

# AFGHAN NATIONAL ARMY

## STANDARD BUILDING DESIGN FAMILY RESPONSE UNIT OFFICES 100% DESIGN SUBMITTAL



US ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT

Rev.	Date	Description
0		

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APPROVED:

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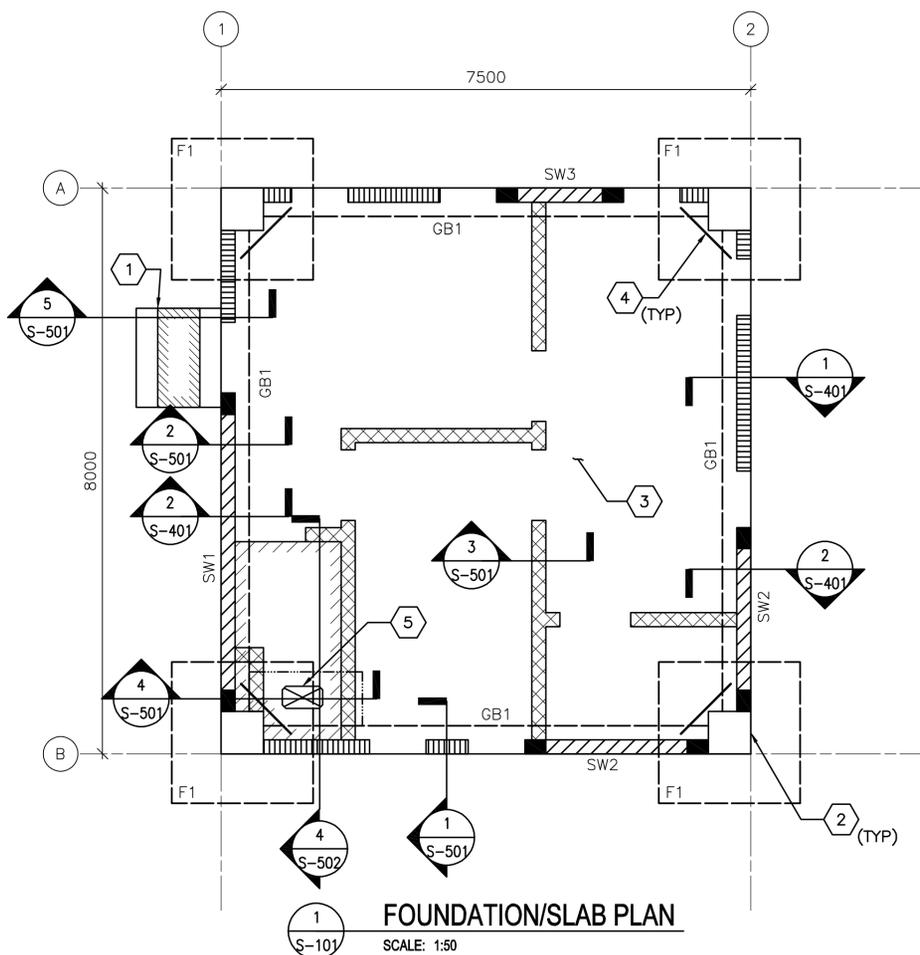
AFGHAN NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
COVER SHEET

Sheet reference number:  
G-001





US ARMY CORPS OF ENGINEERS  
AFGHANISTAN  
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**FOUNDATION/SLAB PLAN NOTES:**

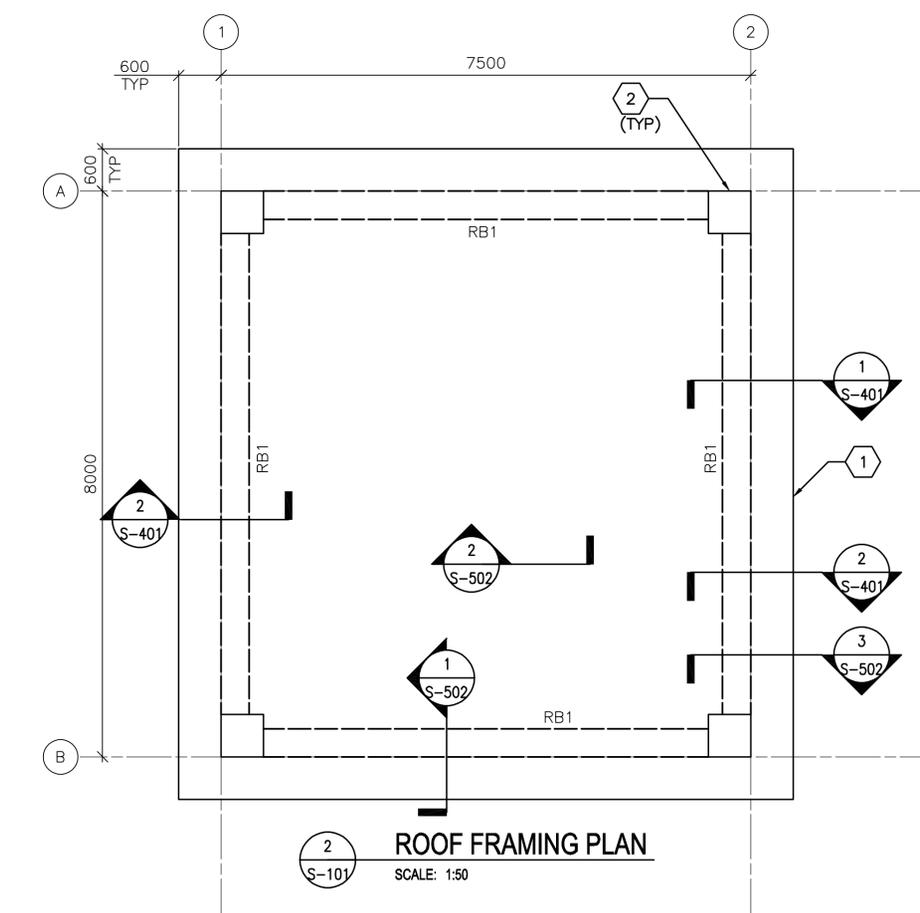
1. REFER TO SHEET S-001 FOR STRUCTURAL NOTES AND DESIGN CRITERIA.
2. FINISH FIRST FLOOR ELEVATION SHALL BE (DATUM 0.00) ALL PLUS OR MINUS DIMENSIONS INDICATED ON PLAN OR REFERRED TO IN NOTES RELATE TO FINISH FLOOR ELEVATION.
3. SLAB-ON-GRADE IS 150 WITH #13 @ 300 OC EW LOCATED 38 FROM T/SLAB.
4. TOP OF EXTERIOR FOOTINGS SHALL BE -950 UNLESS OTHERWISE INDICATED.
5. COLUMN FOOTINGS INDICATED BY F# ON PLAN. REFER TO COLUMN FOOTING SCHEDULE ON SHEET S-601.
6. REFER TO COLUMN SCHEDULE ON SHEET S-601.
7. GRADE BEAM INDICATED BY GB# ON PLAN, REFER TO BEAM SCHEDULE ON SHEET S-601.
8. SHEARWALL INDICATED BY SW# ON PLAN, REFER TO SHEARWALL SCHEDULE ON SHEET S-601.
9. SEE TYP EXTERIOR CMU WALL DETAIL ON SHEET S-701.
10. SEE MECHANICAL AND ELECTRICAL SHEETS FOR CONCRETE PAD LOCATIONS, SIZES, AND THICKNESS NOT SHOWN. SEE SHEET S-701 FOR DETAILS.
11. THICKENED SLAB UNDER PERIMETER CMU WALLS NOT SHOWN FOR CLARITY.

**FOUNDATION/SLAB PLAN KEY NOTES:** (X)

1. CONC PAD (ENTRANCE)-SEE ARCH DWGS FOR INFORMATION
2. REINF CONC COLUMN
3. REINF CONC SLAB-ON-GRADE
4. (2)-#13 RE-ENTRANT CORNER BARS - SEE S-701 FOR INFORMATION
5. SLAB OPENING - COORD W/ ARCH & MECH SHEETS

**FOUNDATION/SLAB PLAN LEGEND:**

- REINF CONC SHEAR WALL
- REINF CONCRETE INFILL WALL
- REINF CMU WALL
- INDICATES DROP SLAB 65 BELOW FINISH FLOOR
- INDICATES DROP SLAB FOR DOOR STOOP 2/A-503
- SLAB OPENING
- OUTLINE OF THICKENED SLAB AREAS

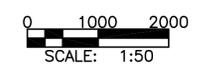


**ROOF FRAMING PLAN NOTES:**

1. REFER TO SHEETS S-001 FOR STRUCTURAL NOTES AND BASIS OF DESIGN.
2. TOP OF SLAB ELEVATION = 3600 UNLESS NOTED OTHERWISE.
3. ROOF SLAB IS 200 WITH #16 @ 300 OC EW T&B.
4. ROOF BEAM INDICATED BY RB# ON PLAN. REFER TO BEAM SCHEDULE ON SHEET S-601.
5. COORDINATE WITH ARCHITECTURAL SHEETS FOR COLD-FORMED STEEL OVERBUILD FRAMING ABOVE ROOF SLAB.
6. COLD-FORMED METAL OVERBUILD ROOF FRAMING NOT SHOWN FOR CLARITY. SEE OVERBUILD ROOF FRAMING DETAILS AND SECTIONS ON SHEET S-702.
7. OVERHANG AREAS OF ROOF SLAB CONTAIN ROOF VENT PENETRATIONS. REFERENCE ARCHITECTURAL DRAWINGS FOR INFORMATION.

**ROOF FRAMING PLAN KEY NOTES:** (X)

1. CONC ROOF SLAB (BELOW ROOF OVERBUILD)
2. REINF CONC COLUMN (BELOW CONC ROOF SLAB)



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)

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*Chris M...*  
A/E DESIGNER OF RECORD

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AFGHAN NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
FOUNDATION/SLAB &  
ROOF FRAMING PLAN

Sheet reference number:  
**S-101**



1

2

3

4

5



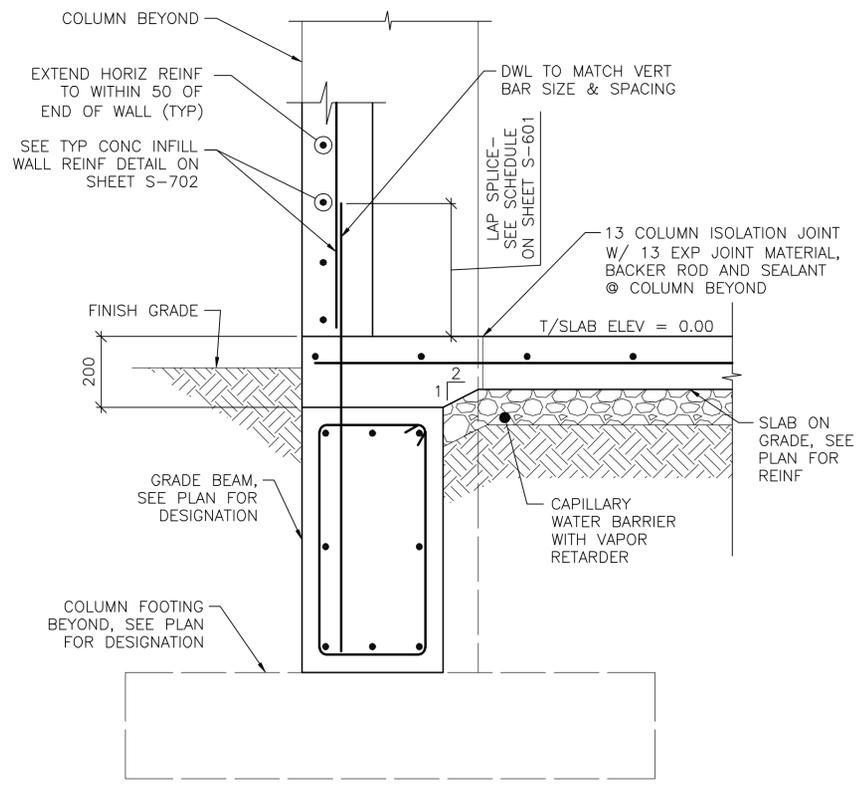
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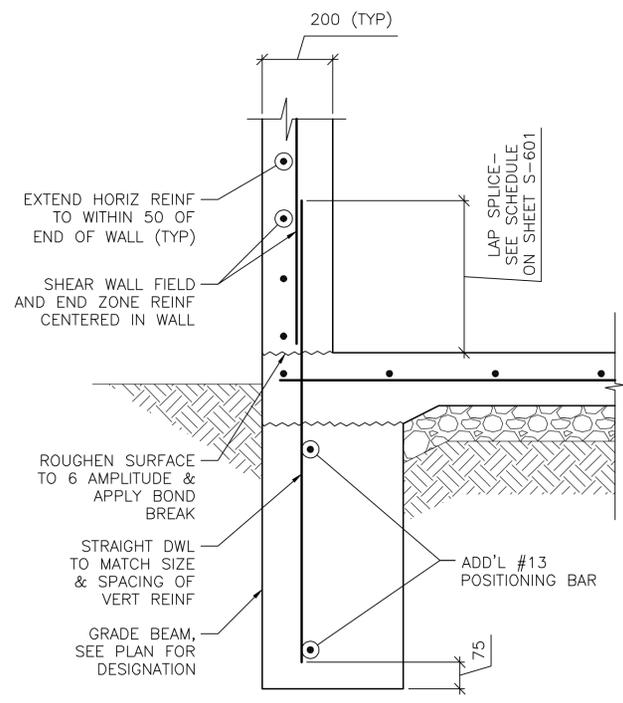
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STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
FOUNDATION SECTIONS

Sheet reference number:  
**S-501**

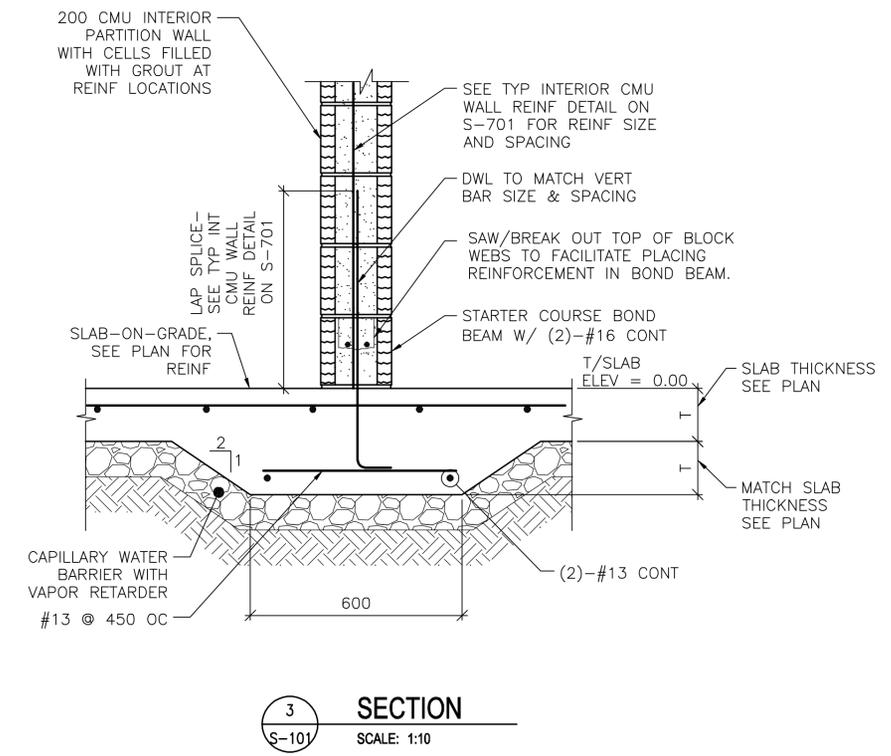


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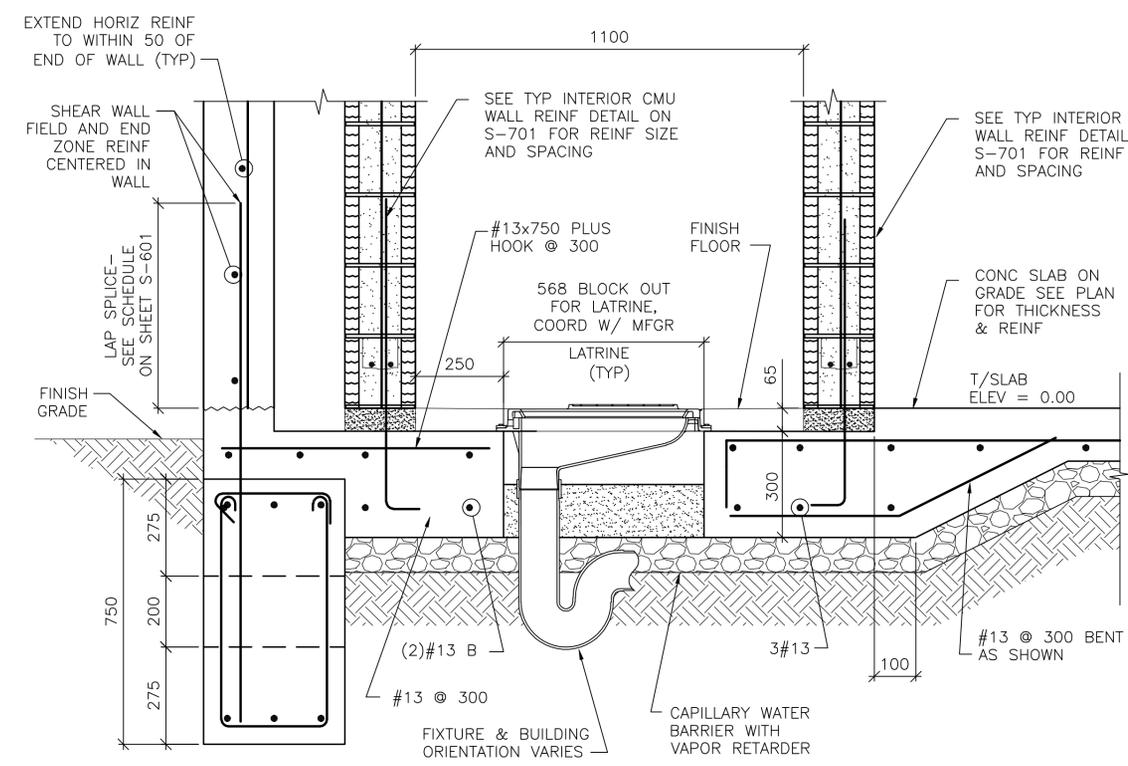


