





**STRUCTURAL DESIGN CRITERIA**

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

**1.0 DESIGN LOADS**

**1.1 DEAD LOADS**

	MAXIMUM GRAVITY LOAD	MINIMUM GRAVITY LOAD
LIGHT GAUGE FRAMING	0.20 KPa	0.15 KPa
METAL ROOFING	0.14 KPa	0.05 KPa
INSULATION (batt)	0.10 KPa	0.05 KPa
MISC	0.05 KPa	0.00 KPa
	0.49 KPa	0.25 KPa

**1.1.2 ROOF DEAD LOADS – CONCRETE FRAMING**

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

**1.2 LIVE LOADS (PER IBC 2006)**

**1.2.1 ROOF LIVE LOADS: ALL BUILDINGS**  
GREATER OF 1.0 KPa MINIMUM OR SNOW LOAD

**1.2.2 SLAB-ON-GRADE LIVE LOADS**

ALL BUILDINGS 4.80 KPa

**1.3 SNOW LOADS (PER IBC 2006)**

**1.3.1 DESIGN PARAMETERS**

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

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

**1.4.1 SEISMIC PARAMETERS – LOAD BEARING MASONRY**

SEISMIC OCCUPANCY CATEGORY	II
SEISMIC IMPORTANCE FACTOR (I)	1.0
SEISMIC SITE CLASS	D
Ss	1.280
S1	0.510
Sds	0.853
Sd1	0.510
SEISMIC DESIGN CATEGORY	D
SEISMIC RESISTING SYSTEM	BEARING WALL SYSTEM SPECIAL REINF MASONRY SHEAR WALLS
RESPONSE MODIFICATION FACTOR (R)	5.0
RESPONSE COEFFICIENT	0.171
SEISMIC ANALYTICAL PROCEDURE	EQUIV LATERAL FORCE
SEISMIC BASE SHEAR	102.2 kN

**1.5 WIND LOADS (PER IBC 2006)**

**1.5.1 DESIGN PARAMETERS**

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

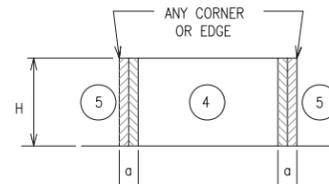
**1.5.2 DESIGN WIND PRESSURE – MAIN WINDFORCE RESISTING SYSTEM**

LOCATION	CORNER ZONE WIDTH "a"	MEAN ROOF HEIGHT "h"	WINDWARD WALL (@ MEAN ROOF HEIGHT)	LEEWARD WALL (@ MEAN ROOF HEIGHT)	ROOF
FIELD ZONE	N/A	3220mm	514 N/m <sup>2</sup>	-286 N/m <sup>2</sup>	-803 N/m <sup>2</sup>
CORNER ZONE	1440mm	2850mm	780 N/m <sup>2</sup>	-426 N/m <sup>2</sup>	-1244 N/m <sup>2</sup>

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

**1.5.3 DESIGN WIND PRESSURE – WALL COMPONENTS AND CLADDING**

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



LOCATION	WINDWARD PRESSURE N/m <sup>2</sup> (inward)		LEEWARD PRESSURE N/m <sup>2</sup> (outward)		a
	④	⑤	④	⑤	
MAIN BUILDING					(mm)
AREA = 1 m <sup>2</sup>	909	909	-986	-1216	900
AREA = 2 m <sup>2</sup>	867	867	-948	-1134.8	900
AREA = 5 m <sup>2</sup>	824	824	-900	-1039	900
AREA = 10 m <sup>2</sup>	824	824	-900	-1039	900

**NOTES:**

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

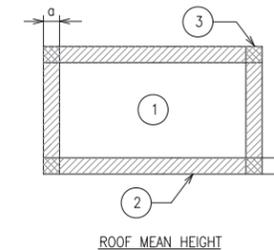
**MASONRY CONCRETE LINTEL SCHEDULE**

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

- STRUCTURAL DRAWINGS DO NOT INDICATE ALL OPENINGS IN MASONRY WALLS. VERIFY NUMBER, SIZE AND LOCATION OF ALL OPENINGS IN MASONRY WALLS FROM ARCHITECTURAL SHEETS AND APPROVED PLUMBING, MECHANICAL, AND ELECTRICAL SHOP DRAWINGS.
- PROVIDE 200mm BEARING EA END FOR 200mm DEEP CIP BB PROVIDE 400mm BEARING EA END FOR 400mm DEEP CIPL.
- FOR HEAD DETAILS REFER TO ARCHITECTURAL SHEETS.
- REINFORCING SHALL BE ASTM A615M, GRADE 420. CONCRETE FOR CAST-IN-PLACE BEAMS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 21 MPa AT 28 DAYS.
- CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS AND SCHEDULES SHOWING SIZE, DETAILS, LOCATIONS, ETC FOR ALL CAST-IN-PLACE BEAMS IN CMU WALLS.

