that would have a building category code if it was real property, designed to be readily moved, erected, disassembled, stored, reused, and meets the 20 percent rule. The sum of building disassembly, repackaging, and non-recoverable building components, including typical foundation costs must not exceed 20 percent of the purchase cost of the relocatable building. If the percentage is greater than 20 percent, then the facility must be acquired as real property and follows real property project approval authorities. Personal property is managed as equipment. Relocatable buildings will comply with the requirements of UFC 3-600-01, Fire Protection Engineering for Facilities or this policy.

6. The following fire notification, fire suppression and fire mitigation strategies are **MANDATORY** for use in contingency construction for barracks/housing and other facilities in contingency locations where it is not possible to provide an automated fire suppression system. These measures provide adequate protection in the event of a fire in barracks/housing or other facilities. These mandatory measures cannot be waived. They are:

a. **For barracks and housing buildings.**

(1) The building complies with the requirements of NFPA 101, Life Safety Code, for non-sprinklered buildings. These requirements include providing an exterior exit from each sleeping room. Exterior exit balconies are required for rooms on upper floors.

(2) An alternative to providing exterior exits from each sleeping room, as required by the Life Safety Code for non-sprinklered buildings, are as follows:

(a) Limit the building up to three stories in height. Occupancy of the upper floor shall be limited to able-bodied personnel, who are able to use fire escape ladders in the event of an emergency.

(b) Provide fixed ladders with grated ledge and openable windows from each sleeping room, similar to the system depicted in enclosure, "Fire Escape Ladders". For a 3-story building, the fixed ladder will extend to the third floor.

(c) All designs require openable windows that lead to the exterior when there are no exterior door exits.

(d) For two-story buildings, access will be no more than 20 ft off of the ground to enable an able-bodied person to hang and drop to the ground.

b. **For non-housing buildings.**

(1) Limit the building to two stories in height and

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JEFFREY L. DeMAIO
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No. 41002
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US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS–PHASE 4
FY11 BARRACKS – PN74127–CLN03
KANDAHAR AIR BASE, AFGHANISTAN

USARCENT MEMORANDUM
SHEET 1 OF 3

SHEET REFERENCE NUMBER:
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LS–200

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(2) Limit the gross floor area to 15,000 square feet for buildings of noncombustible construction, and to 5000 square feet for building of combustible (e.g. wood) construction. Building separation shall be per UFC 3-600-01 and

(3) Provide direct exits to the exterior from each floor.

c. **Fire Notification**

(1) A fire detection and fire alarm system will be provided in accordance with NFPA 101, Life Safety Code (LSC). The LSC requires single-station smoke alarms in each sleeping room. Single-station smoke alarm will be powered by the building electrical system. In barracks that are not protected with an automatic fire sprinkler system, the LSC requires a corridor smoke detection system connected to the building fire alarm system.

(2) For relocatable building (RLB) barracks, each sleeping room will be provided with a smoke alarm powered by the building electrical system in accordance with NFPA 101, Life Safety Code (LSC). In RLB barracks that have an interior corridor and that are not protected with an automatic fire sprinkler system, the corridor will be provided with a smoke detection system in accordance with the LSC. The corridor smoke detection system will be connected to the building fire alarm system and connected to the local post/camp/station fire department, if one is present.

(3) A fire marshall will be appointed, in writing, for each facility. A posting of the appointment will be displayed in each facility with a means to contact the fire marshall. The designated Fire Marshall shall receive fire safety training of duties and responsibility by the local post/camp/station fire department.

d. Fire Suppression

(1) Operable fire extinguishers will be emplaced in all facilities at entrances, exits, both ends of hallways and corridors, and in each common area. Where feasible, place a fire extinguisher in each room of a barracks.

(2) Smoking areas will be out of doors and at least 50 ft. from the facility. Cigarette "Butt cans" will be provided and regularly maintained.

(3) Where exterior water services (faucets) are provided, a water hose at least 50 ft. in length will be provided.

(4) All barracks facilities will be furnished with one set of minimal firefighting equipment: a rake, a shovel, and an axe. This equipment will be located where most accessible adjacent to and exterior of the building.

(5) **New Aircraft Hangars:** Including fabric hangars with a floor area of 10,000 square feet or less and with 75 feet separation between hangars do not require sprinkler protection. New Aircraft hangars, including fabric hangars that meet these criteria, will comply to the latest edition of NFPA 409, Standard for Aircraft Hangars, in lieu of complying with UFC 3-600-1.

e. Fire Mitigation

(1) Establish a minimum of two designated smoking areas; one on each side of the building.

(2) Fire escape routes will be posted in all buildings with rally areas for personnel to report to in case of a fire or incident for accountability purposes.

(3) Facility Fire Marshalls will physically inspect buildings monthly. A report of their inspection will be sent to the Safety Officer and the first commander in the chain of command responsible for the facility. Deficiencies shall be corrected on the spot where possible, but not later than 24 hours after identification. Monthly inspection reports will be maintained for one year after the date of the inspection.

(4) Fire drills will be executed quarterly. These drills may be combined with other evacuation practices such as indirect fire drills.