**2 SECTION**  
S-101 SCALE: 1:10

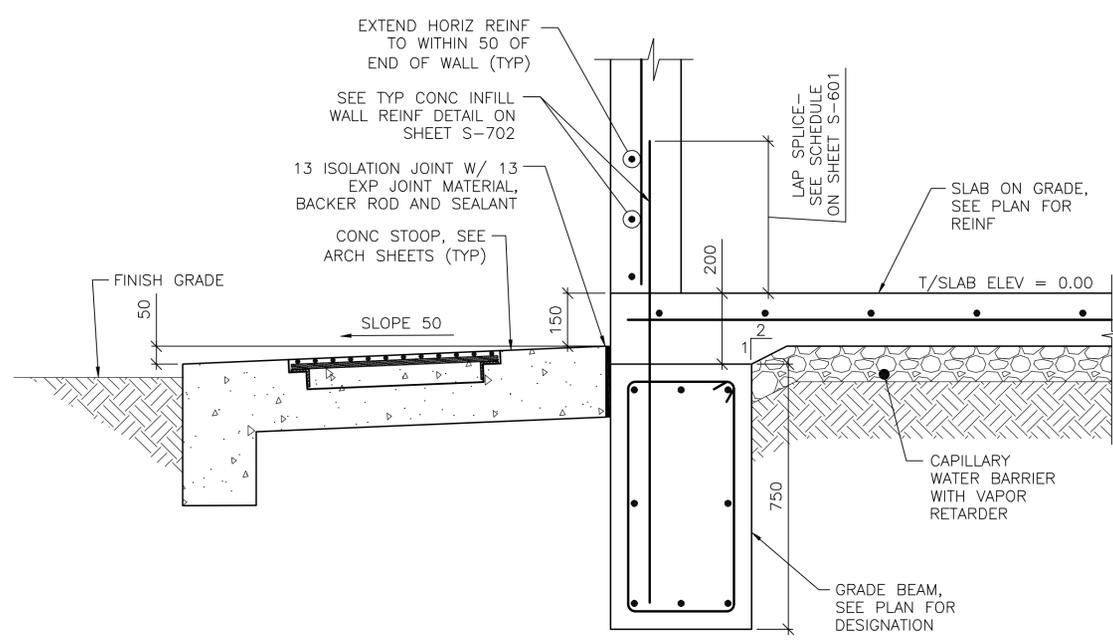
**NOTE:**  
1. SECTION DEPICTS SHEAR WALL TERMINATION ONLY. GRADE BEAM REINFORCING NOT SHOWN FOR CLARITY.  
2. SEE SHEET S-601 AND SHEET S-702 FOR SCHEDULED FIELD AND END ZONE REINF.



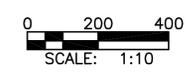
**3 SECTION**  
S-101 SCALE: 1:10



**4 SECTION**  
S-101 SCALE: 1:10



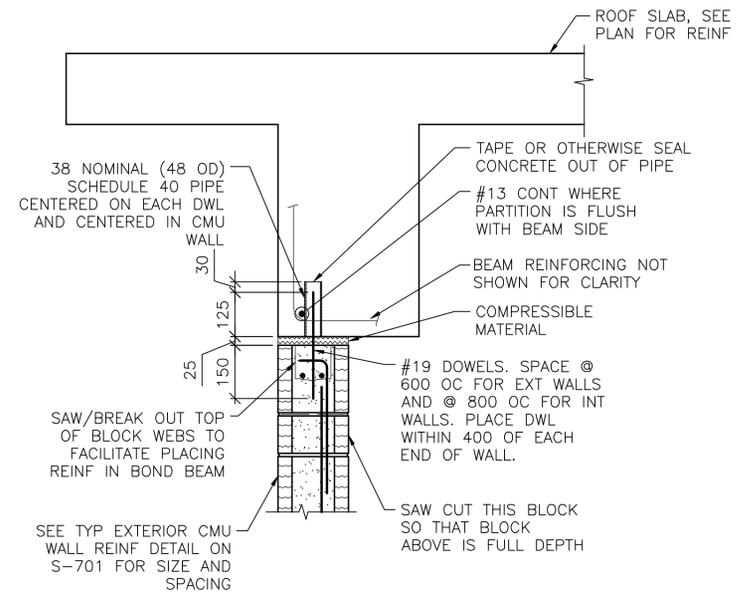
**5 SECTION**  
S-101 SCALE: 1:10



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)

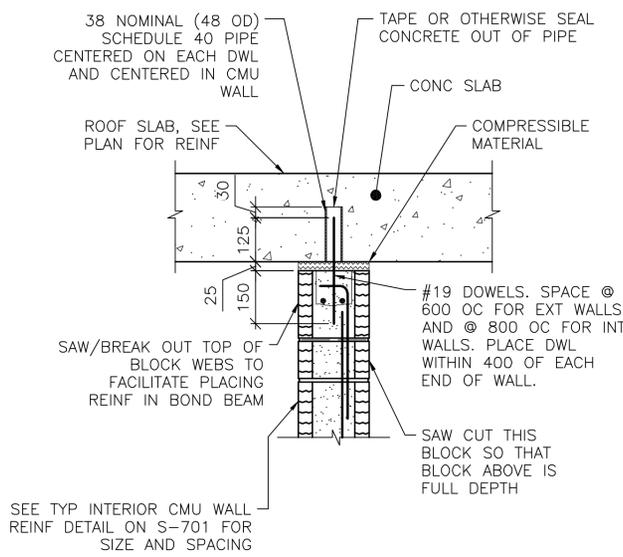
APPROVED:  
*Chris M...*  
A/E DESIGNER OF RECORD





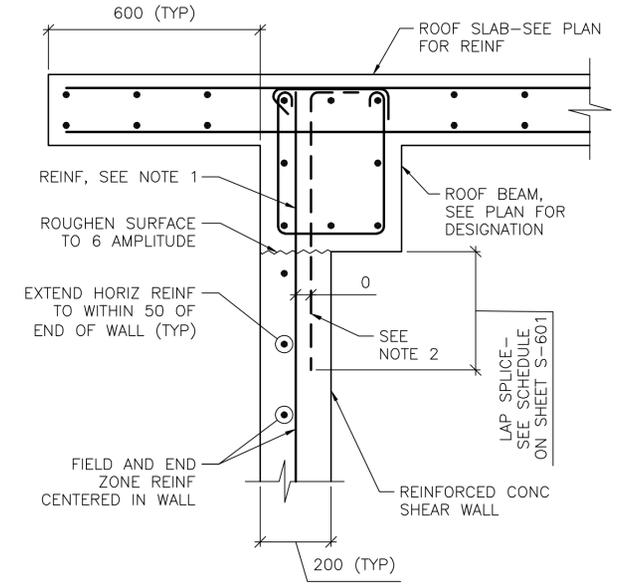
NOTES:  
1. EXTEND DOWEL REINF TO 25 CLEAR FROM TOP OF CMU WALL.

**1 SECTION**  
S-101 SCALE: 1:10



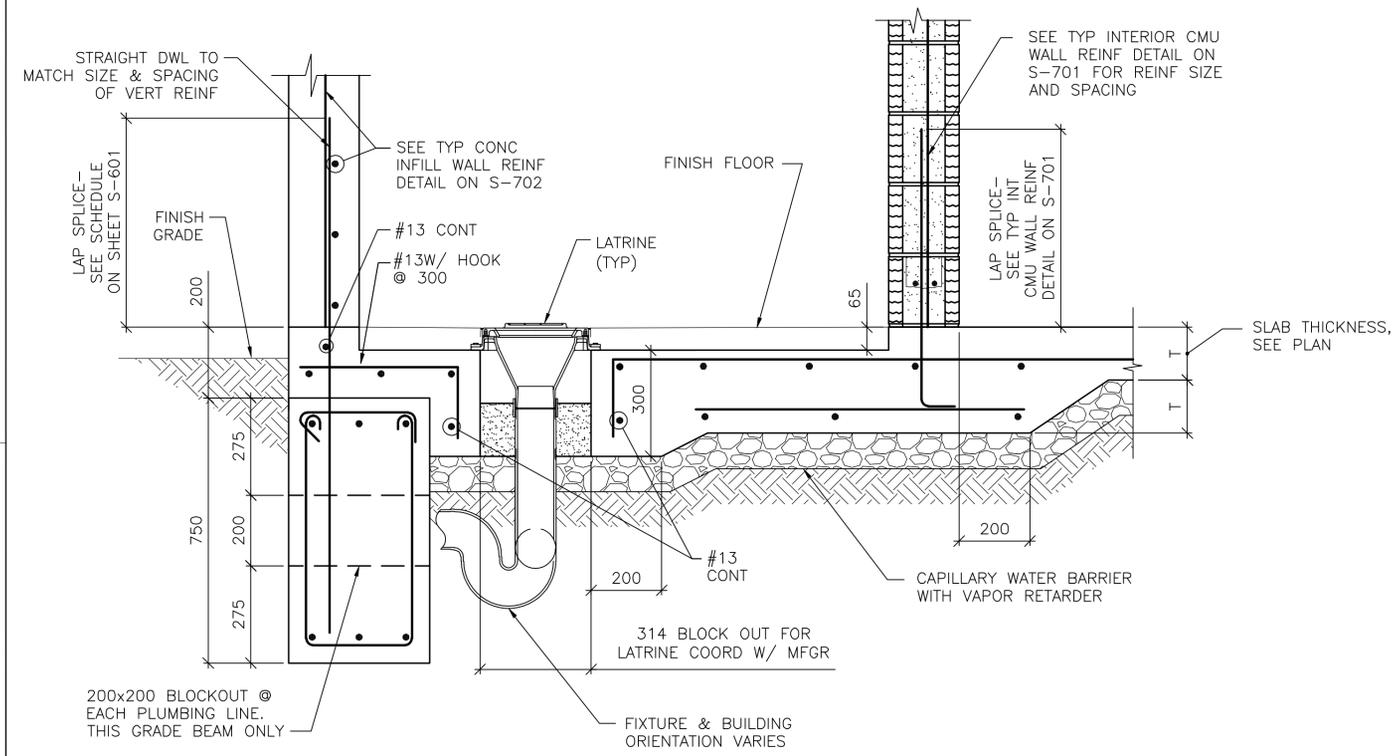
NOTES:  
1. EXTEND DOWEL REINF TO 25 CLEAR FROM TOP OF CMU WALL.  
2. SLAB REINF NOT SHOWN FOR CLARITY.

**2 SECTION**  
S-101 SCALE: 1:10



NOTES:  
1. TERMINATE "FIELD" VERT REINF & END ZONE REINF @ 50 CLEAR FROM TOP OF ROOF SLAB.  
2. WHERE END ZONE REINFORCING CANNOT BE DEVELOPED IN BEAM DEPTH, PROVIDE HOOKED DWLS SAME SIZE & SPACING. PROVIDE TENSION LAP BELOW ROOF BEAM.  
3. SEE SHEET S-601 AND SHEET S-702 FOR SCHEDULED FIELD AND END ZONE REINF.

**3 SECTION**  
S-101 SCALE: 1:10



**4 SECTION**  
S-101 SCALE: 1:10



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)

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*Chris M...*  
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Submitted by: BAKER

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FOUNDATION & FRAMING SECTIONS

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**S-502**



### CONCRETE REINFORCEMENT TENSION DEVELOPMENT/LAP SPLICE SCHEDULE

f'c = 28 MPa					
BAR SIZES	LAP CLASS	UNCOATED BARS			
		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2
#10 TO #19	A	50 BAR DIA	74 BAR DIA	38 BAR DIA	57 BAR DIA
	B	64 BAR DIA	96 BAR DIA	50 BAR DIA	74 BAR DIA
#22 TO #57	A	62 BAR DIA	93 BAR DIA	48 BAR DIA	71 BAR DIA
	B	80 BAR DIA	121 BAR DIA	62 BAR DIA	93 BAR DIA

- NOTES:**
- TABULATED TENSION DEVELOPMENT LENGTH VALUES ARE TAKEN FROM CRSI DESIGN HANDBOOK 2008 10TH ED.
  - TENSION DEVELOPMENT & TENSION LAP SPLICE LENGTHS ARE EXPRESSED AS MULTIPLES OF BAR DIAMETERS.
  - TABULATED VALUES ARE BASED ON MINIMUM YIELD STRENGTH OF REINFORCEMENT, fy, OF 420MPa.
  - CONCRETE IS NORMAL WEIGHT (2400Kg/m<sup>3</sup>) AND 28 DAY COMPRESSIVE STRENGTH = 28MPa.
  - TABULATED VALUES FOR BEAMS & COLUMNS ARE BASED ON TRANSVERSE REINFORCEMENT AND CONCRETE COVER MEETING MINIMUM CODE REQUIREMENTS.
  - CASES 1 & 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL MEMBER, CONCRETE COVER, AND CENTER-TO-CENTER SPACING OF THE BARS ARE DEFINED IN THE TABLE BELOW.
  - LAP SPLICE LENGTHS (MINIMUM 300mm) ARE MULTIPLES OF TENSION DEVELOPMENT LENGTHS: CLASS A = 1.0(TENSION DEVELOPMENT LENGTH) & CLASS B = 1.3(TENSION DEVELOPMENT LENGTH)
  - TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 300mm OF CONCRETE CAST BELOW THE BARS.
  - IT SHALL BE PERMISSIBLE TO CALCULATE WALL AND SLAB REINFORCEMENT TENSION DEVELOPMENT/SPLICE LENGTHS IN ACCORDANCE WITH ACI 12.2.3 OR TABLE 5.3(b) OF CRSI 2008 IN LIEU OF VALUES TABULATED ABOVE.

BEAMS, COLUMNS	CASE 1	CONCRETE COVER AT LEAST 1 BAR DIA AND CENTER-TO-CENTER SPACING AT LEAST 2 BAR DIA
	CASE 2	CONCRETE COVER LESS THAN 1 BAR DIA OR CENTER-TO-CENTER SPACING LESS THAN 2 BAR DIA
ALL OTHERS	CASE 1	CONCRETE COVER AT LEAST 1 BAR DIA AND CENTER-TO-CENTER SPACING AT LEAST 3 BAR DIA
	CASE 2	CONCRETE COVER LESS THAN 1 BAR DIA OR CENTER-TO-CENTER SPACING LESS THAN 3 BAR DIA

### CONCRETE COVER SCHEDULE

MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS LISTED BELOW: (SEE ACI 318M-05, SECTION 7.7 FOR CONDITIONS NOT NOTED). DIMENSIONS FOR BAR PLACEMENT GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE MINIMUM COVER REQUIREMENTS GIVEN HERE. DIMENSIONS ARE IN mm. PROVIDE STANDARD BAR CHAIRS AND SUPPORT BARS @1200mm MAXIMUM AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.

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

### COLUMN FOOTING SCHEDULE

MARK	FOOTING SIZE (mm)			FOOTING REINFORCING	REMARKS
	LENGTH	WIDTH	THICKNESS		
F1	2500	2500	300	(10)-#16 EW BOTT	-----

### COLUMN SCHEDULE

DESCRIPTION	COLUMN MARK	TYP UON	---	---
	TYPE	8-BAR	---	---
DIMENSION		600mm SQ.	---	---
VERTICAL REINFORCEMENT		(8)-#25	---	---
TIES		#13 @ d/2	---	---
TOP OF ROOF ELEVATION		3600mm	---	---
TOP OF GRADE BEAM ELEVATION		-200mm	---	---
TOP OF FOOTING ELEVATION		-950mm	---	---

- NOTES:**
- WORK THIS SCHEDULE WITH COLUMN DETAILS ON SHEET S-504.
  - SEE FOOTING SCHEDULE ON THIS SHEET FOR FOOTING INFORMATION.
  - COLUMN TIES: INTERIOR TIES TO MATCH SIZE & SPACING OF PERIMETER TIES.
  - HOOKS SHOWN ON SECTIONS & DETAILS SHALL BE 90° STD UON.

### CONCRETE SHEAR WALL SCHEDULE

MARK	TYPE	WALL LENGTH (L) (mm)	WALL REINFORCEMENT		REMARKS
			END ZONE	FIELD	
SW1	B	4500	(4)-#16 @ 150mm OC	#13 @ 300mm OC	-----
SW2	B	2600	(7)-#16 @ 150mm OC	#13 @ 300mm OC	-----
SW3	A	1800	(6)-#16 @ 150mm OC	#13 @ 300mm OC	-----

- NOTES:**
- WORK THIS SCHEDULE WITH SHEAR WALL DETAILS ON SHEETS S-702
  - SEE PLAN FOR LOCATION OF SHEAR WALL(S).
  - VERTICAL "FIELD" BARS MAY BE OMITTED IN LOCATION OF "END ZONE" REINFORCEMENT.
  - WALL FIELD REINFORCEMENT LISTED APPLIES TO VERTICAL & HORIZONTAL BARS.
  - WALL FIELD REINFORCEMENT SHOULD BE CENTERED IN WALL.