**1.5 WIND LOADS (CONT)**

**1.5.4 DESIGN WIND PRESSURE – ROOF COMPONENTS AND CLADDING**  
ROOF COMPONENTS & THEIR ATTACHMENTS SHALL BE DESIGNED FOR THE PRESSURES SHOWN IN THE ADJACENT DIAGRAM & TABLE BELOW:



LOCATION	GROSS UPLIFT PRESSURE N/m <sup>2</sup> (upward)			a
	①	②	③	
MAIN BUILDING				(mm)
AREA = 1 m <sup>2</sup>	-838	-1460	-1460	900
AREA = 2 m <sup>2</sup>	-838	-1460	-1460	900
AREA = 5 m <sup>2</sup>	-838	-1460	-1460	900
AREA = 10 m <sup>2</sup>	-838	-1460	-1460	900

**NOTES:**

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

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

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

**2.1.1 SOIL DESIGN PARAMETERS**

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

**CONCRETE COVER SCHEDULE**

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

FOOTINGS (EARTH FORMED)	70
COLUMNS / PIERS	40
GRADE BEAMS OR SLAB TURNED DOWN EDGES:	
TOP	40
BOTTOM (EARTH FORMED)	70
SIDES (EARTH FORMED)	70
SIDES (BOARD FORMED)	40
	#16 BAR & SMALLER
	#19 THRU #36 BAR
	50
	40
SLABS-ON-GRADE (NO EXPOSURE TO WEATHER) FROM TOP	20
SLABS-ON-GRADE (EXPOSURE TO WEATHER) FROM TOP	40
UTILITY TUNNEL WALLS, RETAINING WALLS AND SHEAR WALLS, (NO SURFACES SHALL BE EARTH FORMED)	
EARTH SIDE AND FRONT SIDE (EXPOSED TO WEATHER):	
#16 BAR AND SMALLER	40
#19 THRU #36 BAR	50
PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.	

**US Army Corps of Engineers**  
Afghanistan Engineer District

DATE	DESCRIPTION	SYMBOL

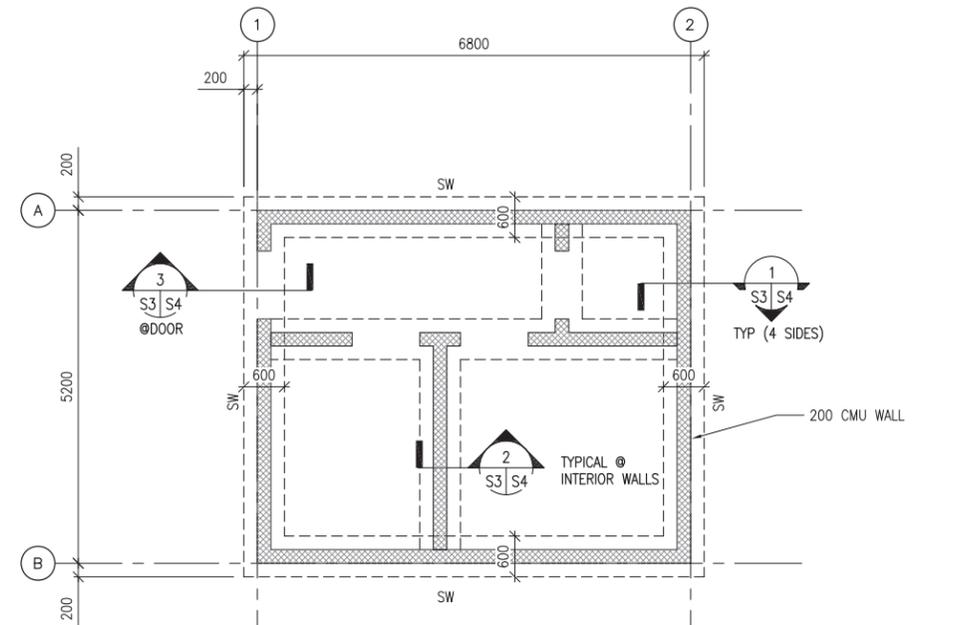
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DWN BY: MDB	SUBMITTED BY: BAKER
CHK BY: CWV	FILE NO.: ANPDS-002XXX

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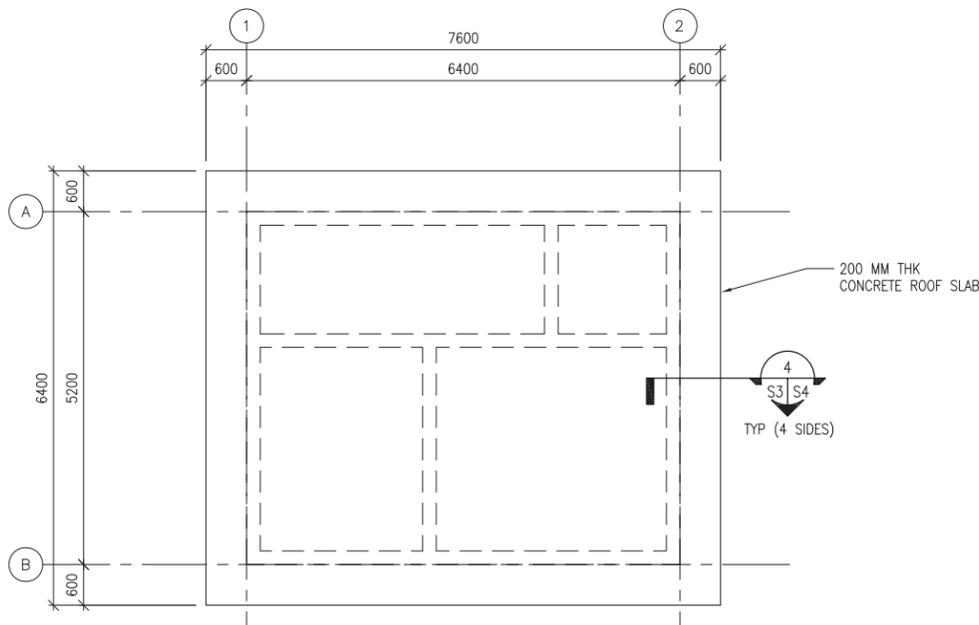
AFGHAN NATIONAL POLICE  
STRUCTURAL DESIGN  
CONCRETE LINTEL SCHEDULE  
WOOD FIRED HEAT OPTION  
DESIGN CRITERIA

