MODULAR CONNECTIONS, LLC

CONCRETE EQUIPMENT SHELTER

1090 INDUSTRIAL BLVD.
BESSEMER, AL 35022

MAINE PROJECT DATA

DESIGN CODES:

2009 INTERNATIONAL BUILDING CODE
2009 INTERNATIONAL MECHANICAL CODE
2009 INTERNATIONAL PLUMBING CODE
2008 NATIONAL ELECTRICAL CODE W/AMENDMENTS
2006 MAINE MODEL RADON STANDARD ASTM E1465-06
2009 INTERNATIONAL ENERGY CONSERVATION CODE (PER SECTION 501.2, USE ASHRAE/IESNA 90.1 SECTION 2.3c - EXEMPT

DESIGN LOADS:

FLOOR LIVE LOAD (THROUGHOUT)	150 PSF (OPTIONAL 200 OR 300 PSF)
FLOOR DEAD LOAD (THROUGHOUT)	36 PSF
ROOF LIVE LOAD	60 PSF (OPTIONAL 100 OR 150 PSF)
GROUND SNOW LOAD	49 PSF (OPTIONAL 82 OR 124 PSF)
FLAT ROOF SNOW LOAD	60 PSF (OPTIONAL 100 OR 150 PSF)
SNOW EXPOSURE FACTOR	1.0
SNOW LOAD IMPORTANCE FACTOR	1.0
THERMAL FACTOR	1.0
ROOF DEAD LOAD	47 PSF
BASIC WIND SPEED (3-SEC GUST)	150 MPH
WIND IMPORTANCE FACTOR	1.0
WIND EXPOSURE CATEGORY	C
INTERNAL PRESSURE COEFFICIENT	±0.18
WIND LOAD HORIZONTAL (MWFRS)	46.0 PSF
WIND LOAD (UPLIFT) (MWFRS)	53.5 PSF
WIND LOAD HORIZONTAL (COMPONENT AND CLADDING)	52.4 PSF
SEISMIC USE GROUP	I
SPECTRAL RESPONSE ACCELERATION S_{DS}	1.0
SPECTRAL RESPONSE ACCELERATION S_{D1}	1.25
SEISMIC DESIGN CATEGORY	D
SITE CLASS	D
BASIC SEISMIC-FORCE RESISTING SYSTEM	BEARING WALL SYSTEM SPECIAL
DESIGN BASE SHEAR	0.2W
ANALYSIS PROCEDURE	EQUIVALENT LATERAL-FORCE
OCCUPANCY USE GROUP	S2
CONSTRUCTION TYPE	VB
MINIMUM SETBACK	SEE NOTE 3 FOR A COMMON OR ASSUMED PROPERTY LINE TO COMPLY W/ IBC TABLES 602.4 & 705.8

NOTES:

1. THE INTENDED OCCUPANCY OF THIS EQUIPMENT SHELTER IS FOR PERFORMING THE REQUIRED SERVICE/MAINTENANCE OF EQUIPMENT ONLY.

2. PER IBC 2009 TABLE 720.1(2), 4" SAND-LIGHTWEIGHT CONCRETE WALLS HAVE FIRE RESISTANCE RATING OF 2 HOURS.

3. PER IBC 2009 TABLE 705.8, ANY WALL W/ 10% OR LESS OF UNPROTECTED OPENINGS MAY UTILIZE A SETBACK GREATER THAN 5'-0". ANY WALL W/ 15% OR LESS OF UNPROTECTED OPENINGS MAY UTILIZE A SETBACK GREATER THAN 10'-0". ANY WALL W/ 25% OR LESS OF UNPROTECTED OPENINGS MAY UTILIZE A SETBACK GREATER THAN 15'-0". ANY WALL W/ 45% OR LESS OF UNPROTECTED OPENINGS MAY UTILIZE A SETBACK GREATER THAN 20'-0". ANY WALL W/ 70% OR LESS OF UNPROTECTED OPENINGS MAY UTILIZE A SETBACK GREATER THAN 25'-0".

4. THESE SHELTER IS REQUIRED TO BE CONNECTED TO PUBLIC UTILITIES.

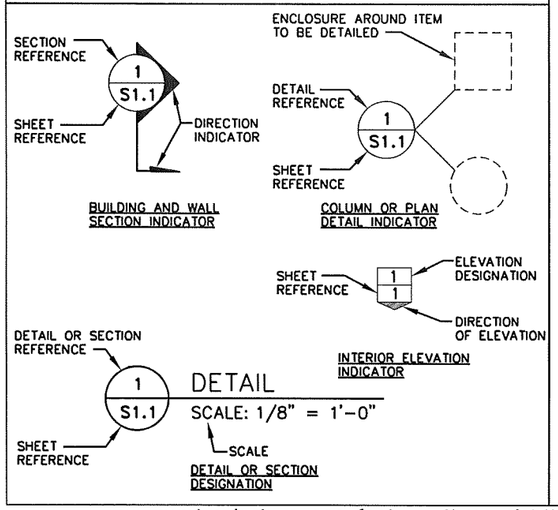
5. THE USE OF THIS SHELTER WITHOUT RESTROOM FACILITIES IS SUBJECT TO LOCAL REVIEW AND APPROVAL.