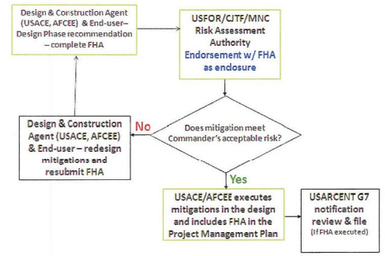
(5) The post/camp/station fire department will participate in all facility pre-final and final inspections as part of the construction closeout and facility turnover procedures. The fire department will also conduct periodic fire-safety inspections of all facilities on the installation, and will coordinate with both the facility Fire Marshall and the post/camp/station Safety Officer all necessary corrections to deficiencies found.

(6) The Fire Marshall will witness operational testing of the fire alarm and detection system at least quarterly. This can be done in conjunction with required fire drills. At least semiannually, operational testing will be conducted using secondary power i.e. battery power.

(7) Occupants of the upper floors of barracks that are equipped with fire escape ladders will be trained on the proper use of the fire escape ladders.

7. **Routing:**

Fire Safety FHA Approval & Notification Process



8. For additional information, contact USARCENT G7, 404-464-0413.

STEPHEN M. TWITTY
Colonel, GS
Chief of Staff

Enclosures
1. Fire Ladders
2. Fire Hazard Analysis

DISTRIBUTION:
ACSIM
HQUSACE
Transatlantic Programs Center (TAC)
CENTCOM CCJ4-E
CJTF-101 CJ7
MNC-I C7
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AFCENT
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AUSTERE STANDARD DESIGNS–PHASE 4
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USARCENT MEMORANDUM
SHEET 2 OF 3

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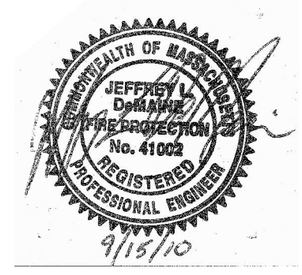

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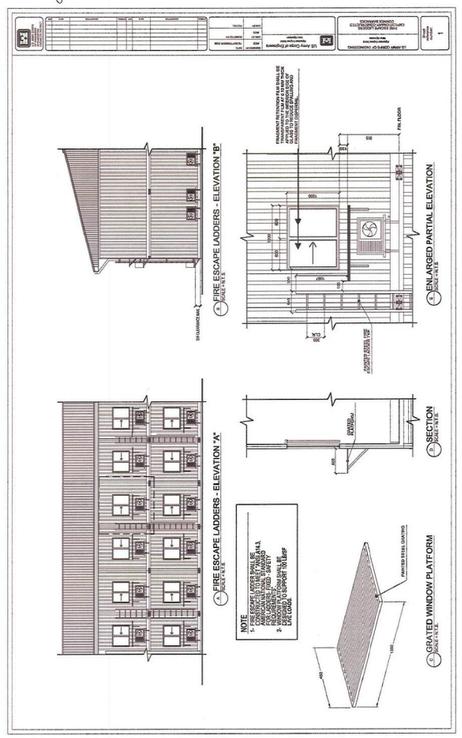
ENCLOSURE 1. FIRE LADDERS to FIRE SAFETY MANAGEMENT & DESIGN POLICY FOR CONTINGENCY CONSTRUCTION IN USARCENT AOR



Enclosure 2. Fire Hazard Analysis to Fire Safety Management & Design Policy for Contingency Construction in USARCENT AOR

1. The FHA must include an assessment of the risk from fire and related hazards (direct flame impingement, hot gases, smoke migration, fire fighting water damage, fire exposure to structural members, etc.) in relationship to existing or proposed fire safety features to ensure that the facility can be safely controlled and stabilized during and after a fire.

2. As a minimum, the FHA must contain information describing the following elements.

- Description of construction
- Protection of essential safety class and safety significant equipment
- Fire protection features
- Description of fire hazards
- Life safety considerations
- Fire department response
- Recovery potential
- Potential for a toxic, biological, and/or radiological incident due to a fire
- Emergency planning
- Security considerations related to fire protection
- Natural hazards (earthquake, flood, wind) impact on fire safety
- Exposure fire potentials, including the potential fire spread between fire areas
- Reference the fire department needs assessment baseline document.
- Deficiencies or "recommendations' that are required to be corrected to meet fire protection objectives.
- Risk of fire and related hazards (direct flame impingement

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SUBMITTED BY: TETRA TECH | FILE NO.: AF1081A-LS202GN

US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS–PHASE 4
FY11 BARRACKS – PN74127–CLN03
KANDAHAR AIR BASE, AFGHANISTAN

USARCENT MEMORANDUM
SHEET 3 OF 3

THESE DRAWINGS ARE "NOT APPROVED FOR CONSTRUCTION" SINCE THESE ARE BASED UPON ASSUMED CONDITIONS. THE CONTRACTOR SHALL NOT PROCEED WITH CONSTRUCTION UNTIL THE ASSUMED CONDITIONS ARE VALIDATED AND APPROVAL IS RECEIVED FROM THE CONTRACTING OFFICER.

COMMONWEALTH OF MASSACHUSETTS
JEFFREY L. DeMAINE
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9/15/10

SHEET REFERENCE NUMBER:
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