SHEET REFERENCE NUMBER:  
**S2**

100% SUBMISSION



**GATE HOUSE FOUNDATION/ SLAB PLAN**  
SCALE: 1:50



**GATE HOUSE ROOF FRAMING PLAN**  
SCALE: 1:50

**NOTES:**

1. FINISH FIRST FLOOR ELEVATION SHALL BE (DATUM 0.0) ALL PLUS OR MINUS DIMENSIONS INDICATED ON PLAN OR REFERRED TO IN NOTES RELATE TO FINISH FIRST FLOOR ELEVATION.
2. TOP OF EXTERIOR FOOTINGS SHALL BE -600 UNLESS OTHERWISE INDICATED.
3. UNLESS OTHERWISE INDICATED, FLOORS SHALL BE 150 THICK CONCRETE SLAB-ON-GRADE W/ 13 DIA REBAR @ 450 OC EW (38 CLR TOP)
4. REFER TO ARCHITECTURAL SHEETS FOR MASONRY PARTITION TYPES AND SHEET S5 FOR REINFORCEMENT.
5. SEE MECHANICAL AND ELECTRICAL SHEETS FOR CONCRETE PAD LOCATIONS, SIZES, AND THICKNESS NOT SHOWN. SEE SHEET S5 FOR DETAILS.
6. COORD W/ ARCHITECTURAL SHEETS FOR COLD-FORMED STEEL OVERBUILT FRAMING ABOVE ROOF SLAB.
7. COLD-FORMED METAL OVERBUILT ROOF FRAMING NOT SHOWN FOR CLARITY. SEE OVERBUILT ROOF FRAMING DETAILS AND SECTIONS ON SHEET S4.

**US Army Corps of Engineers**  
Afghanistan Engineer District

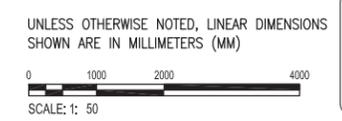
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CHK BY: CWW	FILE NO.: ANPSDS-103XXX

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AFGHAN NATIONAL POLICE  
STATION HOUSE  
WOOD FIRED HEAT OPTION  
FOUNDATION & ROOF FRAMING PLANS

SHEET REFERENCE NUMBER:  
**S3**



100% SUBMISSION

SYMBOL	DESCRIPTION	DATE	APP

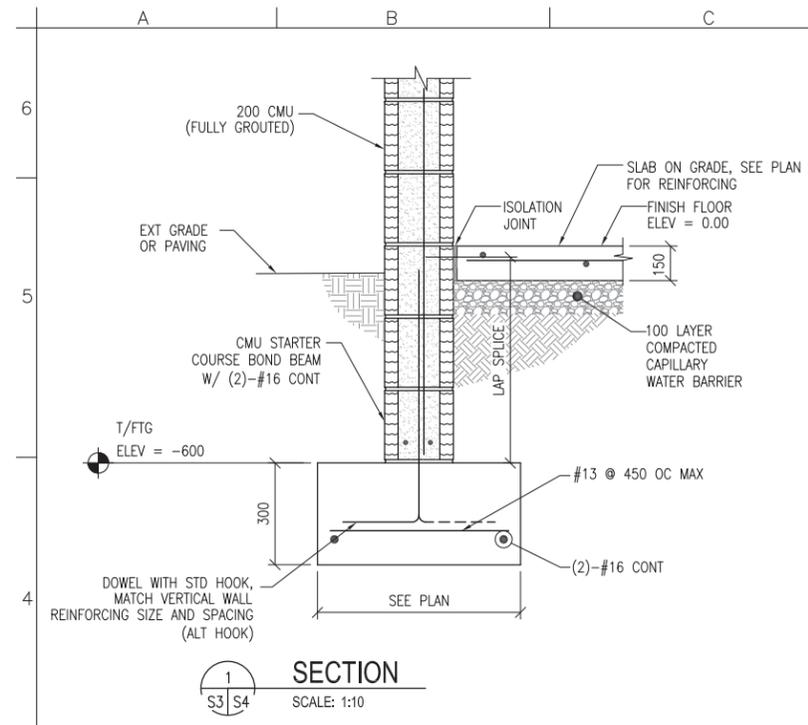
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DWN BY:	MDB	
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	FILE NO.:	ANPDS-304XXX