NOTICE TO INSPECTIONS DEPARTMENT - THE FOLLOWING ITEMS ARE TO BE INSPECTED ON SITE AND ARE NOT INSPECTED BY THE THIRD PARTY: FOUNDATION, CONNECTION TO PUBLIC UTILITIES, SITE WORK, ETC.

DRAWING INDEX

• INDICATES THOSE DRAWINGS WHICH CONTAIN WORK TO BE DONE IN THE FIELD

DETAILING SYMBOLS LEGEND



JAR architecture / structures

Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL
61550-1740
docroecker@gmail.com

STATE OF MAINE
JAMES A. ROECKER
No. 6779
LICENSED PROFESSIONAL ENGINEER
04.25.2013

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER
COVER SHEET

Scale

Drawn by: CLP Date: 03/21/13
Checked by: LAM Date: 03/21/13
Approved by Engineering Date
Approved by Production Date
Approved by Sales Date

Unless otherwise specified, dimensions are given in inches.
Tolerances
Decimals +/- Fractions +/- Angles +/-
Materials Finish Weight

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File Number
Drawing Number: G1.0

one quarter inch = one foot 0 4 8
three eighths inch = one foot 0 4
one half inch = one foot 0 4
three quarters inch = one foot 0 2
one and one half inch = one foot 0 1