### REINFORCED CONCRETE INFILL WALL SCHEDULE

HORIZONTAL REINF	VERTICAL REINF	REMARKS
#13 @ 300	#13 @ 300	SEE DETAIL ON S-702 CENTER VERTICAL REINF

### BEAM SCHEDULE

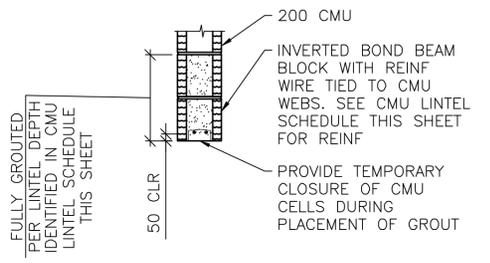
MARK	BEAM SIZE (mm)		BEAM REINFORCING						STIRRUPS			REMARKS
	DEPTH	WIDTH	BL	BS	TL	TS	TC	M	SIZE	TYPE	SPACING	
GRADE BEAMS												
GB1	750	400	(2)-#25	(2)-#25	(2)-#25	---	---	---	#13	S3 + T9	d/2	-----
ROOF BEAMS												
RB1	600	400	(2)-#25	---	(2)-#25	---	---	---	#13	S3 + T9	d/2	

- NOTES:**
- WORK THIS SCHEDULE WITH BEAM REINFORCING DETAILS ON SHEETS S-503 AND S-504.
  - HOOKS SHOWN ON SECTIONS AND DETAILS SHALL BE 90° STD UON.
  - USE ONLY (1) TS AT BEAM COLUMN INTERSECTION WHERE REQ'D.

### CMU OR CAST IN PLACE CONC LINTEL SCHEDULE (TYP)

OPENING TYPE OR SIZE, BEAM LOCATION OR TYPE	MAX SPAN (mm)	LINTEL DEPTH (mm)	REINFORCING BOTTOM
WALL OPENING	4000	600	(2)-#16 T&B
WALL OPENING	1900	400	(2)-#16 T&B
WALL OPENING	1000	400	(2)-#13 B

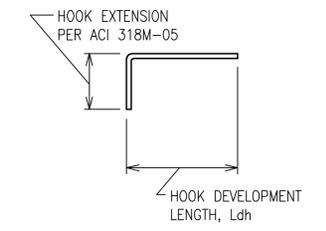
- STRUCTURAL SHEETS DO NOT INDICATE ALL OPENINGS IN MASONRY WALLS. VERIFY NUMBER, SIZE AND LOCATION OF ALL OPENINGS IN MASONRY WALLS FROM ARCHITECTURAL SHEETS AND APPROVED PLUMBING, MECHANICAL, AND ELECTRICAL SHOP DRAWINGS.
- PROVIDE 200mm BEARING EA END.
- FOR HEAD DETAILS REFER TO ARCHITECTURAL SHEETS.
- REINFORCING SHALL BE ASTM A615M, GRADE 420. GROUT FOR CMU LINTELS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 14MPa AT 28 DAYS.
- CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS AND SCHEDULES SHOWING SIZE, SPAN, REINFORCEMENT, DETAILS, LOCATIONS, ETC.



**A LINTEL DETAILS**  
SCALE: NTS

### STANDARD HOOKS IN TENSION PER (ACI 318M-05)

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



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



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U.S. ARMY CORPS OF ENGINEERS AFGHANISTAN ENGINEER DISTRICT APO AE 96338 Michael Baker Jr., Inc A Unit of Michael Baker Corporation Alaska Business Park 100 Arctique Drive, PA, 15108 www.mbakercorp.com	

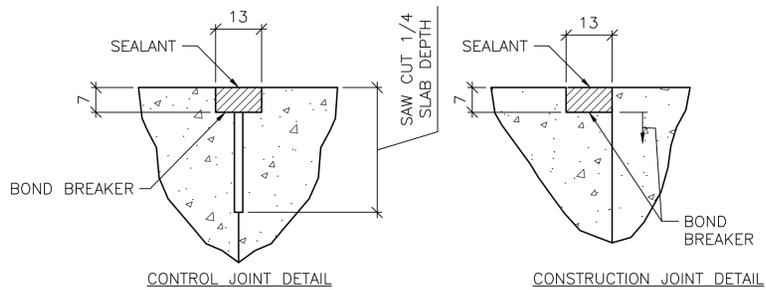
U.S. ARMY NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
SCHEDULES

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

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*Chris M...*  
A/E DESIGNER OF RECORD

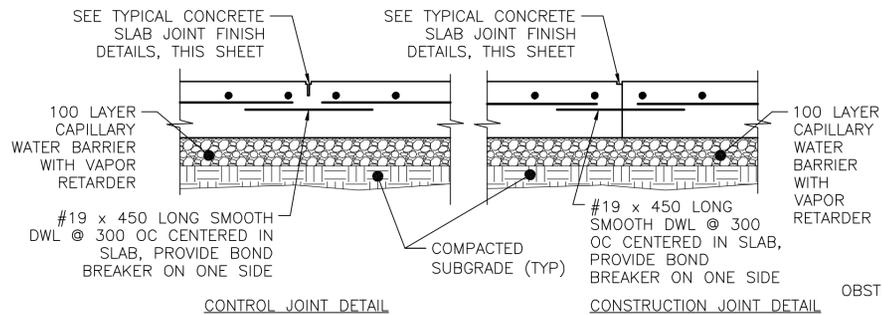


Sheet reference number:  
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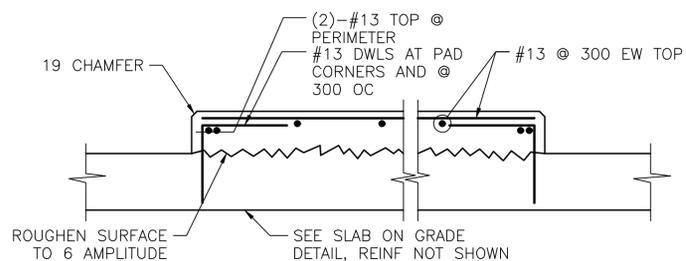
**TYPICAL CONCRETE SLAB JOINT FINISH DETAILS**

1  
S-701  
SCALE: NTS



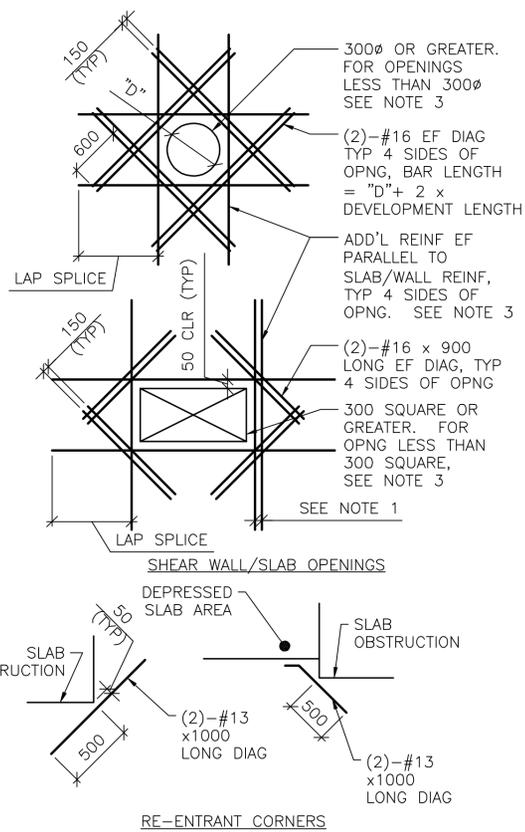
**TYPICAL SLAB ON GRADE JOINT DETAIL**

2  
S-701  
SCALE: NTS



**INTERIOR EQUIPMENT PAD DETAIL**

3  
S-701  
SCALE: NTS

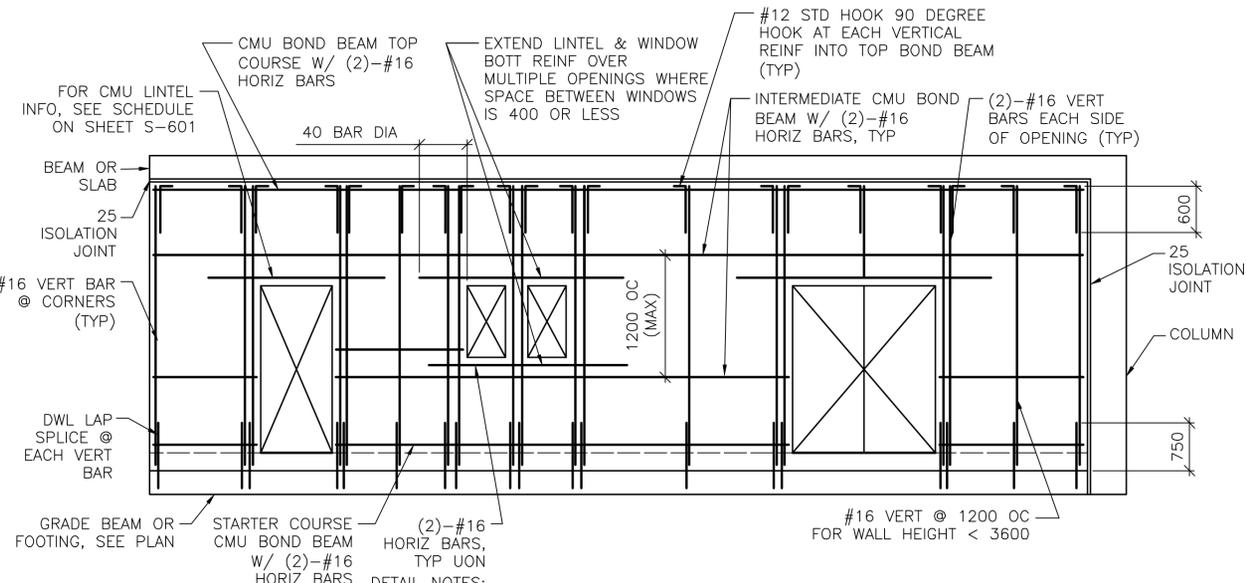


**DETAIL NOTES:**

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

**ADD'L CONCRETE REINFORCEMENT DETAILS**

4  
S-701  
SCALE: NTS

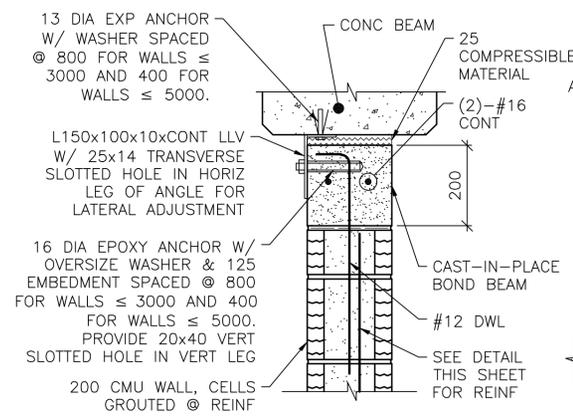


**DETAIL NOTES:**

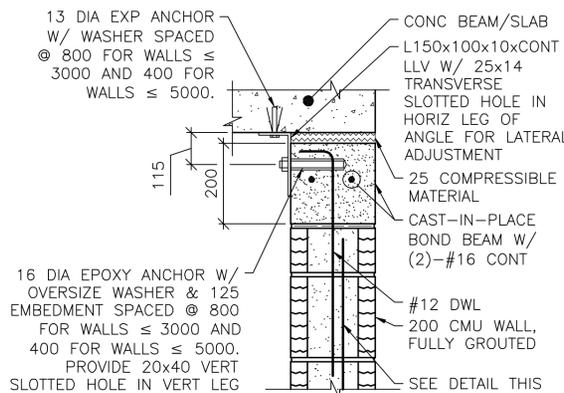
- CENTER VERT REINF IN WALL.
- GROUT ALL CMU CELLS IN EXTERIOR WALLS & REINFORCED CELLS IN INTERIOR WALLS.
- REFERENCE ARCH DWGS FOR JOINT INFORMATION
- DOWELS BETWEEN TOP BOND BEAM AND BEAM/SLAB ABOVE (INCLUDING EMBEDDED PIPE SLEEVE) NOT SHOWN FOR CLARITY. SEE SPECIFIC S-500 SERIES DWGS FOR INFO.
- FOR INFORMATION ON ALTERNATE CAST-IN-PLACE WALL BOND BEAMS, REFERENCE ALTERNATE TOP OF CMU WALL BRACING DETAILS THIS SHEET.

**TYP CMU WALL REINF DETAIL**

7  
S-701  
SCALE: NTS



- NOTE:**
- AT ANCHOR BOLTS, ADD AN ADDITIONAL 25 COMPRESSIBLE MATERIAL BELOW EXP ANCHOR HEAD.

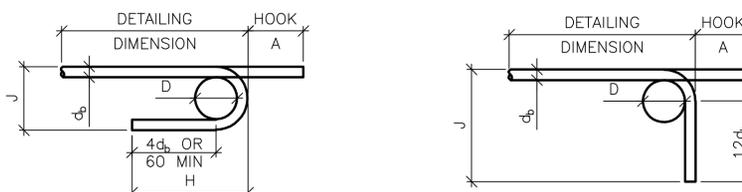


**NOTES:**

- THIS DETAIL IS AN ALTERNATE TOP OF WALL ANCHORAGE DETAIL TO BE USED AT THE CONTRACTOR'S OPTION IN LIEU OF DETAILS SHOWN ON S-400 & S-500 DRAWINGS.
- CAST-IN-PLACE BOND BEAM SHOWN AT TOP OF WALL IS ALSO APPLICABLE FOR INTERMEDIATE AND STARTER COURSE BOND BEAMS WITHIN WALL.

**ALTERNATE TOP OF CMU WALL BRACING DETAILS**

5  
S-701  
SCALE: NTS



**SIZES OF 180° HOOK**

BAR SIZE	A	J	APPROX H
#10	130	80	100
#13	150	100	110
#16	180	130	130
#19	200	150	150
#22	250	180	180
#25	280	200	200
#29	380	290	260
#32	430	320	290
#36	480	360	320

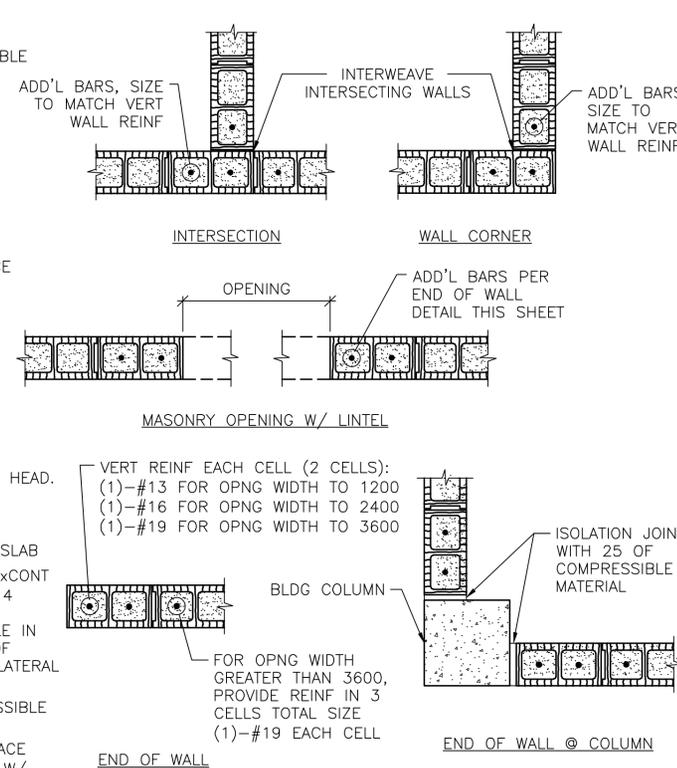
$D = 6d_b$  FOR #10-#25  
 $D = 6d_b$  FOR #29-#36  
 $d_b =$  BAR DIA

**SIZES OF 90° HOOK**

BAR SIZE	A	J
#10	140	150
#13	190	220
#16	230	270
#19	270	320
#22	320	370
#25	370	430
#29	420	480
#32	470	580
#36	520	610

**TYP REINFORCEMENT BAR BENDING DETAILS**

8  
S-701  
SCALE: NTS



- NOTES:**
- OPENING WIDTH SHALL NOT EXCEED 3600 FOR THIS TYPE OF JAMB.
  - ALL CELLS FULLY GROUTED AT EXTERIOR WALLS. AT INTERIOR WALLS, ONLY GROUT CELLS CONTAINING REINF.