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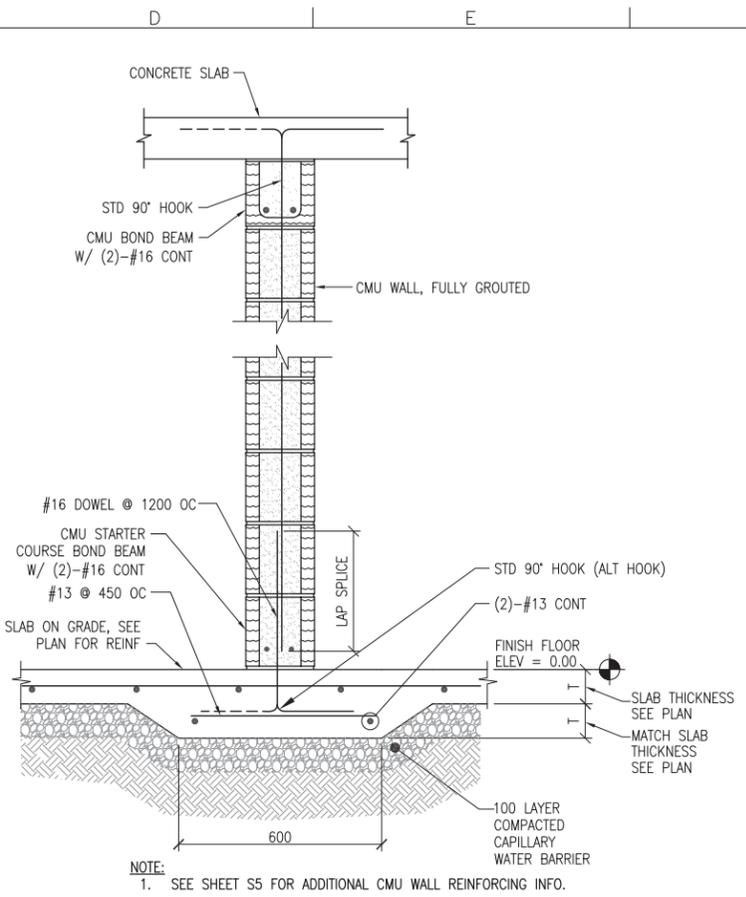
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STANDARD ISSUE  
WOOD FIRED HEAT OPTION  
SECTIONS AND DETAILS

SHEET REFERENCE NUMBER:  
**S4**

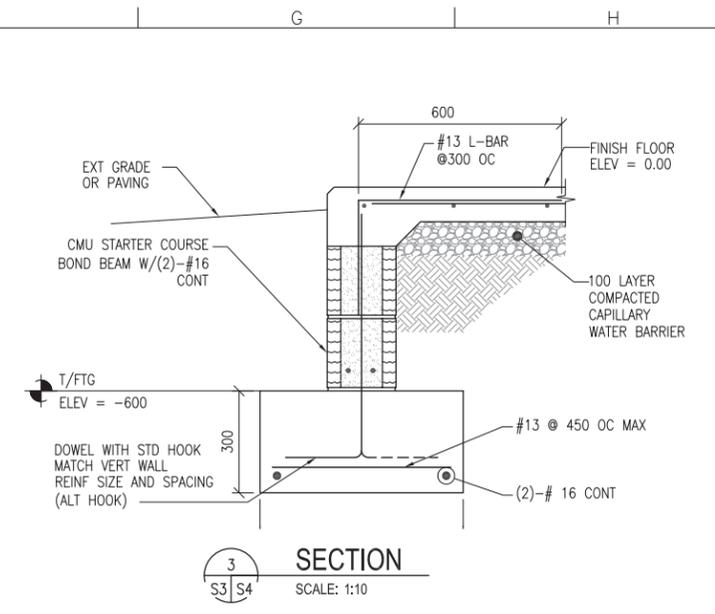
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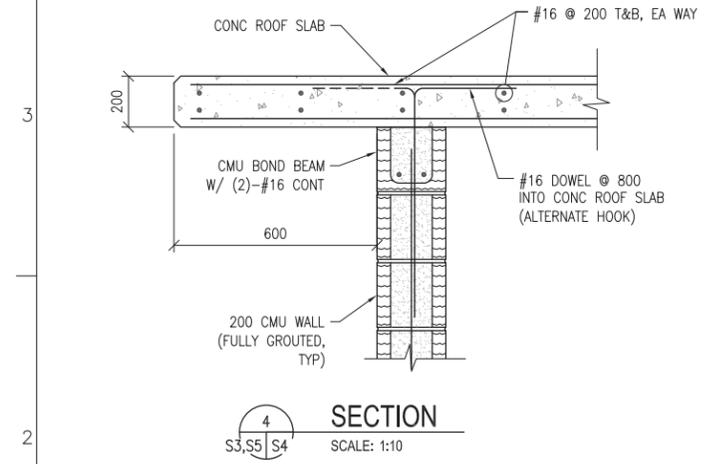
**SECTION 1**  
SCALE: 1:10



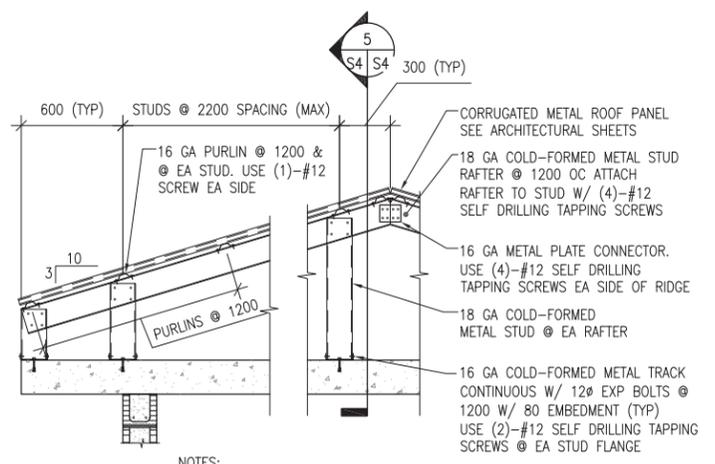
**SECTION 2**  
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**SECTION 3**  
SCALE: 1:10