SHELTER SIZE SCHEDULE

PART NO.	(W) EXTERIOR	(L) EXTERIOR	(H) INTERIOR
ESC88	8'-4"	8'-0"	8'-0"
ESC810	8'-4"	10'-0"	8'-0"
ESC812	8'-4"	12'-0"	8'-0"
ESC814	8'-4"	14'-0"	8'-0"
ESC816	8'-4"	16'-0"	8'-0"
ESC818	8'-4"	18'-0"	8'-0"
ESC820	8'-4"	20'-0"	8'-0"
ESC822	8'-4"	22'-0"	8'-0"
ESC824	8'-4"	24'-0"	8'-0"
ESC826	8'-4"	26'-0"	8'-0"
ESC828	8'-4"	28'-0"	8'-0"
ESC830	8'-4"	30'-0"	8'-0"
ESC832	8'-4"	32'-0"	8'-0"
ESC834	8'-4"	34'-0"	8'-0"
ESC836	8'-4"	36'-0"	8'-0"
ESC889	8'-4"	8'-0"	9'-0"
ESC8109	8'-4"	10'-0"	9'-0"
ESC8129	8'-4"	12'-0"	9'-0"
ESC8149	8'-4"	14'-0"	9'-0"
ESC8169	8'-4"	16'-0"	9'-0"
ESC8189	8'-4"	18'-0"	9'-0"
ESC8209	8'-4"	20'-0"	9'-0"
ESC8229	8'-4"	22'-0"	9'-0"
ESC8249	8'-4"	24'-0"	9'-0"
ESC8269	8'-4"	26'-0"	9'-0"
ESC8289	8'-4"	28'-0"	9'-0"
ESC8309	8'-4"	30'-0"	9'-0"
ESC8329	8'-4"	32'-0"	9'-0"
ESC8349	8'-4"	34'-0"	9'-0"
ESC8369	8'-4"	36'-0"	9'-0"
ESC8810	8'-4"	8'-0"	9'-8"
ESC81010	8'-4"	10'-0"	9'-8"
ESC81210	8'-4"	12'-0"	9'-8"
ESC81410	8'-4"	14'-0"	9'-8"
ESC81610	8'-4"	16'-0"	9'-8"
ESC81810	8'-4"	18'-0"	9'-8"
ESC82010	8'-4"	20'-0"	9'-8"
ESC82210	8'-4"	22'-0"	9'-8"
ESC82410	8'-4"	24'-0"	9'-8"
ESC82610	8'-4"	26'-0"	9'-8"
ESC82810	8'-4"	28'-0"	9'-8"
ESC83010	8'-4"	30'-0"	9'-8"
ESC83210	8'-4"	32'-0"	9'-8"
ESC83410	8'-4"	34'-0"	9'-8"
ESC83610	8'-4"	36'-0"	9'-8"
ESC1010	10'-4"	10'-0"	8'-0"
ESC1012	10'-4"	12'-0"	8'-0"
ESC1014	10'-4"	14'-0"	8'-0"
ESC1016	10'-4"	16'-0"	8'-0"
ESC1018	10'-4"	18'-0"	8'-0"
ESC1020	10'-4"	20'-0"	8'-0"
ESC1022	10'-4"	22'-0'	8'-0"
ESC1024	10'-4"	24'-0"	8'-0"
ESC1026	10'-4"	26'-0"	8'-0"
ESC1028	10'-4"	28'-0"	8'-0"
ESC1030	10'-4"	30'-0'	8'-0"
ESC1032	10'-4"	32'-0"	8'-0"
ESC1034	10'-4"	34'-0"	8'-0"
ESC1036	10'-4"	36'-0"	8'-0"
ESC10109	10'-4"	10'-0"	9'-0"
ESC10129	10'-4"	12'-0"	9'-0"
ESC10149	10'-4"	14'-0"	9'-0"
ESC10169	10'-4"	16'-0"	9'-0"
ESC10189	10'-4"	18'-0"	9'-0"
ESC10209	10'-4"	20'-0"	9'-0"
ESC10229	10'-4"	22'-0"	9'-0"
ESC10249	10'-4"	24'-0"	9'-0"
ESC10269	10'-4"	26'-0"	9'-0"
ESC10289	10'-4"	28'-0"	9'-0"
ESC10309	10'-4"	30'-0"	9'-0"
ESC10329	10'-4"	32'-0"	9'-0"
ESC10349	10'-4"	34'-0"	9'-0"
ESC10369	10'-4"	36'-0"	9'-0"
ESC101010	10'-4"	10'-0"	9'-8"
ESC101210	10'-4"	12'-0"	9'-8"
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ESC101610	10'-4"	16'-0"	9'-8"
ESC101810	10'-4"	18'-0"	9'-8"
ESC102010	10'-4"	20'-0"	9'-8"
ESC102210	10'-4"	22'-0"	9'-8"
ESC102410	10'-4"	24'-0"	9'-8"
ESC102610	10'-4"	26'-0"	9'-8"
ESC102810	10'-4"	28'-0"	9'-8"
ESC103010	10'-4"	30'-0"	9'-8"
ESC103210	10'-4"	32'-0"	9'-8"
ESC103410	10'-4"	34'-0"	9'-8"
ESC103610	10'-4"	36'-0"	9'-8"
ESC1212	12'-0"	12'-0"	8'-0"
ESC1214	12'-0"	14'-0"	8'-0"
ESC1216	12'-0"	16'-0"	8'-0"
ESC1218	12'-0"	18'-0"	8'-0"
ESC1220	12'-0"	20'-0"	8'-0"
ESC1222	12'-0"	22'-0"	8'-0"
ESC1224	12'-0"	24'-0"	8'-0"
ESC1226	12'-0"	26'-0"	8'-0"
ESC1228	12'-0"	28'-0"	8'-0"
ESC1230	12'-0"	30'-0"	8'-0"
ESC1232	12'-0"	32'-0"	8'-0"
ESC1234	12'-0"	34'-0"	8'-0"
ESC1236	12'-0"	36'-0"	8'-0"
ESC12129	12'-0"	12'-0"	9'-0"
ESC12149	12'-0"	14'-0"	9'-0"
ESC12169	12'-0"	16'-0"	9'-0"
ESC12189	12'-0"	18'-0"	9'-0"
ESC12209	12'-0"	20'-0"	9'-0"
ESC12229	12'-0"	22'-0"	9'-0"
ESC12249	12'-0"	24'-0"	9'-0"
ESC12269	12'-0"	26'-0"	9'-0"
ESC12289	12'-0"	28'-0"	9'-0"
ESC12309	12'-0"	30'-0"	9'-0"
ESC12329	12'-0"	32'-0"	9'-0"
ESC12349	12'-0"	34'-0"	9'-0"
ESC12369	12'-0"	36'-0"	9'-0"
ESC121210	12'-0"	12'-0"	9'-8"
ESC121410	12'-0"	14'-0"	9'-8"
ESC121610	12'-0"	16'-0"	9'-8"
ESC121810	12'-0"	18'-0"	9'-8"
ESC122010	12'-0"	20'-0"	9'-8"
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ESC122410	12'-0"	24'-0"	9'-8"
ESC122610	12'-0"	26'-0"	9'-8"
ESC122810	12'-0"	28'-0"	9'-8"
ESC123010	12'-0"	30'-0"	9'-8"
ESC123210	12'-0"	32'-0"	9'-8"
ESC123410	12'-0"	34'-0"	9'-8"
ESC123610	12'-0"	36'-0"	9'-8"

NOTES:

1. SHELTER WIDTH (W) INDICATED IS TO OUTSIDE EDGE OF ROOF.
2. SHELTER LENGTH (L) INDICATED IS TO OUTSIDE EDGE OF END WALLS.
3. SHELTER HEIGHT (H) INDICATED IS NOMINAL INTERIOR CLEAR HEIGHT.