**TYP CMU DETAILS**

6  
S-701  
SCALE: NTS

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

APPROVED:  
*Chris M...*  
A/E DESIGNER OF RECORD

SEAL:



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AFGHANISTAN ENGINEER DISTRICT

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AFGHANISTAN ENGINEER DISTRICT  
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A unit of Michael Baker Corporation  
100 Ardsley Drive, PA, 15108  
www.mbakercorp.com

Designed by: KMP  
Dwn by: RCG  
Reviewed by: LHM  
Submitted by: BAKER

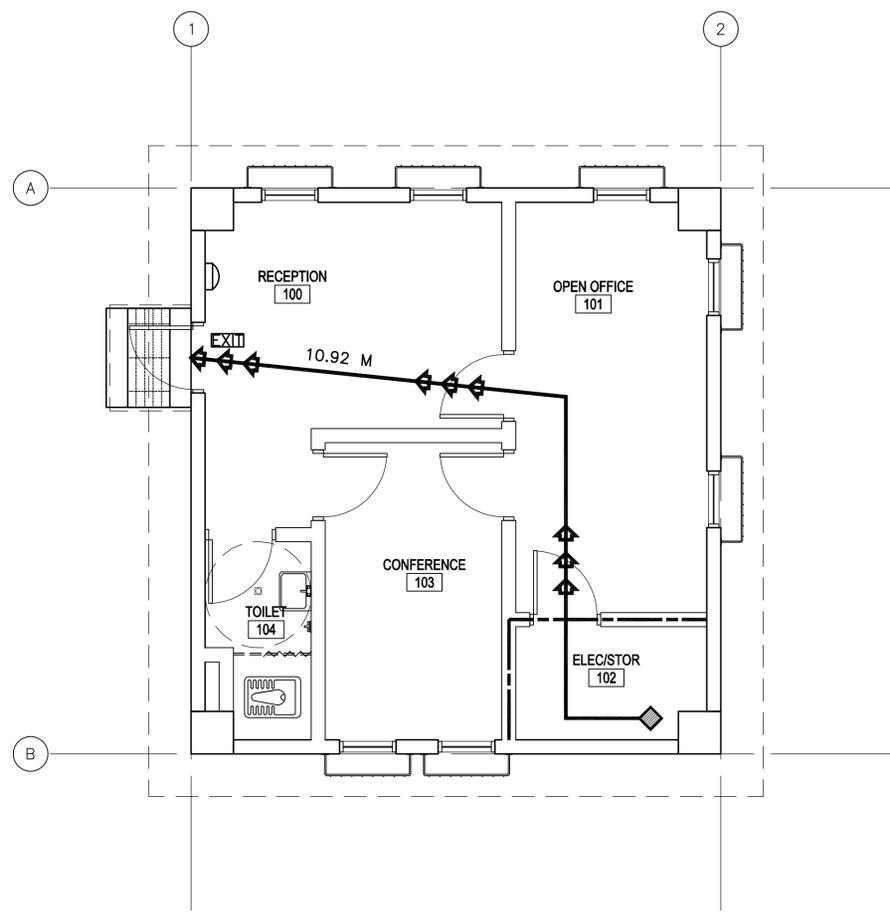
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Design file no.:  
Drawing code:  
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Plot date: 02/20/10  
Plot scale: XX

AFGHAN NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)

TYPICAL DETAILS

Sheet reference number:  
**S-701**





**1**  
A-001  
**FLOOR PLAN LIFE SAFETY PLAN**  
SCALE: 1:50

- LEGEND:**
- ▶▶▶ DENOTES PATHS OF EXIT TRAVEL
  - EXIT DENOTES DOOR AS AN EMERGENCY EXIT; SEE E-101 FOR ILLUMINATED EXIT SIGNS
  - ◆ DENOTES STARTING POINT FOR TRAVEL DISTANCE
  - ☺ DENOTES FIRE EXTINGUISHER LOCATIONS
  - (1) HOUR RATED WALL

**CODE ANALYSIS:**

1. REFERENCES:  
2006 INTERNATIONAL BUILDING CODE (2006 IBC)  
2006 LIFE SAFETY CODE (2006 NFPA 101)
2. IBC OCCUPANCY CLASSIFICATION:  
GROUP B (BUSINESS NFPA 101 6.1.11 AND CHAPTER 38)
3. TYPE OF CONSTRUCTION (IBC): TYPE II-B (UNPROTECTED/NONSPRINKLERED)
4. IBC TABLE 503: ALLOWABLE HEIGHT AND BUILDING AREAS:  
GROUP B  
ALLOWABLE AREA: 2,137 SM  
ALLOWABLE HEIGHT: 3 STORIES (16 M)  
  
GROUP B  
PROPOSED AREA: 60 SM  
PROPOSED HEIGHT: 1 STORY (<16 M)
5. IBC TABLE 601 & 602: FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS FOR TYPE II-B

BUILDING ELEMENT	RATING (HOUR)	REFERENCE
STRUCTURAL FRAME (COLUMNS, GIRDERS & TRUSSES)	0	TABLE 601
BEARING WALLS EXTERIOR	0	TABLE 601
BEARING WALLS INTERIOR	0	TABLE 601
NONBEARING WALLS & PARTITIONS INTERIOR	0	TABLE 601
FLOOR CONSTRUCTION	0	TABLE 601
ROOF CONSTRUCTION	0	TABLE 601
EXTERIOR WALL	0	TABLE 602
6. IBC TABLE 803.5 - INTERIOR WALL AND CEILING FINISH REQUIREMENTS FOR B OCCUPANCY/NONSPRINKLERED

GROUP	EXIT ENCLOSURES AND EXIT PASSAGEWAY	CORRIDORS	ROOMS AND ENCLOSED SPACES
B	A	B	C
7. NFPA 101 TABLE 7.3.1.2 - OCCUPANT LOAD  
BUSINESS = 9.3 SM/PERSON BUSINESS PROPOSED = 6 OCCUPANTS
8. NFPA 101 TABLE 7.3.3.1 - EGRESS CAPACITY  
BUSINESS = 5 MM PER OCCUPANT  
  
REQUIRED: 30 MM (6 OCCUPANTS x 5 MM PER OCCUPANT)  
PROPOSED EGRESS CAPACITY: 900 MM
9. NFPA 101 PARAGRAPH 38.2.6.2 - EXIT ACCESS TRAVEL DISTANCE (NONSPRINKLERED)  
REQUIRED: 60 METERS  
PROPOSED: 11 METERS
10. NFPA 101 PARAGRAPH 38.3.6.1(1) & (2) - CORRIDORS  
NO RATED CORRIDOR REQUIRED (NONSPRINKLERED);  
(1) ALL EXITS ARE AVAILABLE FROM AN OPEN FLOOR AREA  
(2) SPACE IS OCCUPIED BY A SINGLE TENANT
11. NFPA 101 PARAGRAPH 38.2.4.1 - NUMBER OF EXITS  
BUSINESS REQUIRED: 1 MINIMUM  
BUSINESS PROPOSED: 1 EXITS

LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE NOTED  
SCALE: 1:50

APPROVED: *[Signature]*  
A/E DESIGNER OF RECORD  
SEAL:



Date	Rev.	Description
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Designed by: KRC  
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Crd by: NLJ  
Reviewed by: LHM  
Submitted by: BAKER

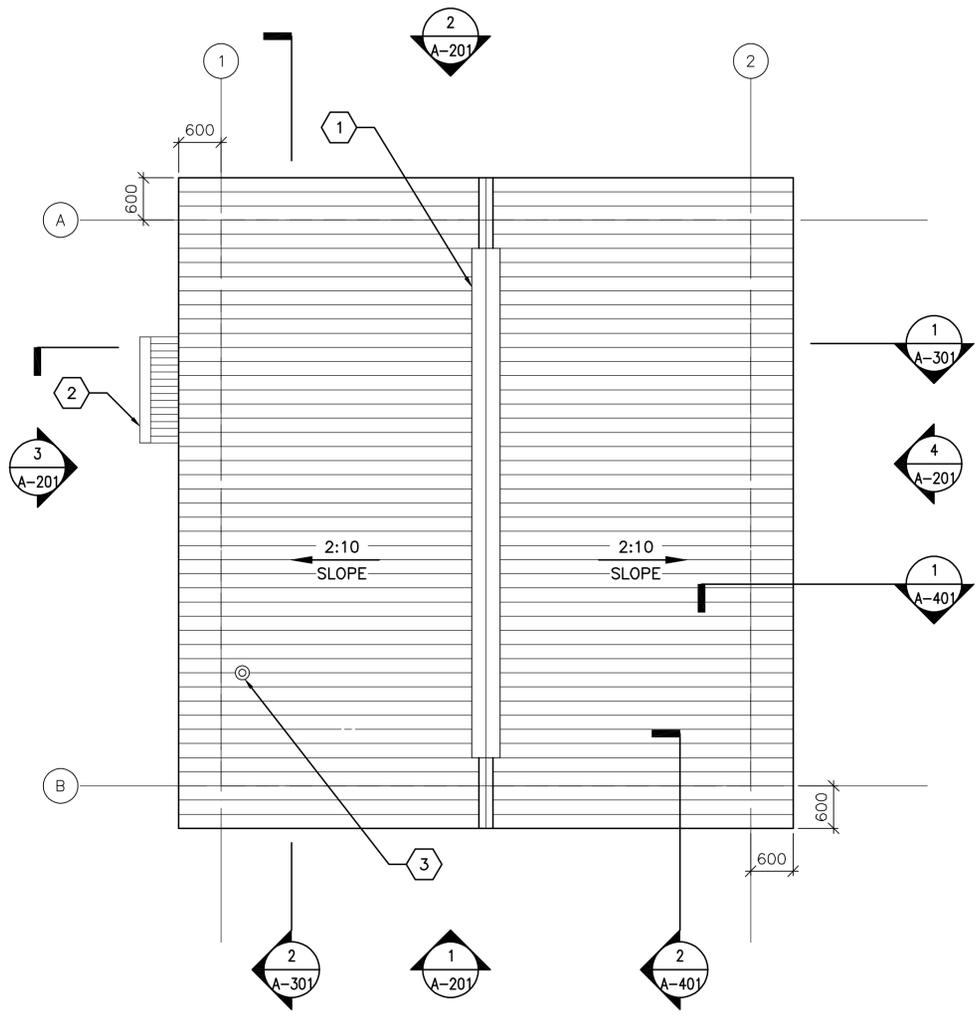
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File name: ANAFRUA-001LP  
Plot date: 8/24/10  
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AFGHAN NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
LIFE SAFETY PLAN

Sheet reference number:  
A-001





1  
A-101

**ROOF PLAN**  
SCALE: 1:50

**GENERAL NOTES:**

- A. THE APPROXIMATE LOCATION OF ROOF DEVICES AND PENETRATIONS ARE SHOWN ON THE ROOF PLAN FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UNDERSTANDING THE ACTUAL LOCATION OF THESE AND ALL OTHER ITEMS PRIOR TO BEGINNING CONSTRUCTION. COORDINATE ALL ROOF PENETRATIONS WITH STRUCTURAL, MECHANICAL AND PLUMBING WORK.
- B. PLUMBING VENT PENETRATIONS SHALL TERMINATE 300 MM MINIMUM ABOVE THE ROOF.
- C. UNLESS OTHERWISE NOTED, NOTES, DETAILS OR FEATURES INDICATED FOR ONE CONDITION SHALL BE APPLICABLE FOR ALL ALIKE AND SIMILAR CONDITIONS.
- D. STOCKPILING OF MATERIALS, EQUIPMENT AND ANY OTHER ITEMS ON THE ROOF IS PROHIBITED.
- E. ROOFS SHALL BE CORRUGATED METAL ROOF PANELS ON COLD-FORMED METAL FRAMING ON CONCRETE SLAB.

**KEY NOTES:**

- 1. CONTINUOUS METAL RIDGE VENT - SEE DETAIL 4/A-501.
- 2. CANOPY - SEE DETAIL 2/A-503.
- 3. PLUMBING VENT - SEE DETAIL 5/A-501.



Rev.	Date	Description
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		Drawn by: NLJ
		Checked by: KJG
		Reviewed by: LHM
		Submitted by: BAKER
		Drawing code: ANAFRUA-102RP
		File name: ANAFRUA-102RP
		Plot date: 8/24/10
		Plot scale: x:1

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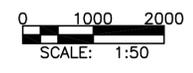
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FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
ROOF PLAN

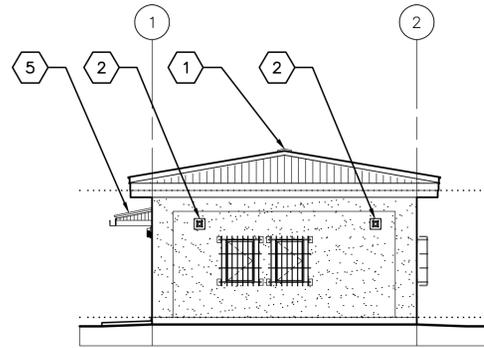
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LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS (MM), UNLESS OTHERWISE NOTED

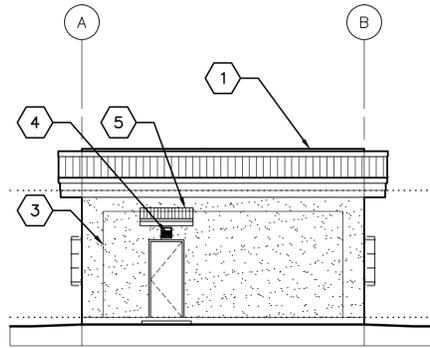
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A/E DESIGNER OF RECORD

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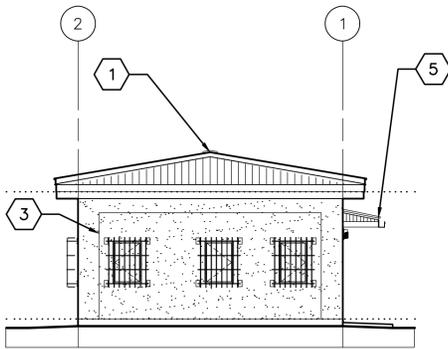




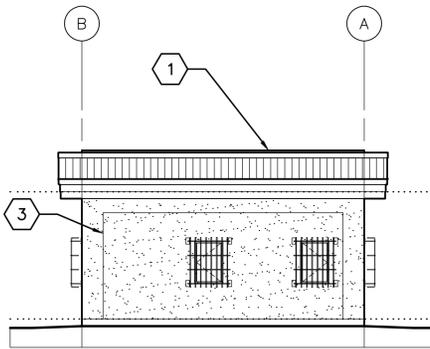
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**3 ELEVATION**  
A-201 SCALE: 1:100



**2 ELEVATION**  
A-201 SCALE: 1:100



**4 ELEVATION**  
A-201 SCALE: 1:100

**GENERAL NOTES:**

- A. COORDINATE SIZE AND LOCATION OF OPENINGS FOR MECHANICAL ITEMS WITH MECHANICAL DRAWINGS.
- B. PROVIDE STRUCTURAL LINTELS AS REQUIRED - SEE STRUCTURAL DRAWINGS
- C. ALL EXTERIOR WALL FINISHES SHALL BE STUCCO OVER CMU AND CONCRETE SUBSTRATES. PROVIDE CONTROL JOINTS IN STUCCO WALL FINISH AS NOTED. SEE DETAIL 2A/A-501.
- D. ROOF SHALL BE CORRUGATED METAL ROOF PANELS ON COLD-FORMED METAL FRAMING ON CONCRETE SLAB.

**KEY NOTES:**

- 1. CONTINUOUS METAL RIDGE VENT - SEE DETAIL 4/A-501.
- 2. EXHAUST FAN, LOCATE TOP OF WALL PENETRATION 2800 MM ABOVE FINISHED FLOOR - SEE MECHANICAL DRAWINGS.
- 3. STUCCO CONTROL JOINT - SEE DETAIL 2A/A-501.
- 4. EXTERIOR LIGHT FIXTURE - SEE ELECTRICAL.
- 5. CANOPY - SEE DETAIL 2/A-503.