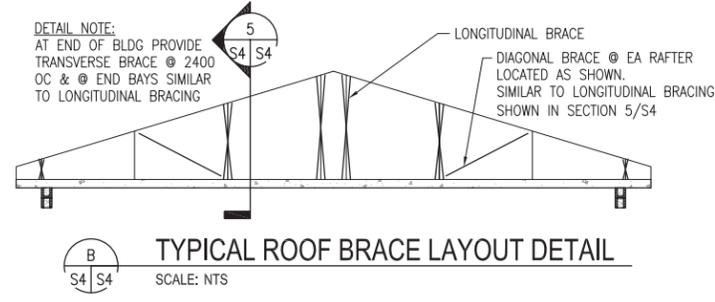


**SECTION 4**  
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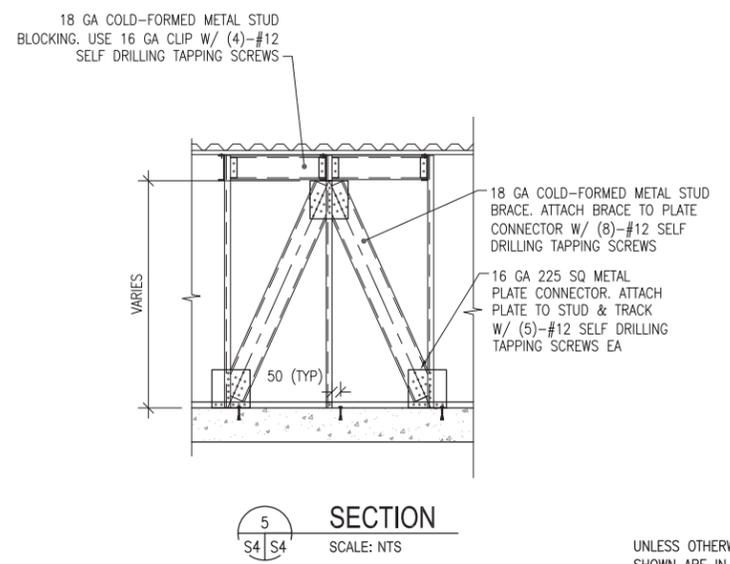


**SECTION 5**  
SCALE: 1:20

- NOTES:
- SEE NOTES ON SHEET S1 FOR OVERBUILT ROOF FRAMING MEMBER SECTION PROPERTY MINIMUM REQUIREMENTS
  - AT END OF BLDG PROVIDE TRANSVERSE BRACE @ 2400 OC & @ END BAYS SIMILAR TO LONGITUDINAL BRACING
  - SECTION THROUGH END OF BLDG IS SIMILAR EXCEPT HIP REPLACES RIDGE



**SECTION 5/S4**  
SCALE: NTS



**SECTION 5/S4**  
SCALE: NTS

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

0 200 400 800  
SCALE: 1: 10

0 400 800 1600  
SCALE: 1: 20

SYMBOL	DESCRIPTION	DATE	APP

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DWN BY:	RCC	SUBMITTED BY:	BAKER
CHK BY:	CWW	FILE NO.:	ANPDS-505XXX

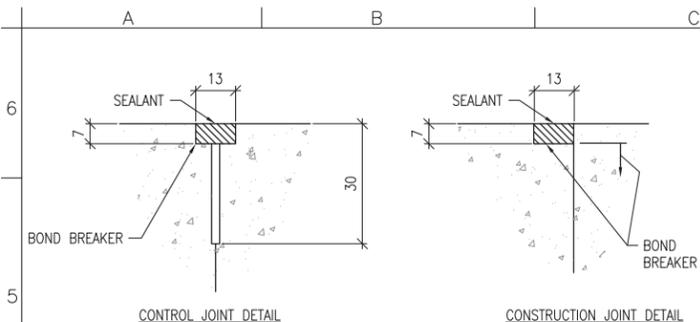
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AFGHAN NATIONAL POLICE  
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CONCRETE  
WOOD FIRED HEAT OPTION

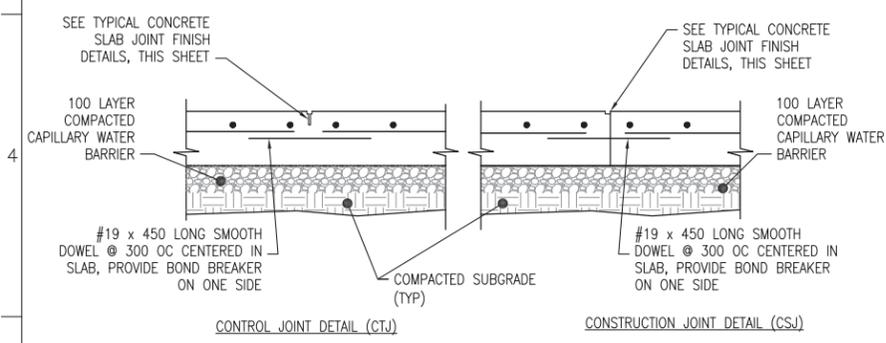
TYPICAL DETAILS

SHEET REFERENCE NUMBER:  
**S5**

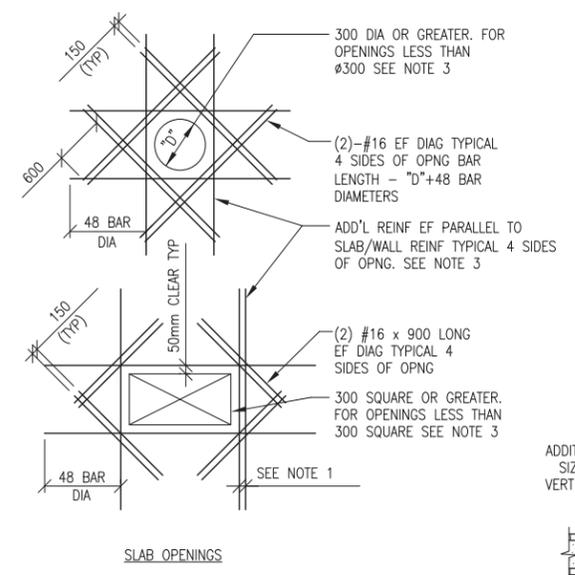
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**TYPICAL CONCRETE SLAB JOINT FINISH DETAIL**  
SCALE: NTS