MODULAR CONNECTIONS, LLC

CONCRETE EQUIPMENT SHELTER

STATE OF MAINE
JAMES A. ROECKER
No. 6779
LICENSED
PROFESSIONAL ENGINEER

04.24.2013

JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER

SHELTER SCHEDULE

Scale		Unless otherwise specified, dimensions are given in inches. Tolerances	
Drawn by GJB	Date 07/07/04	Decimals +/-	Fractions +/-
Checked by RAB	Date 07/07/04	Materials	Finish
Approved by Engineering	Date	Angles +/-	Weight
Approved by Production	Date	File Number	
Approved by Sales	Date	Drawing Number	A1.0

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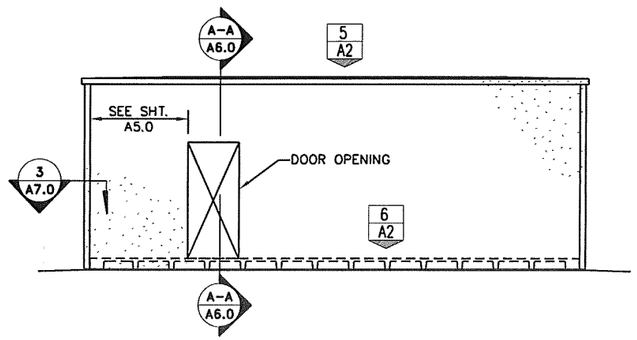
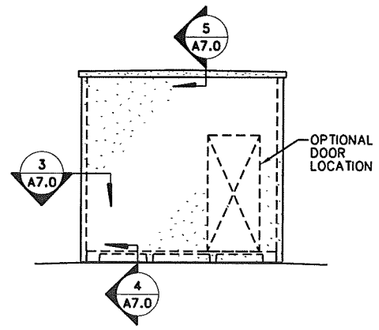
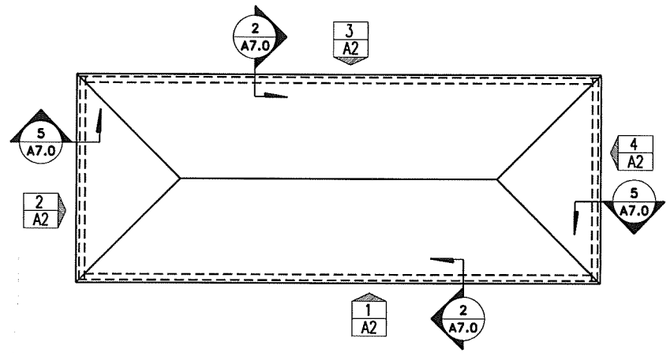
one quarter inch = one foot (0, 4, 8)
three eighths inch = one foot (0, 4)
one half inch = one foot (0, 4)
three quarters inch = one foot (0, 2)
one and one half inch = one foot (0, 1)



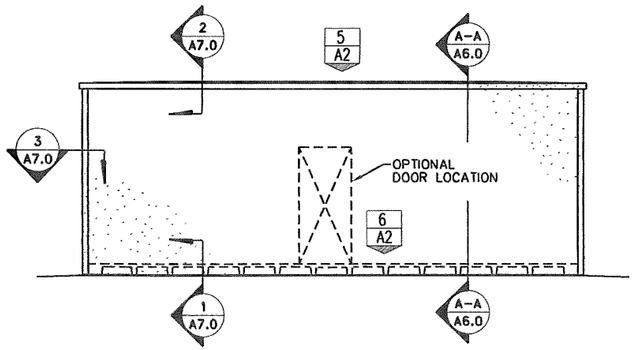
1 / A2 SIDE ELEVATION
SCALE: N.T.S.



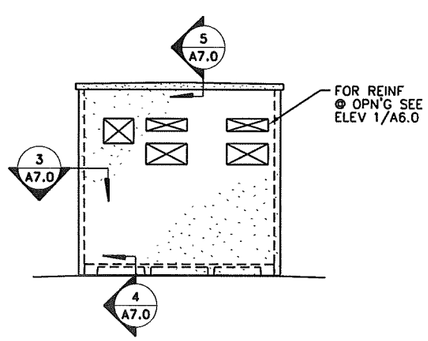
2 / A2 END ELEVATION
SCALE: N.T.S.