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		Design file no.
		Drawing code:
		File name: ANAFRUA-201E
		Plot date: 02/20/10
		Plot scale: 1:100

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Submitted by:	BAKER
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STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
ELEVATIONS

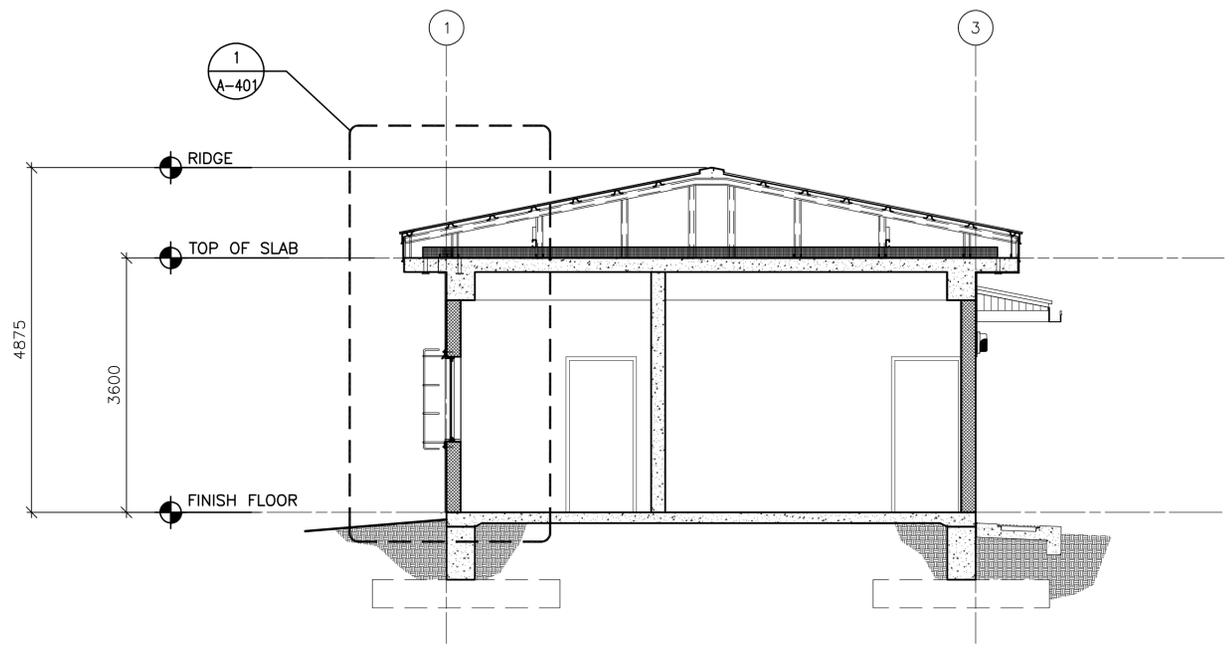
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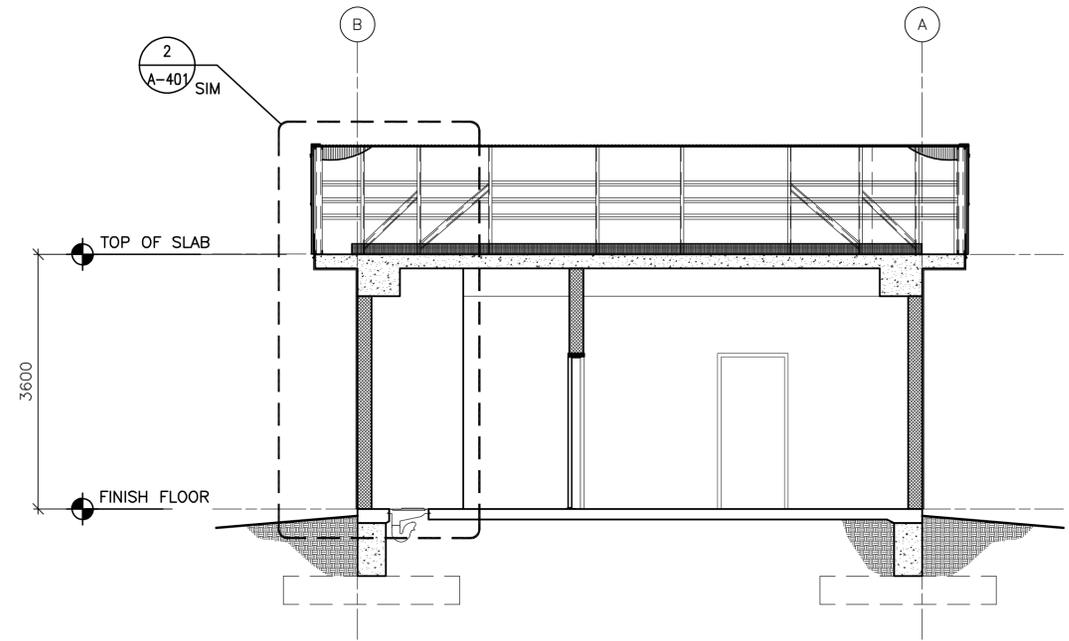
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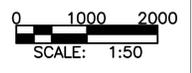


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**2 BUILDING SECTION**  
 SCALE: 1:50

LINEAR DIMENSIONS SHOWN  
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 Dwn by: KJG  
 Ckd by: NLJ  
 Reviewed by: LHM  
 Submitted by: BAKER

Date: 8/16/10  
 Design file no.:  
 Drawing code: ANAFRUA-301BS  
 File name: ANAFRUA-301BS  
 Plot date: 8/24/2010  
 Plot scale:

AFGHAN NATIONAL ARMY  
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 FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
 BUILDING SECTIONS

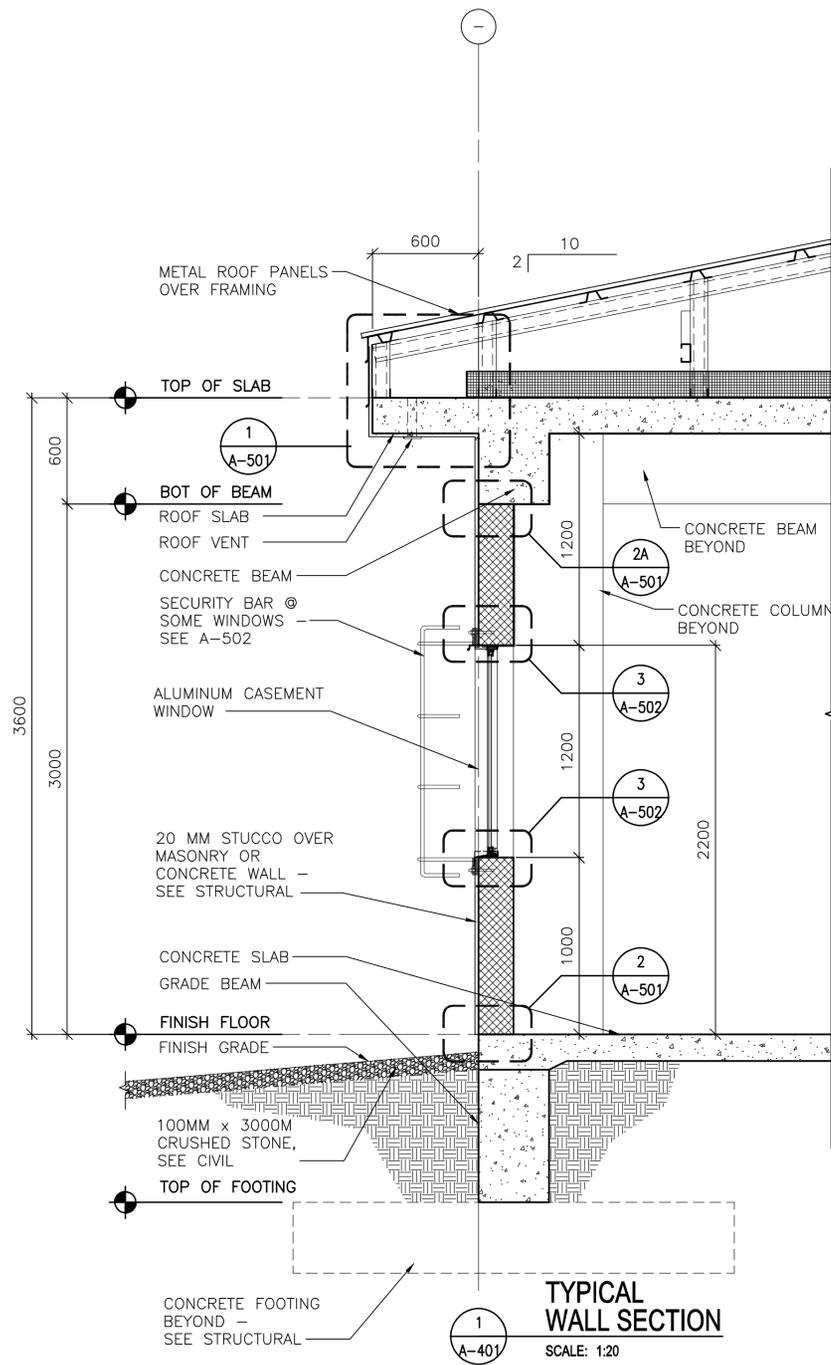
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Rev.	Date	Description
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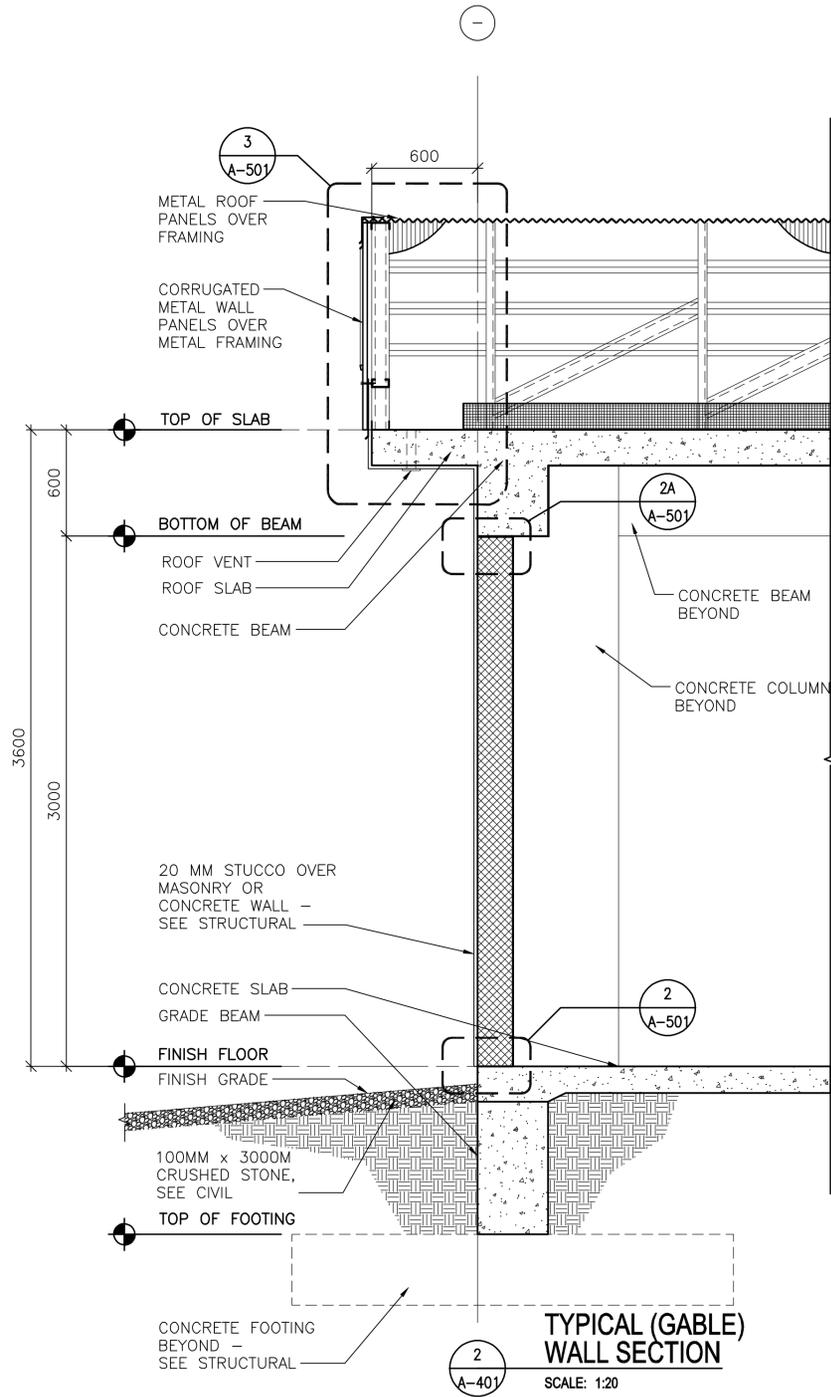
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Submitted by:	BAKER	File name:	ANAFRUA-401WS
Date:	8/16/10	Design file no.:	
Drawing code:		Plot date:	8/24/10
Plot scale:	1:20		

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STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)

Sheet reference number:  
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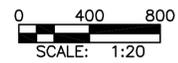
**TYPICAL WALL SECTION**  
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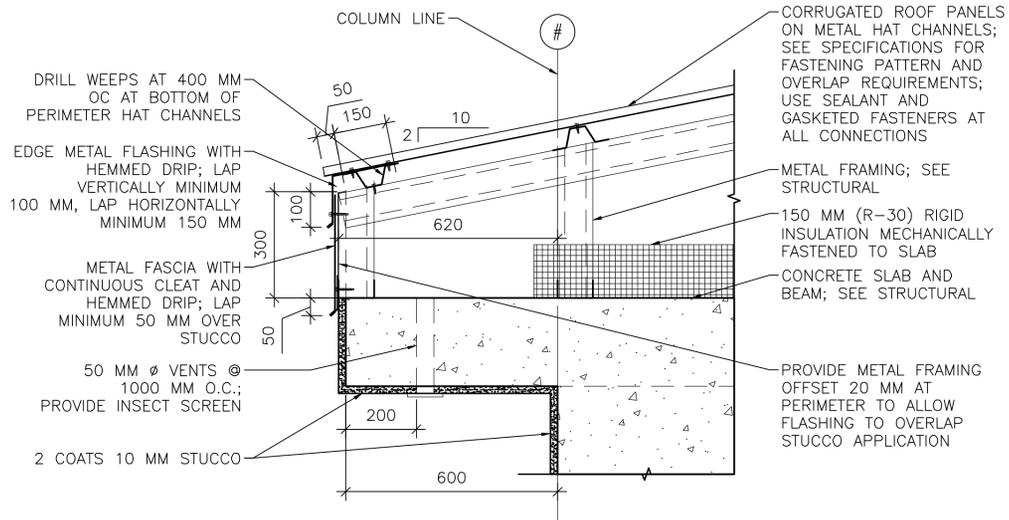


**TYPICAL (GABLE) WALL SECTION**  
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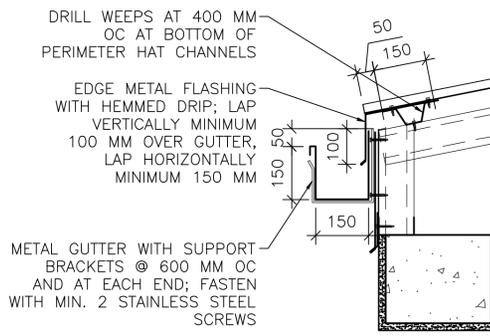
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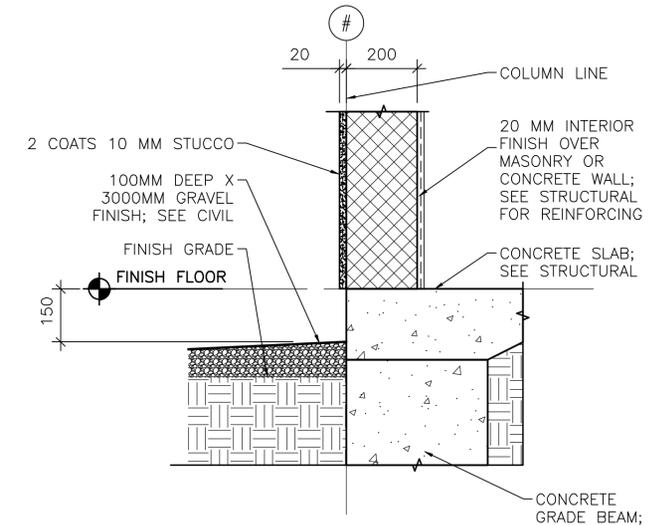




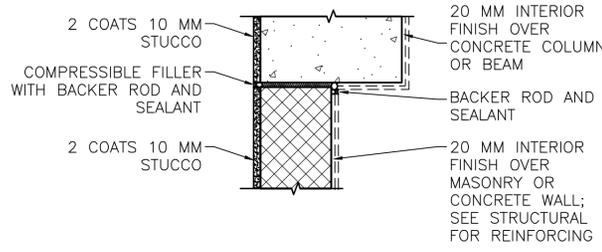
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**1A GUTTER DETAIL**  
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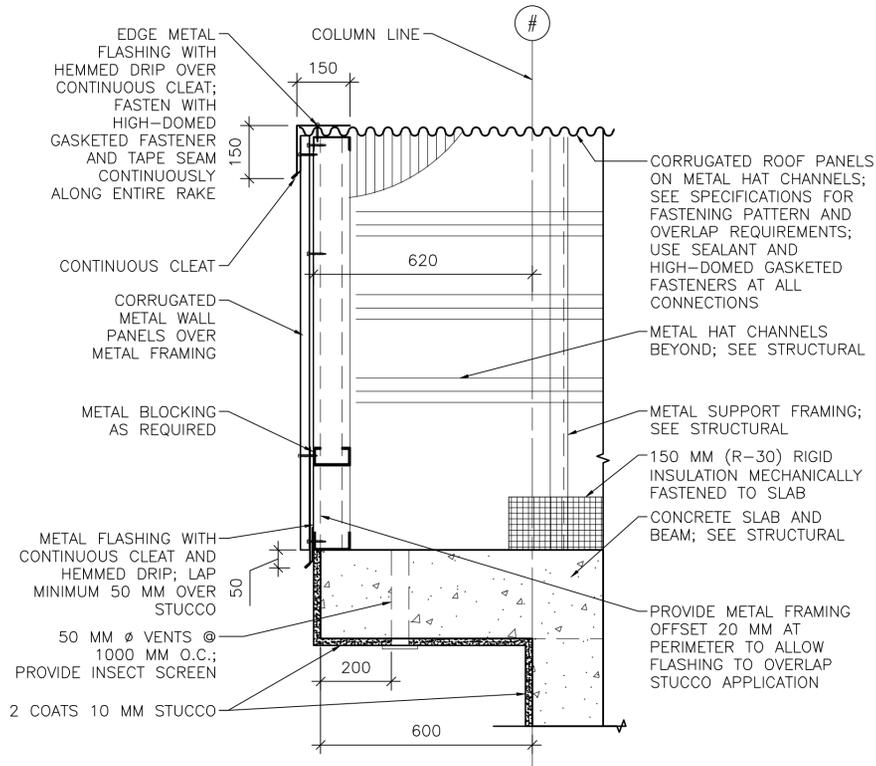


**2 STUCCO BASE DETAIL**  
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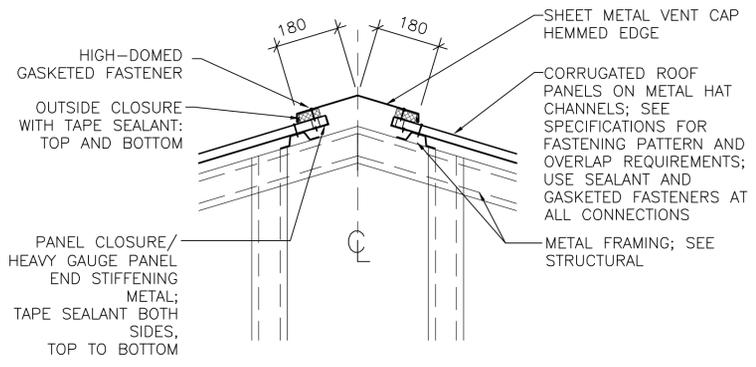


**2A STUCCO/CONTROL JOINT DETAIL**  
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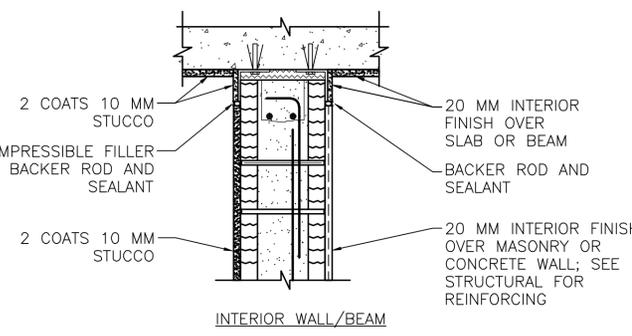
NOTE: DETAIL TYPICAL AT ALL WALL/COLUMN AND WALL/BEAM LOCATIONS, SEE ALTERNATE BRACING DETAIL BELOW 2B/A-501.