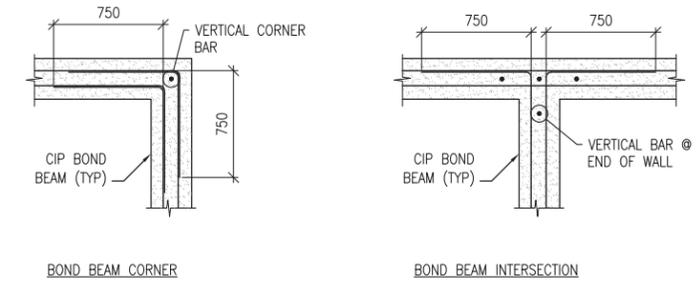


**TYPICAL SLAB ON GRADE JOINT DETAILS**  
SCALE: NTS

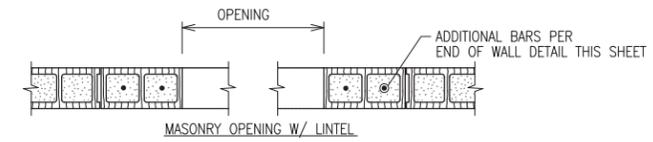
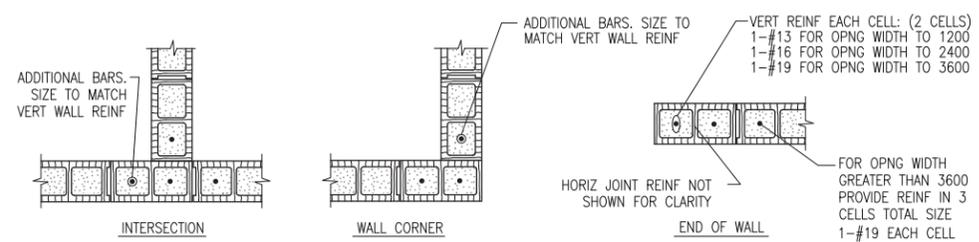


**ADD'L REINFORCEMENT DETAILS**  
SCALE: NTS

- 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.

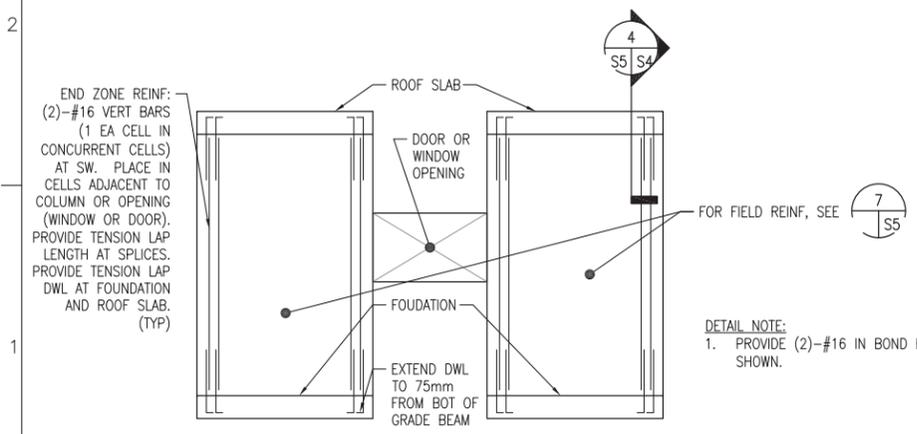


**CIP BOND BEAM DETAILS**  
SCALE: NTS



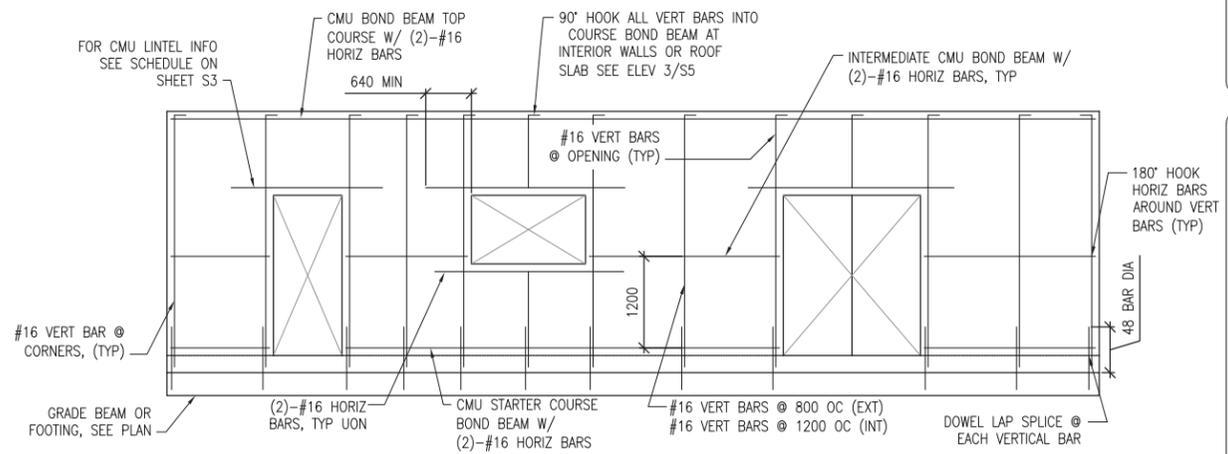
- NOTES:**
- OPENING WIDTH SHALL NOT EXCEED 3600 FOR THIS TYPE OF JAMB
  - ALL CELLS FULLY GROUTED