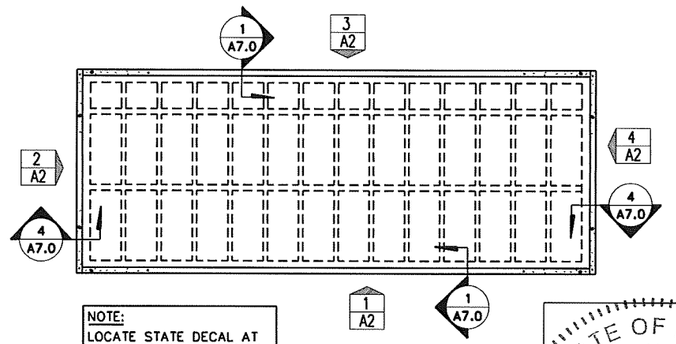
5 / A2 ROOF PLAN
SCALE: N.T.S.



3 / A2 SIDE ELEVATION
SCALE: N.T.S.



4 / A2 END ELEVATION
SCALE: N.T.S.



NOTE:
LOCATE STATE DECAL AT LOAD DISTRIBUTION PANEL

6 / A2 FLOOR PLAN
SCALE: N.T.S.

STATE OF MAINE
JAMES
A.
ROECKER
No. 6779
LICENSED
PROFESSIONAL ENGINEER

04-29-2013

PLAN NOTES:

1. DOOR LOCATION AS INDICATED ON THE DRAWING MAY VARY UP TO 6'-0".
2. DOOR SIZES MAY VARY IN WIDTH UP TO 6'-0" WIDE.
3. VIEWS SHOWN ARE GENERAL AND MAY NOT REFLECT THE ACTUAL SHELTER SIZE, OPENINGS, AND/OR OPENING LOCATIONS.

JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-875-5851
Email: info@modularconnections.com

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Title
STANDARD CONCRETE EQUIPMENT SHELTER
EXTERIOR SHELTER ELEVATIONS

Scale		Unless otherwise specified, dimensions are given in inches. Tolerances	
Drawn by	Date	Decimals +/-	Fractions +/-	Angles +/-
GJB	07/07/04	Materials	Finish	Weight
Checked by	Date			
RAB	07/07/04			
Approved by Engineering	Date			
Approved by Production	Date	File Number		
Approved by Sales	Date	Drawing Number		
		A2.0		

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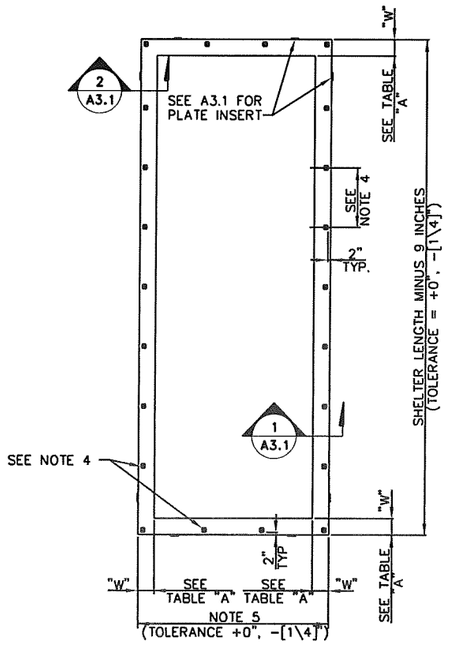
one quarter inch = one foot
0 4 8

three eighths inch = one foot
0 4

one half inch = one foot
0 4

three quarters inch = one foot
0 2

one and one half inch = one foot
0 1



PERIMETER BEAM

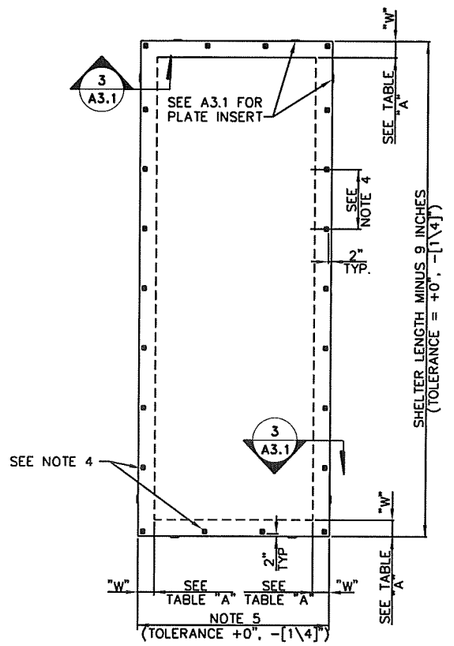
SCALE: 1/4" = 1'-0"

NOTES:

1. PERIMETER BEAM DEPTH SHALL BE BELOW FROST LEVEL (1'-6" MIN. DEPTH BELOW GRADE).
2. TOP OF FOUNDATION WALL ELEVATION TOLERANCE 1/4" IN 10'-0" & 1/2" MAX OVERALL
3. PROVIDE 12 MIL VAPOR BARRIER WITH TAPED & 6" LAPPED JOINTS BETWEEN SUBGRADE & SHELTER SLAB ON GRADE.
4. SHIM W/ 3x3 NEOPRENE BEARING PADS TO ATTAIN SAME ELEVATION WITHIN 1/16"(±) LOCATE @ 3'-0" O.C. (MAX.) FOR MAX. FLOOR LIVE LOAD ≤ 200 PSF. LOCATE @ 2'-6" O.C. (MAX.) FOR MAX. FLOOR LIVE LOAD ≤ 300 PSF.
5. FOUNDATION WIDTH IS AS FOLLOWS:

SHELTER WIDTH	FOUNDATION WIDTH
8'-0"	7'-3"
10'-0"	9'-3"
12'-0"	10'-11"

FIELD WORK



SLAB ON GRADE FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

NOTES:

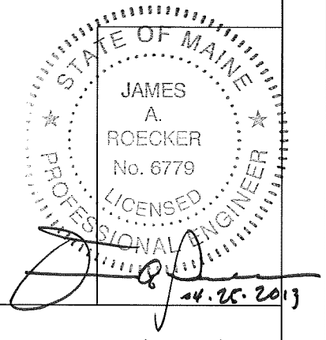
1. PROVIDE WASHED GRAVEL DOWN TO FROST LEVEL UNDER SLAB ON GRADE. (MINIMUM OF 8" BELOW SLAB.)
2. TOP OF FOUNDATION ELEVATION TOLERANCE 1/4" IN 10'-0" & 1/2" MAX OVERALL
3. PROVIDE 12 MIL VAPOR BARRIER WITH TAPED & 6" LAPPED JOINTS BETWEEN SUBGRADE & SHELTER SLAB ON GRADE.
4. SHIM W/ 3x3 NEOPRENE BEARING PADS TO ATTAIN SAME ELEVATION WITHIN 1/16"(±) LOCATE @ 3'-0" O.C. (MAX.) FOR MAX. FLOOR LIVE LOAD ≤ 200 PSF. LOCATE @ 2'-6" O.C. (MAX.) FOR MAX. FLOOR LIVE LOAD ≤ 300 PSF.
5. FOUNDATION WIDTH IS AS FOLLOWS:

SHELTER WIDTH	FOUNDATION WIDTH
8'-0"	7'-3"
10'-0"	9'-3"
12'-0"	10'-11"

FIELD WORK

TABLE A			
MAX FLOOR LIVE LOAD WITH 60PSF ROOF LIVE LOAD	MINIMUM FOUNDATION WIDTH "W"	WITH MAX ROOF LIVE LOAD	MINIMUM FOUNDATION WIDTH "W"
≤ 150 PSF	12"	≤ 150 PSF	14"
≤ 200 PSF	14"	≤ 150 PSF	15"
≤ 300 PSF	16"	≤ 150 PSF	17"

NOTES:
1. FOUNDATION WIDTH IS BASED ON 2500 PSF ALLOWABLE BEARING PRESSURE



JAR architecture / structures
Phone: 309.472.1507
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Title: STANDARD CONCRETE EQUIPMENT SHELTER

FOUNDATION PLAN & DETAILS

Scale

Unless otherwise specified, dimensions are given in inches. Tolerances
Decimals +/- | Fractions +/- | Angles +/-
Materials | Finish | Weight

	Date
Drawn by GJB	07/07/04
Checked by RAB	07/07/04
Approved by Engineering	Date
Approved by Production	Date
Approved by Sales	Date

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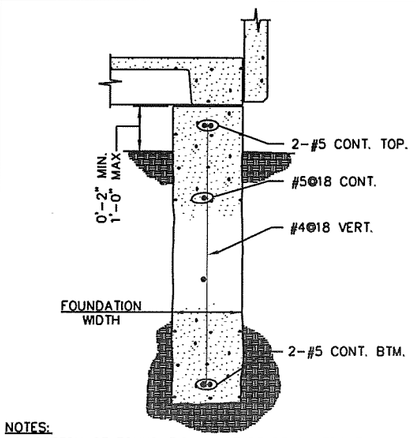
File Number

Drawing Number A3.0

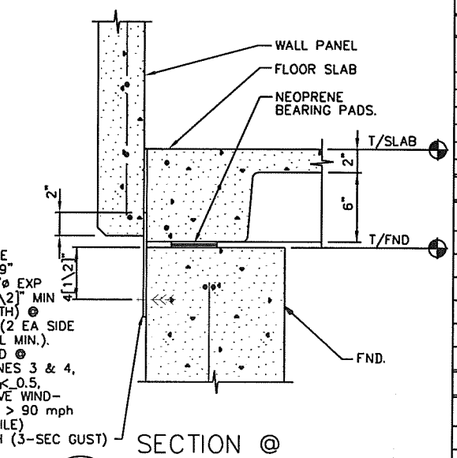
one quarter inch = one foot (0, 4, 8)
three eighths inch = one foot (0, 4)
one half inch = one foot (0, 4)
three quarters inch = one foot (0, 2)
one and one half inch = one foot (0, 1)