**3 RAKE/EAVE DETAIL**  
SCALE: 1:10

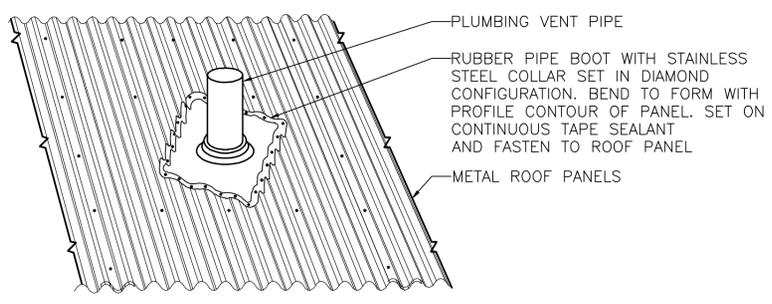


**4 RIDGE VENT DETAIL**  
SCALE: 1:10



**2B STUCCO @ BRACING DETAIL**  
SCALE: 1:10

NOTE: DETAIL FOR FINISHES ONLY. SEE STRUCTURAL FOR INFORMATION.



**5 PLUMBING VENT DETAIL**  
SCALE: NTS

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

0 200 400  
SCALE: 1:10



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Designed by: KRC	Checked by: NLJ	Date: 8/16/10	Design file no.:
Dwn by: KJG	Reviewed by: LHM	Drawing code: ANAFRUA-90DT	File name: ANAFRUA-90DT
Submitted by: BAKER	Plot date: 8/24/10	Plot scale: 1:10	Plot scale: 1:10

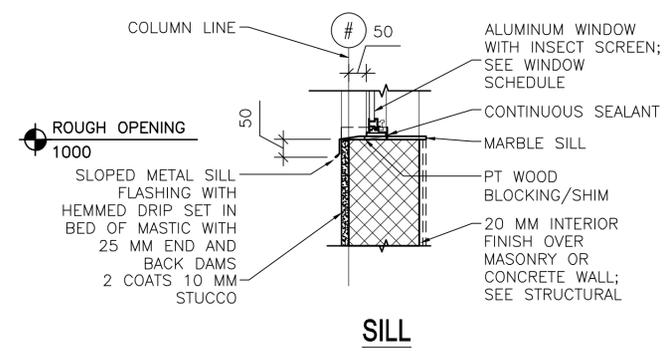
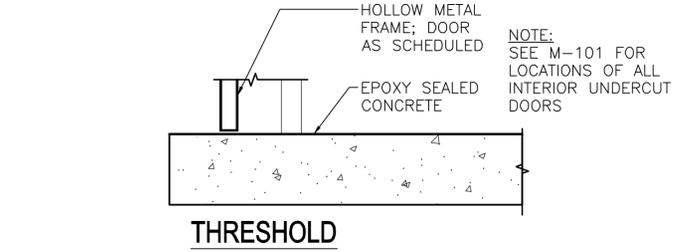
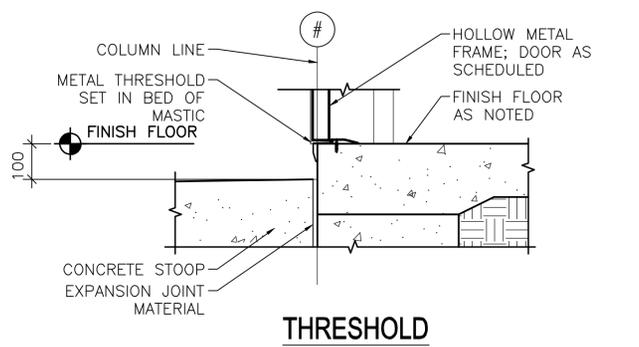
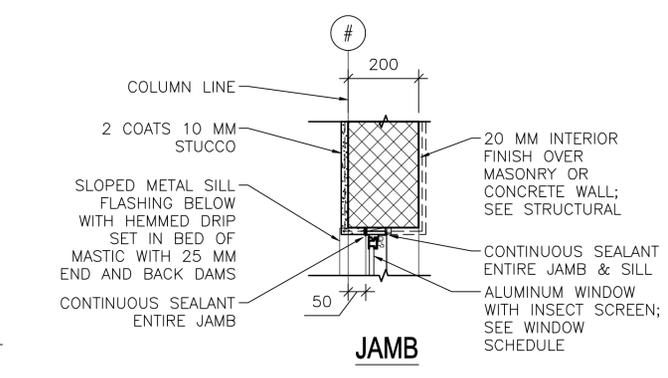
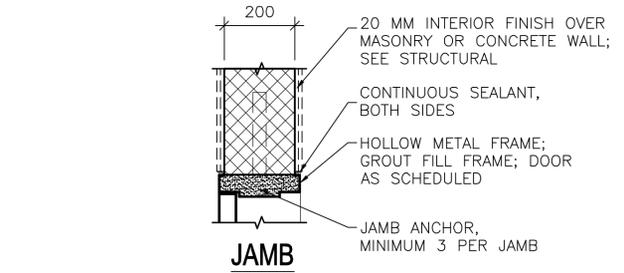
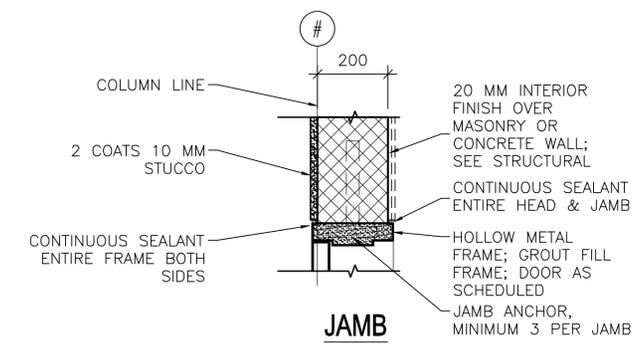
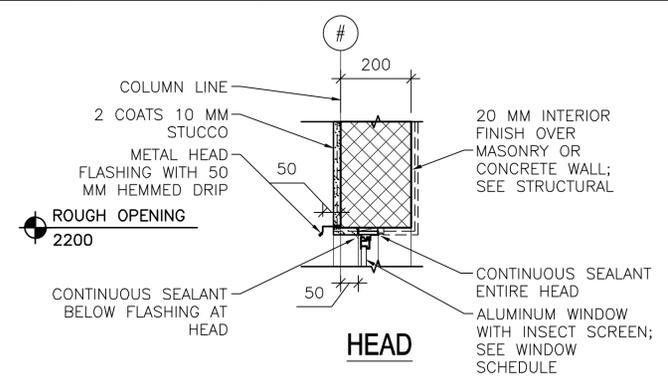
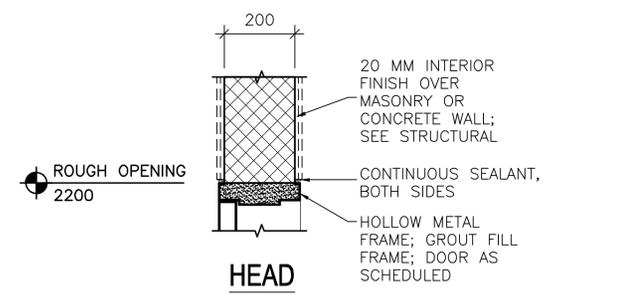
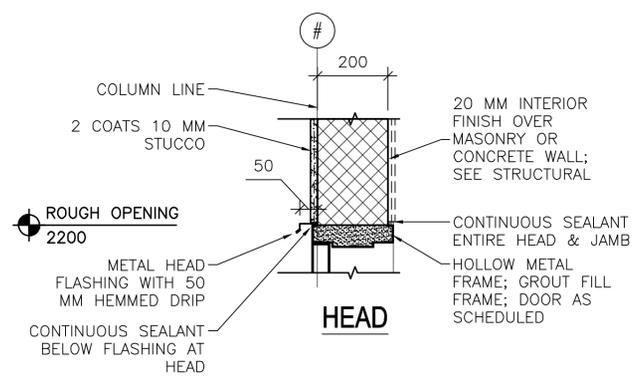
U.S. ARMY CORPS OF ENGINEERS  
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APO AE 96338  
Michael Baker Jr., Inc  
A Unit of Michael Baker Corporation  
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100 Alfred Drive, PA 15108  
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STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
EXTERIOR DETAILS

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Sheet reference number: A-501

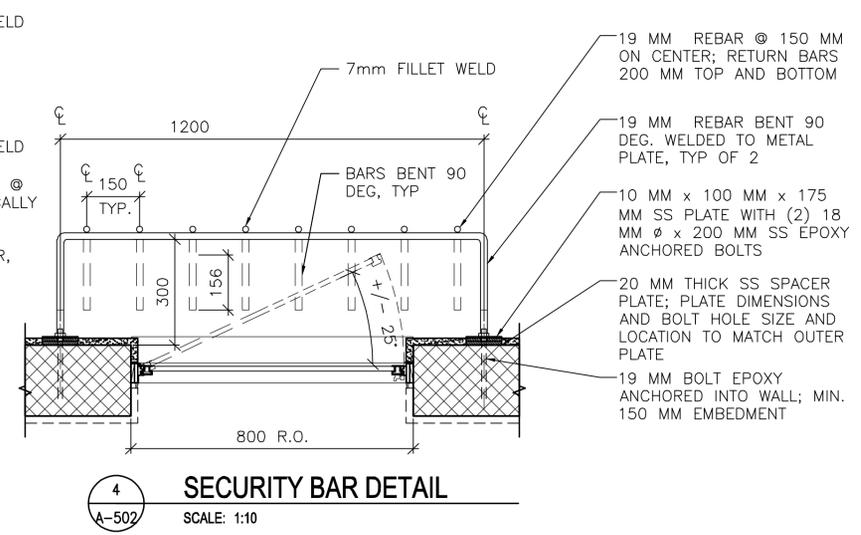
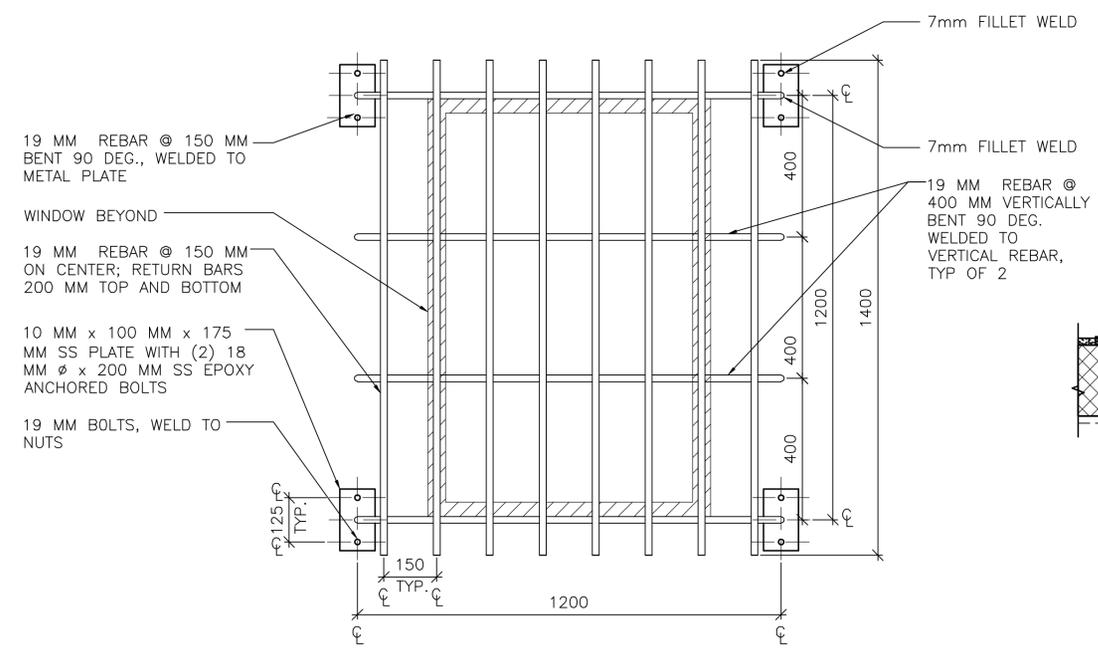


1 EXTERIOR DOOR DETAILS  
SCALE: 1:10

2 INTERIOR DOOR DETAILS  
SCALE: 1:10

3 EXTERIOR WINDOW DETAILS  
SCALE: 1:10

NOTES:  
1. ALL SECURITY BAR STEEL SHALL BE HOT-DIPPED GALVANIZED.



4 SECURITY BAR DETAIL  
SCALE: 1:10

GENERAL NOTES:  
A. ALL EXTERIOR DOOR AND WINDOW WOOD BLOCKING SHALL BE PRESERVATIVE TREATED.

APPROVED: *[Signature]*  
A/E DESIGNER OF RECORD  
SEAL:



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SCALE: 1:10



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Dwn by: KJG  
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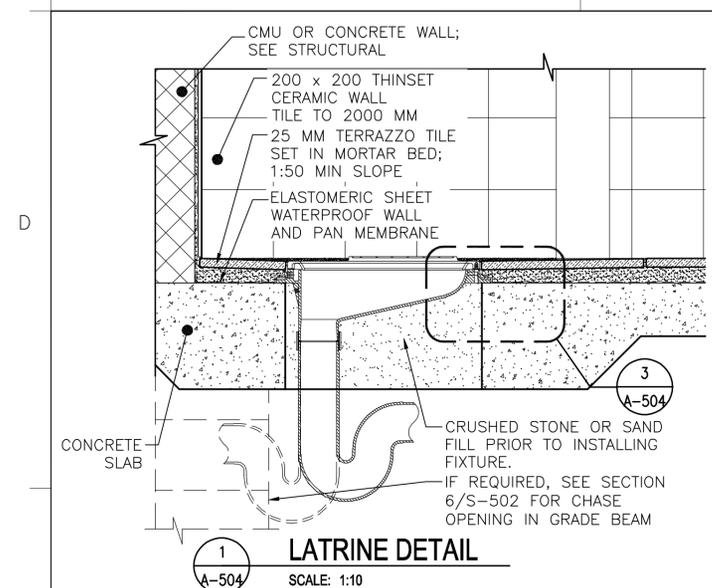
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Submitted by: BAKER

Date: 8/16/10  
Design file no.:  
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File name: ANAFRUA-002  
Plot date: 8/24/10  
Plot scale: x:1

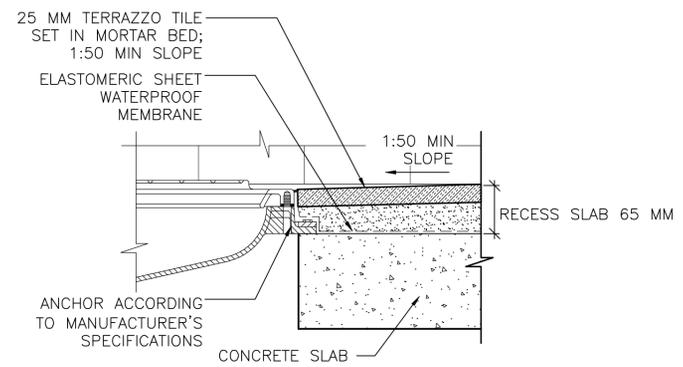
AFGHAN NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
HEAD, JAMB & SILL  
DETAILS