**TYPICAL CMU DETAILS**  
SCALE: NTS



**SPECIAL REINFORCED MASONRY SHEAR WALL ELEVATION**  
SCALE: NTS

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



**MIN CMU WALL REINFORCING**  
SCALE: NTS

**LINTEL NOTES:**  
MASONRY LINTEL REINFORCEMENT AS PER SCHEDULE ON SHEET S3

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



SYMBOL	DESCRIPTION	DATE	APP

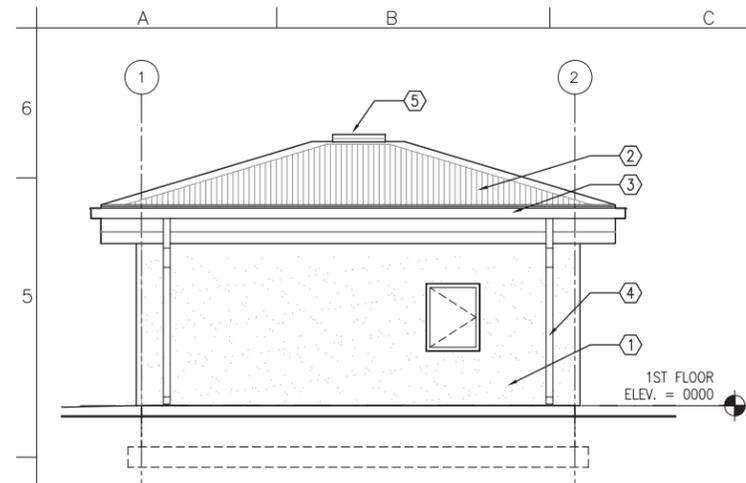
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PFF	SUBMITTED BY:	BAKER
DWN BY:	ECN	
CHK BY:	FILE NO.:	ANPSDA-202XXX
NLJ		

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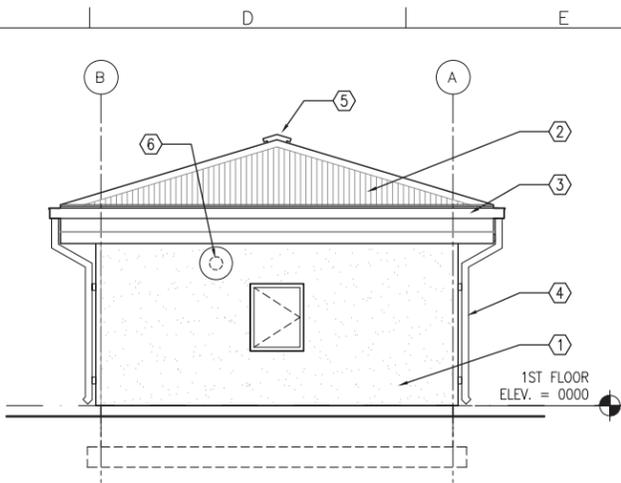
AFGHAN NATIONAL POLICE  
STANDARD DESIGN  
WOOD HEAT OPTION  
WOOD FIRED HEAT OPTION  
EXTERIOR ELEVATIONS,  
BUILDING AND WALL SECTIONS

SHEET REFERENCE NUMBER:  
**A2**

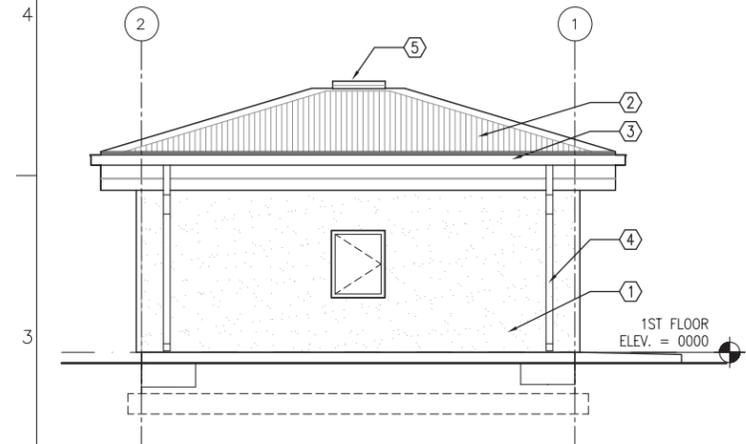
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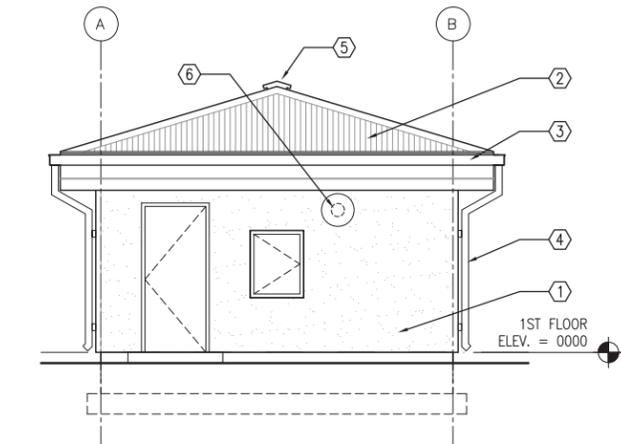
**1 EAST ELEVATION**  
SCALE: 1:50