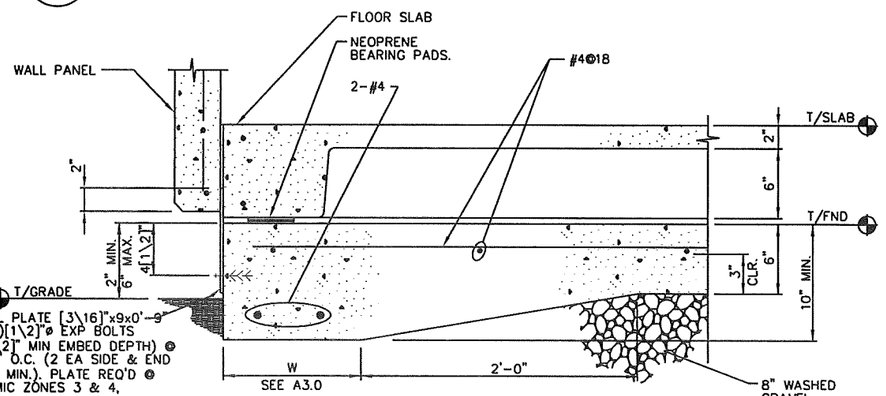
NOTES:
1. BOTTOM OF FOUNDATION MUST BE BELOW FROST LINE AND BEAR ON UNDISTURBED SOIL.
2. FORM SURFACE EXPOSED TO VIEW ONLY.

1 / A3.1 SECTION — SCALE: 3/4" = 1'-0"

FIELD WORK

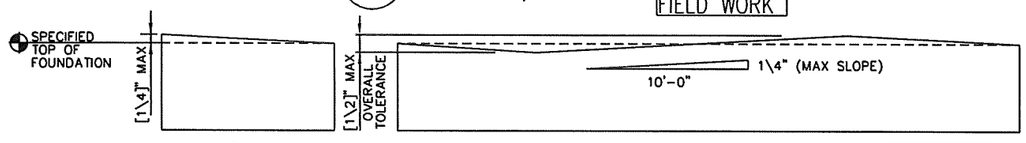


2 / A3.1 SECTION @ STEEL PLATE INSERT — SCALE: 1 1/2" = 1'-0"



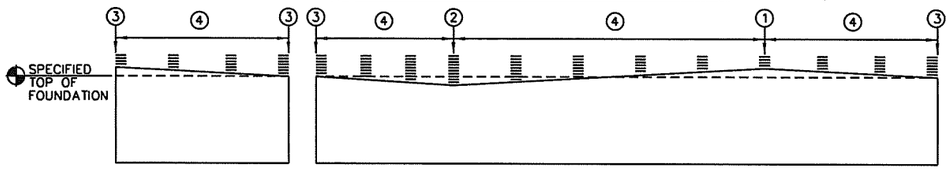
3 / A3.1 SECTION @ STEEL INSERT PLATE — SCALE: 1 1/2" = 1'-0"

FIELD WORK



ELEVATION TOLERANCES AT TOP OF FOUNDATION

FIELD WORK



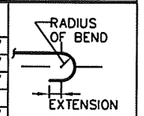
PAD LOCATIONS FOR FOUNDATIONS

FIELD WORK

STEEL REINFORCEMENT

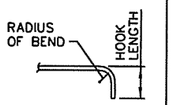
180? HOOKED BARS

BAR	RADIUS OF BEND	EXTENSION
3	1[1\2"	2[1\2"
4	2"	2[1\2"
5	2[1\2"	2[1\2"
6	3"	3"
7	3[1\2"	3[1\2"
8	4"	4"



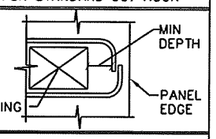
STANDARD 90? HOOK

BAR	HOOK	RADIUS OF BEND
#3	6"	1[1\2"
#4	8"	2"
#5	10"	2[1\2"
#6	12"	3"
#7	14"	3[1\2"
#8	16"	4"



MINIMUM EMBEDMENT FOR STANDARD 90? HOOK

BAR	DEPTH
#4	9"
#5	11"
#6	13"
#7	15"



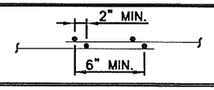
STANDARD BAR LAP SPLICE

CLR – INDICATES AMOUNT OF CLEAR COVER

db – INDICATES BAR DIA.