Sheet reference number:  
A-502

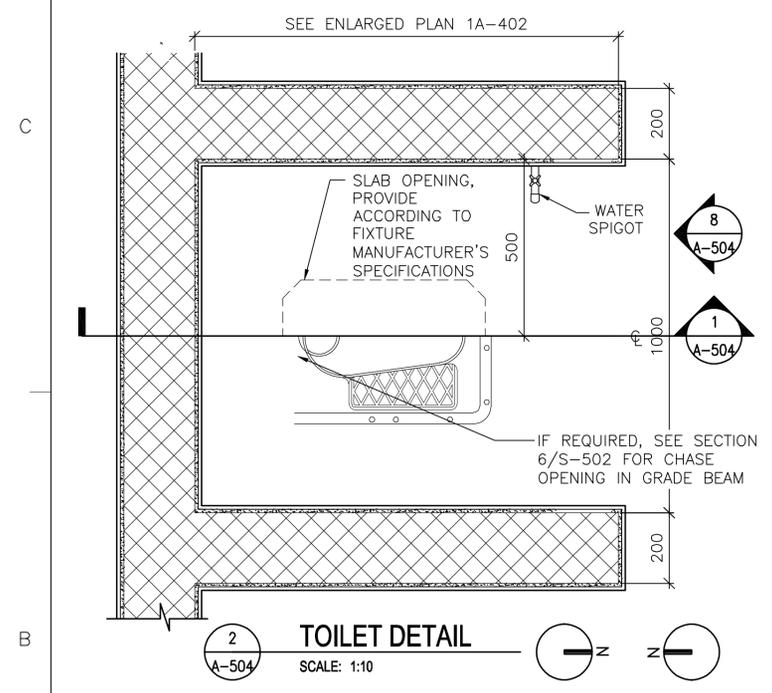




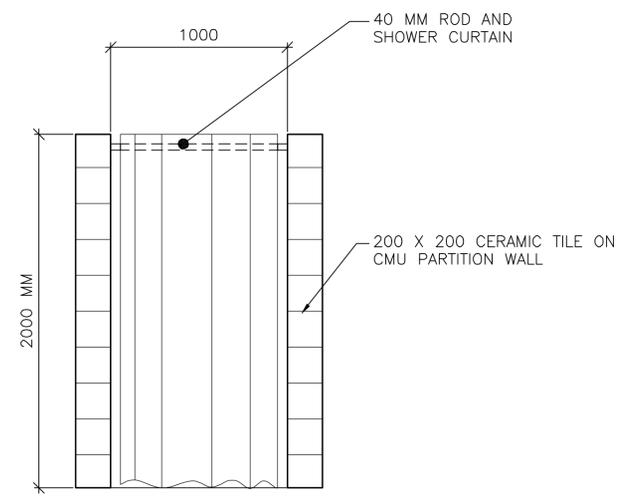
**1 LATRINE DETAIL**  
SCALE: 1:10



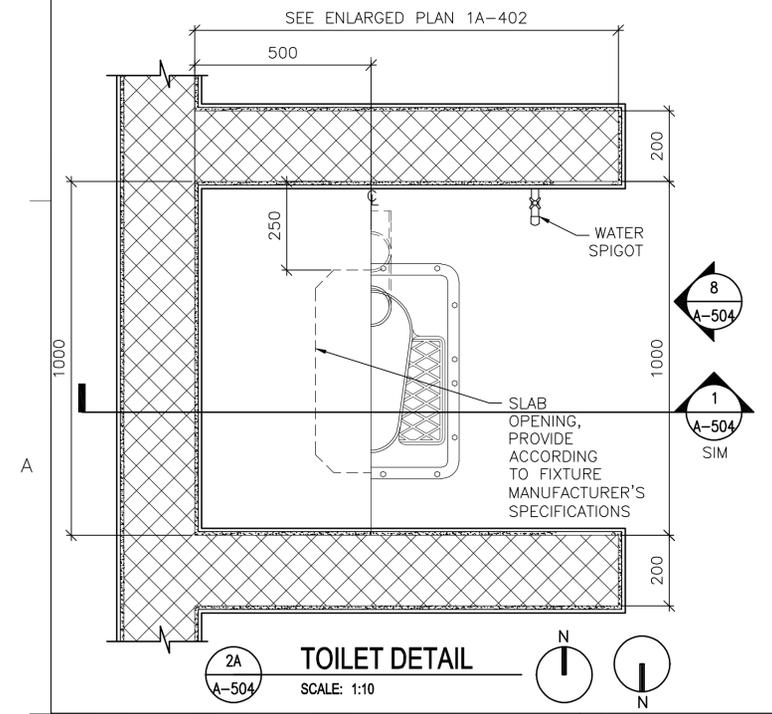
**3 MOUNTING DETAIL**  
SCALE: 1:5



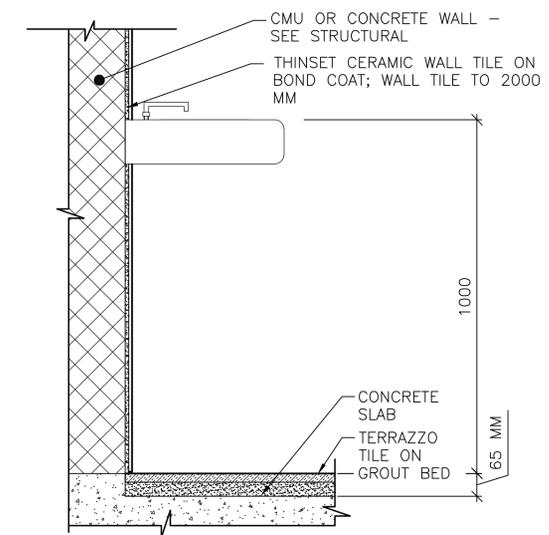
**2 TOILET DETAIL**  
SCALE: 1:10



**4 TOILET PARTITION ELEVATION**  
SCALE: 1:20

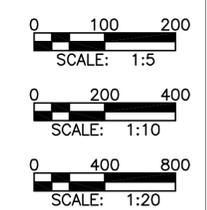


**2A TOILET DETAIL**  
SCALE: 1:10



**5 WALL MOUNTED LAVATORY**  
SCALE: 1:10

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



APPROVED: *[Signature]*  
A/E DESIGNER OF RECORD

SEAL: *[Professional Engineer Seal]*



Rev.	Date	Description
0	8/16/10	Design file no.
		Drawing code: ANAFRUA-940T
		File name: ANAFRUA-940T
		Plot date: 8/24/2010
		Plot scale: xx

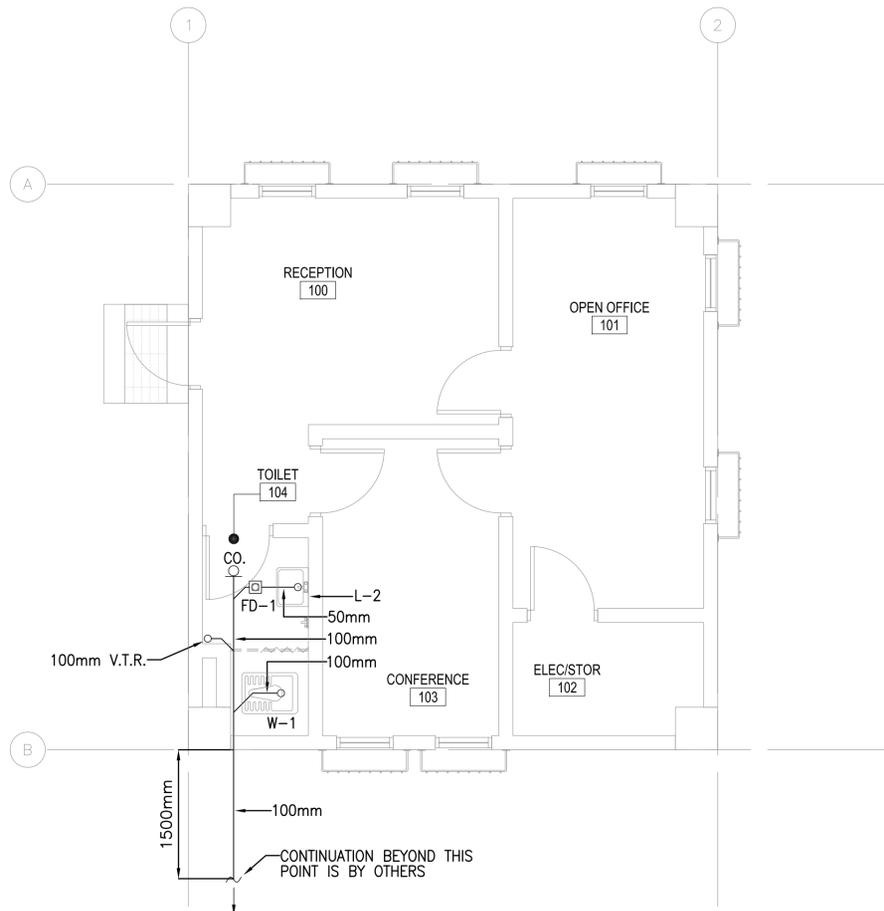
Designed by: KRC  
Dwn by: KJG  
Reviewed by: LHM  
Submitted by: BAKER

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AFGHANISTAN ENGINEER DISTRICT  
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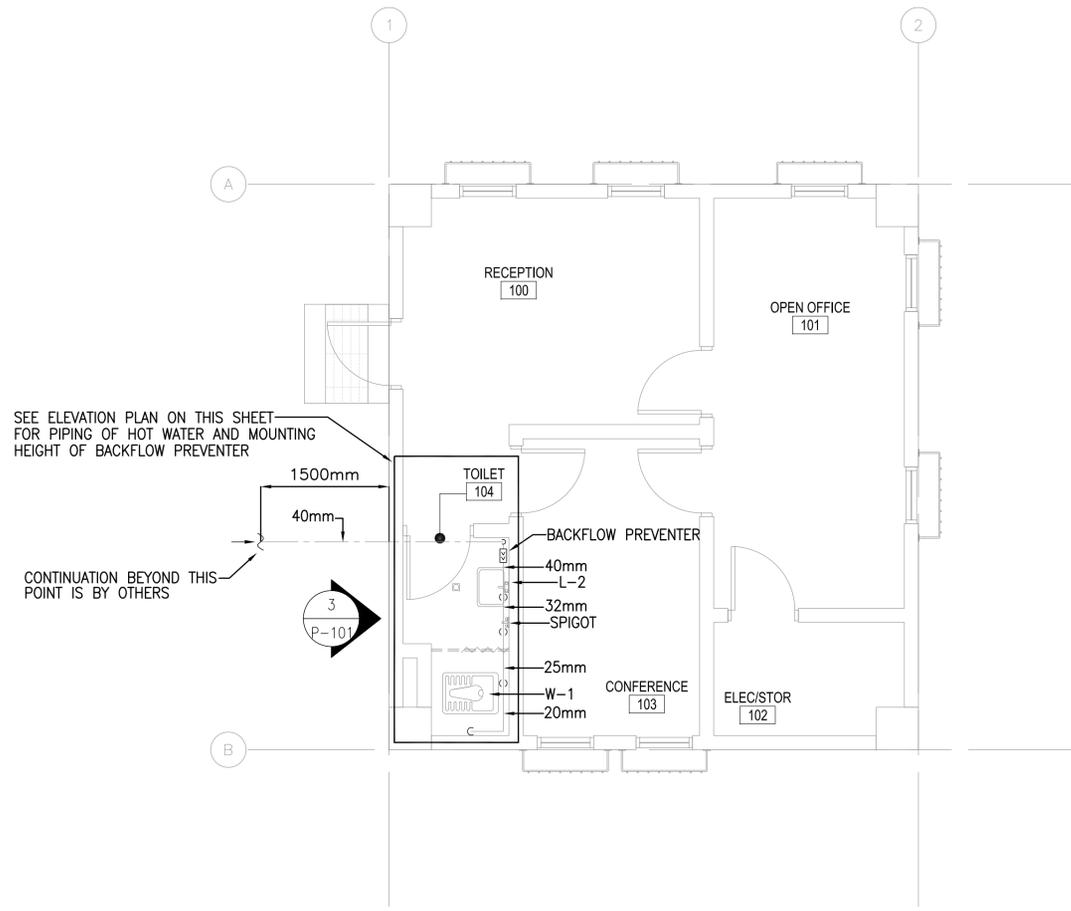
AFGHAN NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)  
TOILET & LAVATORY  
DETAILS

Sheet reference number:  
**A-504**





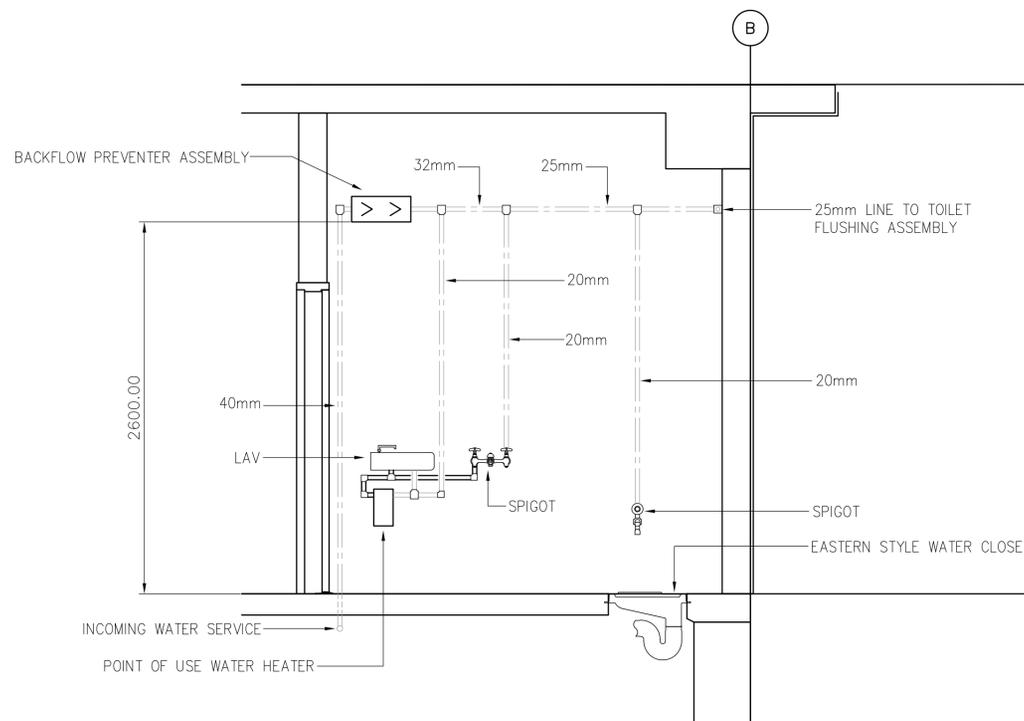
1 FLOOR PLAN - PLUMBING (SANITARY AND VENT)  
P-101 SCALE: 1:50



2 FLOOR PLAN - PLUMBING (HOT AND COLD WATER)  
P-101 SCALE: 1:50

FLOOR PLAN NOTES:

- DO NOT SCALE DRAWINGS - ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.
- ALL WORK PERFORM ON THIS BUILDING SHALL BE IN COMPLIANCE WITH ALL PERTINENT CODES, RULES, ORDINANCES AND REGULATIONS OF THE GOVERNING AUTHORITIES.
- ALL WORK PERFORM ON UNDER AND IN CONNECTION WITH THESE DRAWINGS AND SPECIFICATIONS SHALL BE IN STRICT COMPLIANCE WITH THE LATEST SAFETY AND HEALTH STANDARDS.
- REPORT ANY DISCREPANCIES FOUND IN THE PLUMBING DRAWINGS AND/OR IN THE SPECIFICATIONS DURING THE BIDDING PROCESS FOR CLARIFICATION BY THE ENGINEER.
- ALL EASTERN STYLE WATER CLOSETS IN THIS FACILITY ARE TO HAVE THE FIXTURE DESIGNATION OF W-1. EACH FIXTURE SHALL HAVE A 25mm COLD WATER LINE AND A 100mm SANITARY CONNECTION.
- ALL LAV FIXTURES ARE TO HAVE THE FIXTURE DESIGNATION OF L-2. EACH FIXTURE SHALL HAVE A 15mm COLD WATER, 15mm HOT WATER CONNECTION AND A 80mm SANITARY CONNECTION.
- ALL WATER, SANITARY AND VENT PIPING SHALL BE EXPOSED. RUN LINES TIGHT TO THE CEILING AND WALL.
- REFER TO SHEETS P501 FOR DETAILS.
- ALL SANITARY BRANCH LINES SHALL BE SLOPED AT 6mm PER 0.3m, AND ALL MAIN LINES SHALL BE SLOPED AT 3mm PER 0.3m, UNLESS OTHERWISE NOTED OR AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.