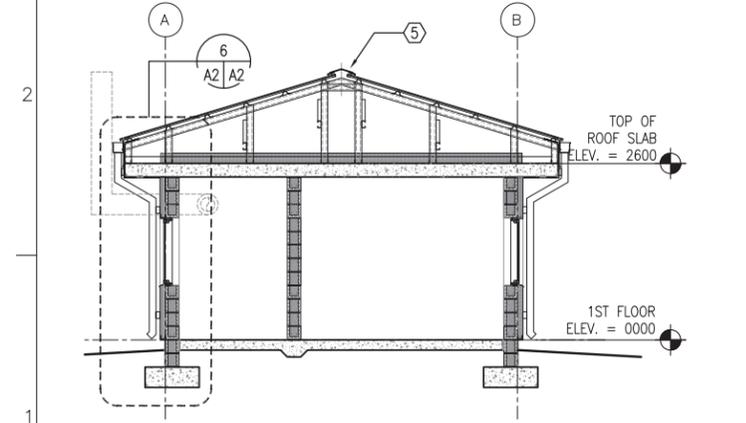
**2 NORTH ELEVATION**  
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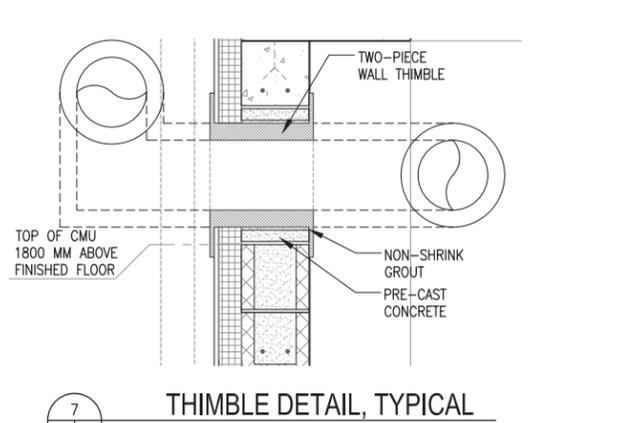
**3 WEST ELEVATION**  
SCALE: 1:50



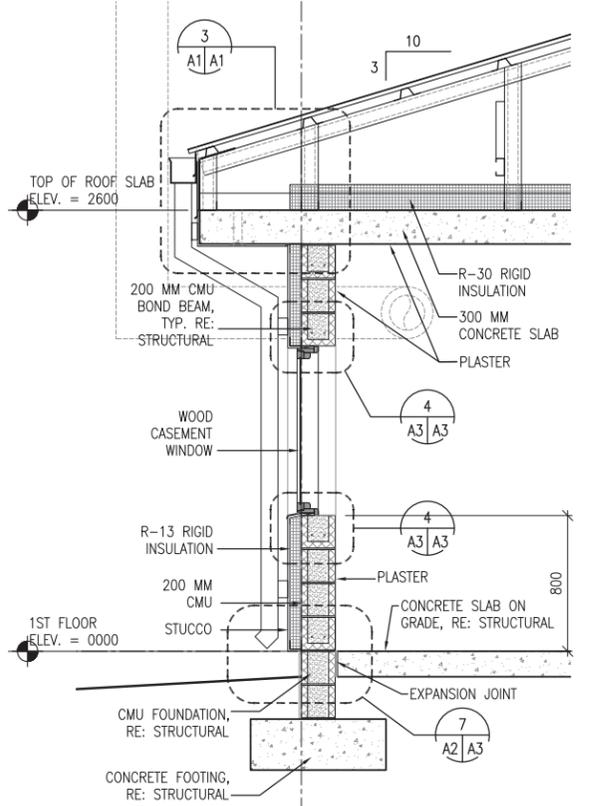
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SCALE: 1:50



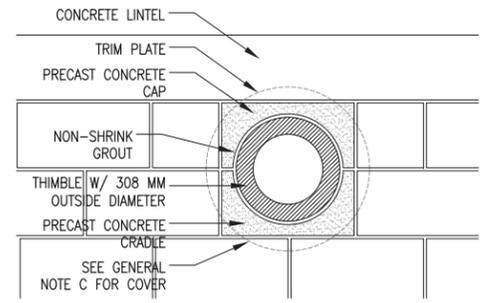
**5 BUILDING SECTION**  
SCALE: 1:50



**7 THIMBLE DETAIL, TYPICAL**  
SCALE: 1:10



**6 WALL SECTION**  
SCALE: 1:20



**8 THIMBLE DETAIL, TYPICAL**  
SCALE: 1:10

**GENERAL NOTES:**

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

**KEY NOTES:**

- STUCCO AND RIGID INSULATION SYSTEM ON CMU
- CORRUGATED METAL ROOF PANELS ON COLD-FORMED METAL FRAMING
- METAL GUTTER
- METAL DOWNSPOUT WITH SPLASH BLOCK
- RIDGE VENT
- TWO-PIECE WALL THIMBLE AND TRIM PLATE FOR OPTIONAL WOOD BURNING STOVE CHIMNEY PIPE. STOVE AND PIPE BY OTHER