3 FRU BATHROOM ELEVATION  
P-101 SCALE: 1:25

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

APPROVED:

A/E DESIGNER OF RECORD

SEAL:



0 1000 2000  
SCALE: 1:50



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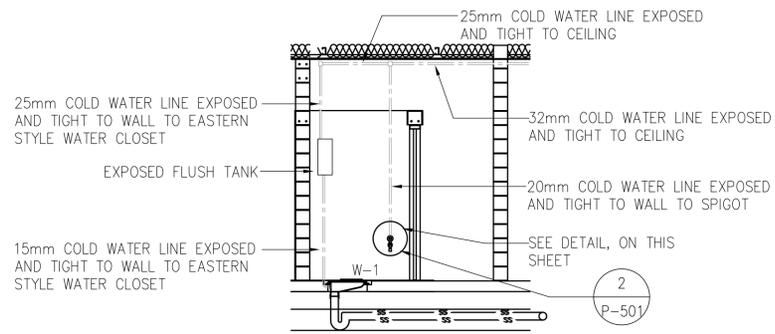
Rev.	Date	Description
10	06/30/10	

Designed by:	RHM
Dwn by:	MM
Created by:	CJM
Reviewed by:	MRS
Submitted by:	BAKER

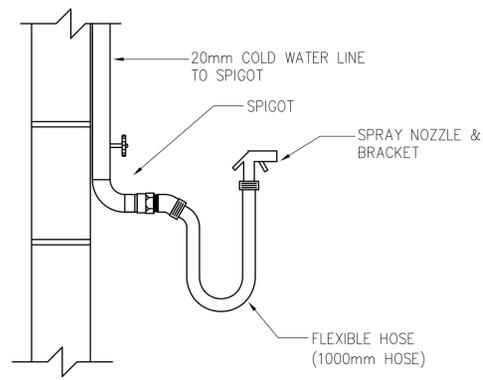
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PLUMBING - FLOOR PLAN

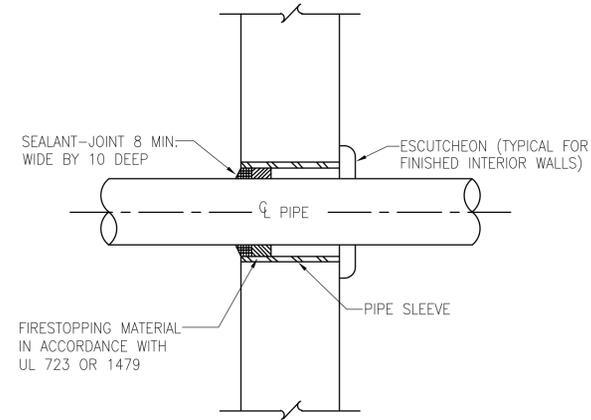
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P-101



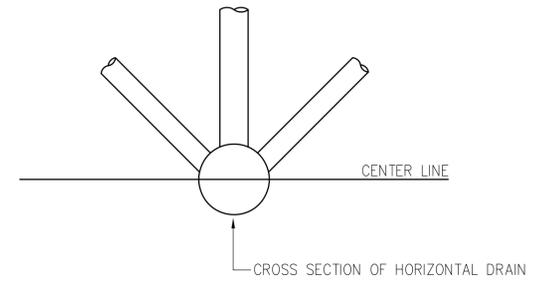
1  
P-501  
TYPICAL EASTERN STYLE WATER CLOSET  
SANITARY & WATER INSTALLATION SCHEMATIC  
SCALE: N.T.S.



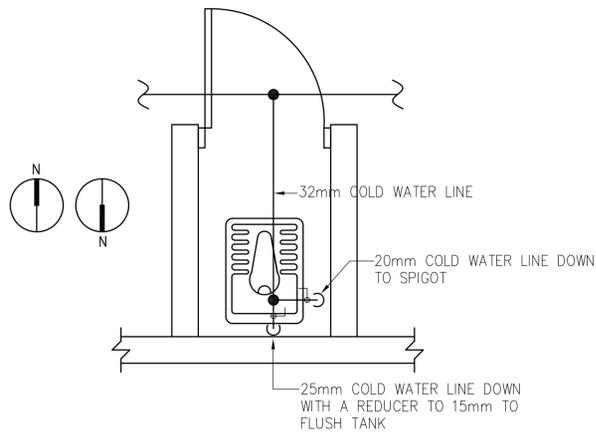
2  
P-501  
TYPICAL DETAIL - SPIGOT,  
FLEXIBLE HOSE, AND SPRAY NOZZLE  
SCALE: N.T.S.



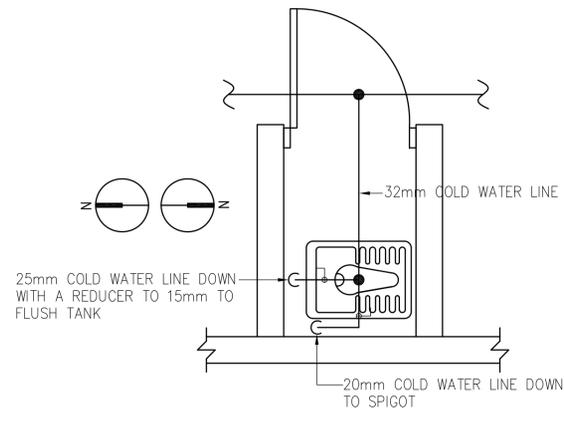
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P-501  
TYPICAL WALL PENETRATION DETAIL  
SCALE: N.T.S.



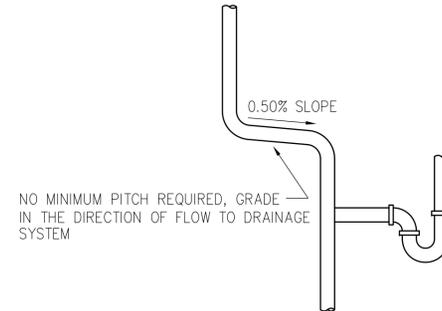
4  
P-501  
ACCEPTABLE VENT CONNECTIONS  
TO HORIZONTAL DRAIN - DETAIL  
SCALE: N.T.S.



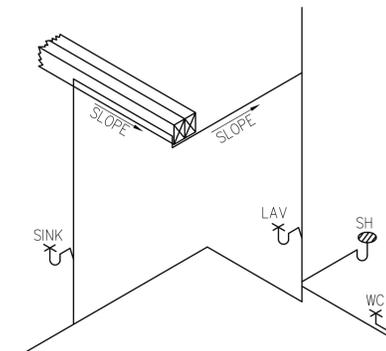
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P-501  
TYPICAL EASTERN STYLE WATER CLOSET  
WITH SPIGOT WATER PIPING DETAIL  
SCALE: N.T.S.



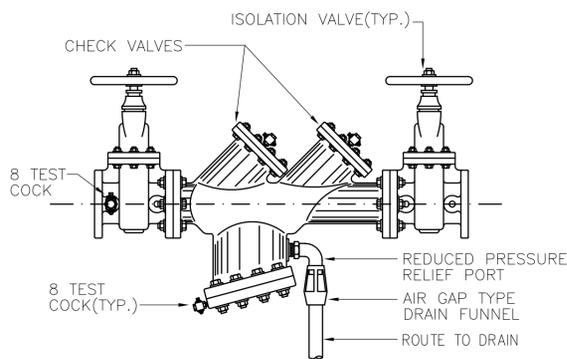
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P-501  
TYPICAL EASTERN STYLE WATER CLOSET  
WITH SPIGOT WATER PIPING DETAIL  
SCALE: N.T.S.



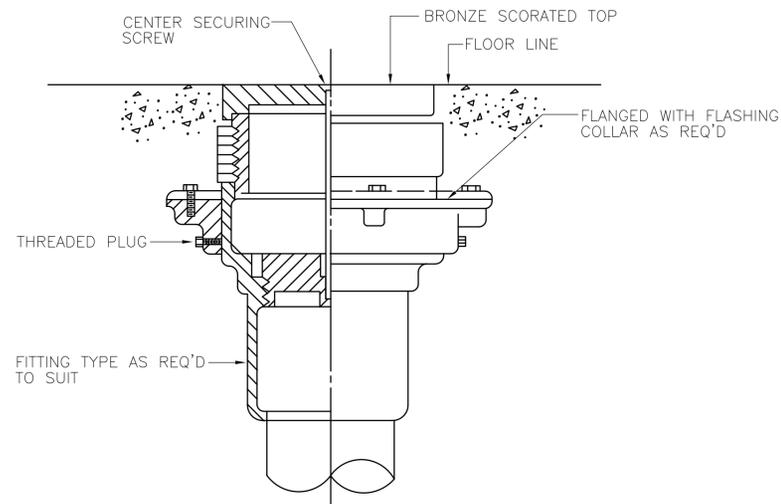
7  
P-501  
TYPICAL VENT SLOPE DETAILS  
SCALE: N.T.S.



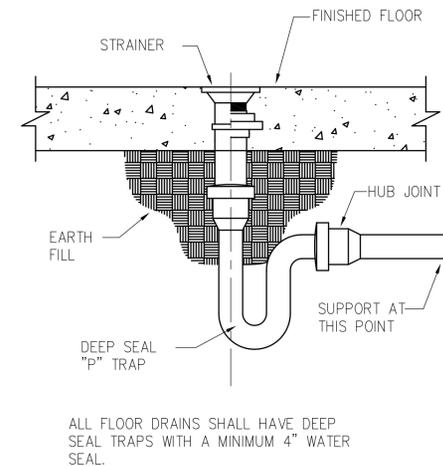
8  
P-501  
TYPICAL VENT SLOPE DETAILS  
SCALE: N.T.S.



9  
P-501  
TYPICAL BACKFLOW PREVENTER DETAIL  
SCALE: N.T.S.



10  
P-501  
TYPICAL FLOOR CLEANOUT DETAIL  
SCALE: N.T.S.



11  
P-501  
FLOOR DRAIN DETAIL  
SCALE: N.T.S.

FIXTURE LIST							
TYPE	ITEM	SOIL & WASTE	VENT	COLD WATER	HOT WATER	REMARKS	REMARKS 2
W-1	EASTERN STYLE WATER CLOSET	100mm	50mm	25mm	-----	FLUSH VALVE	LOW FLOW EFFICIENT TYPE
L-2	WALL MOUNTED	40mm	40mm	15mm	15mm	WALL HUNG	LOW FLOW EFFICIENT TYPE
FD-1	FLOOR DRAIN	50mm	---	---	---	FINISH FLOOR SPACES	-----
HWH-1	POINT OF USE WATER HEATER	---	---	SEE DWG.	SEE DWG.	INSTANTANEOUS ELECTRIC WATER HEATER, 220/50/1, 7kW	-----

APPROVED:

A/E DESIGNER OF RECORD

SEAL:



Rev.	Date	Description
10	06/30/10	

Designed by: RMH  
Dwn by: RMH  
Cld by: CJM  
Reviewed by: CJM  
Submitted by: CJM

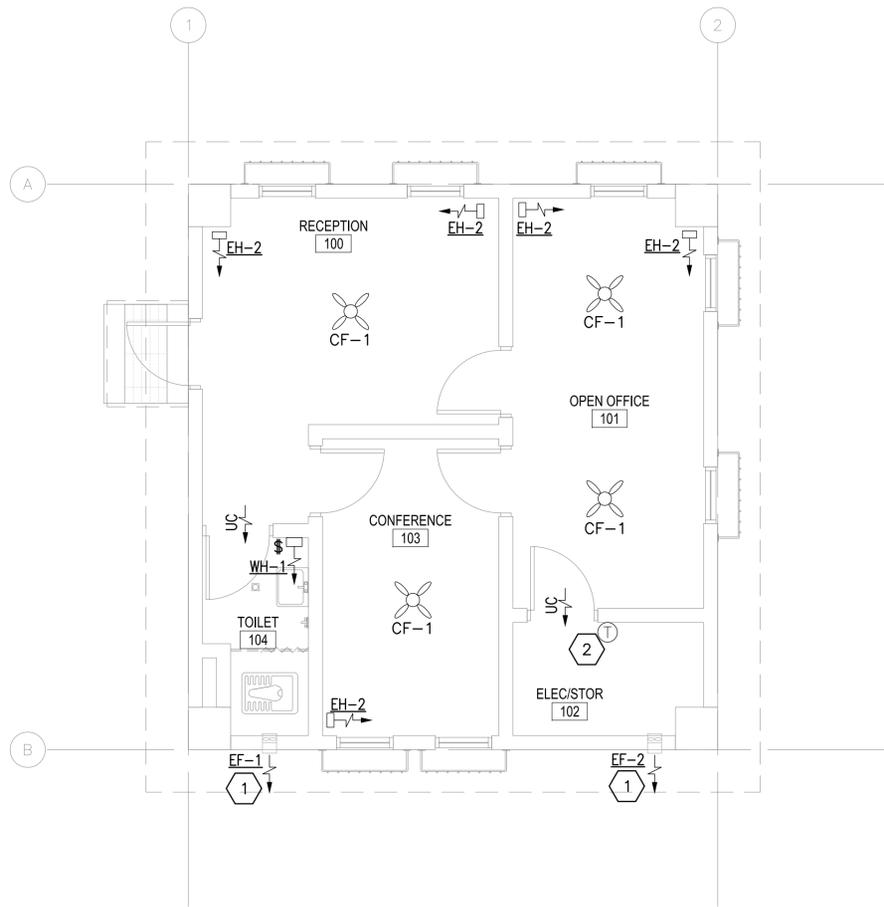
Date: 06/30/10  
Design file no.:  
Drawing code: ANAFRUP-001  
File name: ANAFRUP-001  
Plot date: 07/20/2010  
Plot scale: 1:100

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PLUMBING DETAILS

Sheet reference number:  
P-501





1 HVAC FLOOR PLAN  
M-101 SCALE: 1:50

ELECTRIC UNIT HEATER SCHEDULE					
NO.	CMS	KW	FINAL AIR TEMP. °C	ELECT. CHAR.	MOUNTING
EH-2	0.200	2.6	38	220/1/50	WALL HUNG

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

EXHAUST FAN SCHEDULE							
NO.	TYPE	FAN CMS	DRIVE	HP	SP mmH2O	ELECTRICAL DATA	SWITCH
EF-1	WALL	0.035	DIRECT	FRACT	9.5	220/1/50	⊙ WALL
EF-2	WALL	0.035	DIRECT	FRACT	9.5	220/1/50	W/ STAT

- NOTE:  
 1. FANS SHALL HAVE SPRING OPERATED BACK DRAFT DAMPER.

CEILING FAN					
NO.	BLADE SIZE		VOLTAGE	SWITCH	REMARKS
	mm	IN			
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.

ELECTRIC FAN-FORCED WALL HEATER SCHEDULE					
NO.	KW	AMPS	KW/HR	ELECT. CHAR.	MOUNTING
WH-1	0.5	2.1	38	220/1/50	SURFACE

- NOTES:  
 1. COORDINATE LOCATION AND ORIENTATION IN FIELD.

**GENERAL NOTES:**

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- 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:**

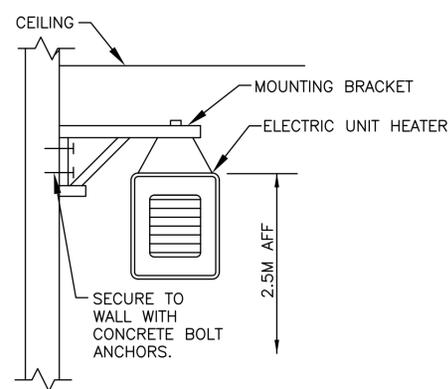
- (X) KEY NOTE
- (0.050) AIR VOLUME IN CUBIC METERS PER SECOND (CMS)
- (T) THERMOSTAT WITH LOCKING COVER
- UC DOOR UNDERCUT 25mm.
- \$ SINGLE POLE SWITCH FOR EXHAUST FAN – 20A RATED
- ELECTRIC HEATER
- ⊙ CEILING FAN
- DIRECTION OF AIR FLOW

**ABBREVIATIONS:**

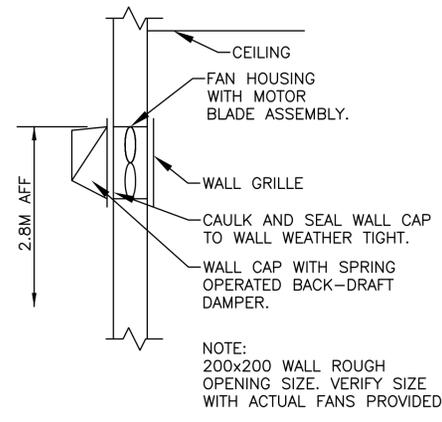
- AFF ABOVE FINISH FLOOR
- CF CEILING FANS
- CMS CUBIC METERS PER SECOND
- EF EXHAUST FAN
- EH ELECTRIC HEAT
- STATS THERMOSTATS
- WH WALL HEATER

**KEY NOTE:**

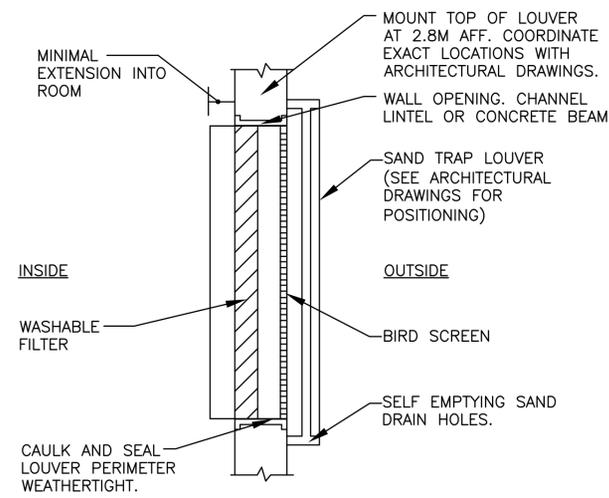
- 1 WALL EXHAUST FAN WITH LOW SPRING OPERATED BACK-DRAFT DAMPER. SEE DETAIL THIS SHEET.
- 2 THERMOSTAT MOUNTED AS HIGH AS POSSIBLE. INTERLOCK STAT WITH CORRESPONDING EXHAUST FAN, SET FAN TO ENERGIZE ON RISE IN TEMPERATURE ABOVE 25°C (77°F).



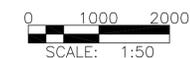
2 ELECTRIC UNIT HEATER MOUNTING DETAIL  
M-101 N.T.S.



3 WALL EXHAUST FAN DETAIL  
M-101 N.T.S.



4 FILTERED SAND TRAP LOUVER  
M-101 N.T.S.



APPROVED:

A/E DESIGNER OF RECORD

SEAL:

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Designed by: RML  
Dwn by: JUN  
Cld by: CJM  
Reviewed by: MRS  
Submitted by: BAKER

Date: 06/30/10  
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Plot date: 07/20/10  
Plot scale: xx

AFGHAN NATIONAL ARMY  
STANDARD DESIGN  
FAMILY RESPONSE UNIT OFFICES (STAND ALONE)

HVAC – FLOOR PLAN

Sheet reference number:  
M-101