	BAR	#3	#4	#5	#6	#7	#8
LENGTH	CLR≤db	18"	26"	40"	57"	77"	101"
	db<CLR<2db	18"	24"	30"	40"	54"	71"
	2db≤CLR	18"	24"	30"	36"	42"	51"

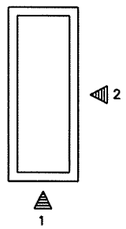
STANDARD WIRE LAP SPLICE



MIMIMUM CONCRETE COVER	
CONCRETE EXPOSED TO EARTH OR WEATHER:	
WALL PANELS	[3\4"
OTHERS	1[1\2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:	
SLABS, WALLS & JOISTS	[3\4"
BEAMS	1"
STIRRUPS	[1\2"

FIELD WORK

FOUNDATION PLAN



PROVIDE PADS @ FOLLOWING LOCATIONS:
1. CROWNS
2. VALLEYS
3. CORNERS.
4. EQUALLY SPACE ALL OTHER PADS (SEE NOTE 4 ON SHEET A3.0)

FOUNDATION GENERAL NOTES

1. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES, SAFETY REGULATIONS AND UNLESS OTHERWISE NOTED, THE LATEST REVISION OF ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". PROCEDURES FOR THE PROTECTION OF EXCAVATIONS, EXISTING CONSTRUCTION AND UTILITIES SHALL BE ESTABLISHED PRIOR TO FOUNDATION INSTALLATION.

2. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE STATE REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.

3. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR RESISTANCE TO LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. AS A MINIMUM, CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS.

4. MAXIMUM SIZE OF CONCRETE AGGREGATE SHALL NOT EXCEED 1 INCH; SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED; OR ONE-THIRD CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING.

5. REINFORCEMENT SHALL BE DEFORMED AND CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60 UNLESS OTHERWISE NOTED.

6. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.

7. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE 3 INCHES UNLESS OTHERWISE NOTED.

8. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED 3 INCHES NOR BE LESS THAN 2 INCHES.

9. ALL HORIZONTAL BARS IN WALLS & BEAM EDGES SHALL BE BENT AT CORNERS IN SUCH A WAY THAT CONTINUITY IS PROVIDED THROUGH THE JOINT. SEPARATE CORNER BARS OF THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCING MAY BE SUBSTITUTED FOR THE BENT PORTION OF THE CONTINUOUS BARS.

10. FOUNDATION DESIGN ASSUMES STRUCTURAL BACKFILL TO BE COMPACTED IN 8 INCH MAXIMUM LAYERS TO 95% OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698. ADDITIONALLY, STRUCTURAL BACKFILL MUST HAVE A MINIMUM COMPACTED UNIT WEIGHT OF 100 POUNDS PER CUBIC FOOT.

11. FOUNDATION INSTALLATIONS SHALL BE SUPERVISED BY PERSONNEL KNOWLEDGEABLE AND EXPERIENCED WITH THE PROPOSED FOUNDATION TYPE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH GENERALLY ACCEPTED INSTALLATION PRACTICES.

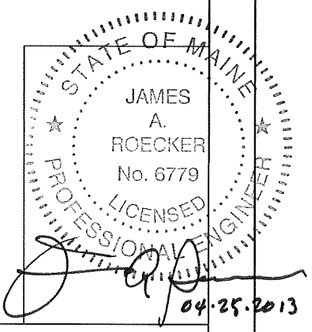
12. FOUNDATION DESIGN ASSUMES FIELD INSPECTIONS WILL BE PERFORMED TO VERIFY THAT CONSTRUCTION MATERIALS, INSTALLATION METHODS AND ASSUMED DESIGN PARAMETERS ARE ACCEPTABLE BASED ON CONDITIONS EXISTING AT THE SITE.

13. LOOSE MATERIAL SHALL BE REMOVED FROM BOTTOM OF EXCAVATION PRIOR TO CONCRETE PLACEMENT.

14. CONCRETE SHALL BE PLACED IN A MANNER THAT WILL PREVENT SEGREGATION OF CONCRETE MATERIALS, INFILTRATION OF WATER OR SOIL AND OTHER OCCURRENCES WHICH MAY DECREASE THE STRENGTH OR DURABILITY OF FOUNDATION.

15. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL. WHEN FORMS ARE NECESSARY, THEY SHALL BE REMOVED PRIOR TO PLACING STRUCTURAL BACKFILL.

16. FOUNDATION DESIGN ASSUMES CONTINUOUS CONCRETE PLACEMENT WITHOUT CONSTRUCTION JOINTS.



JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER

FOUNDATION NOTES & MISC. INFORMATION

Scale

Unless otherwise specified, dimensions are given in inches. Tolerances: Decimals +/-, Fractions +/-, Angles +/-

Drawn by GJB Date 07/07/04

Checked by RAB Date 07/07/04

Materials, Finish, Weight

Approved by Engineering Date

Approved by Production Date

Approved by Sales Date

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File Number

Drawing Number A3.1

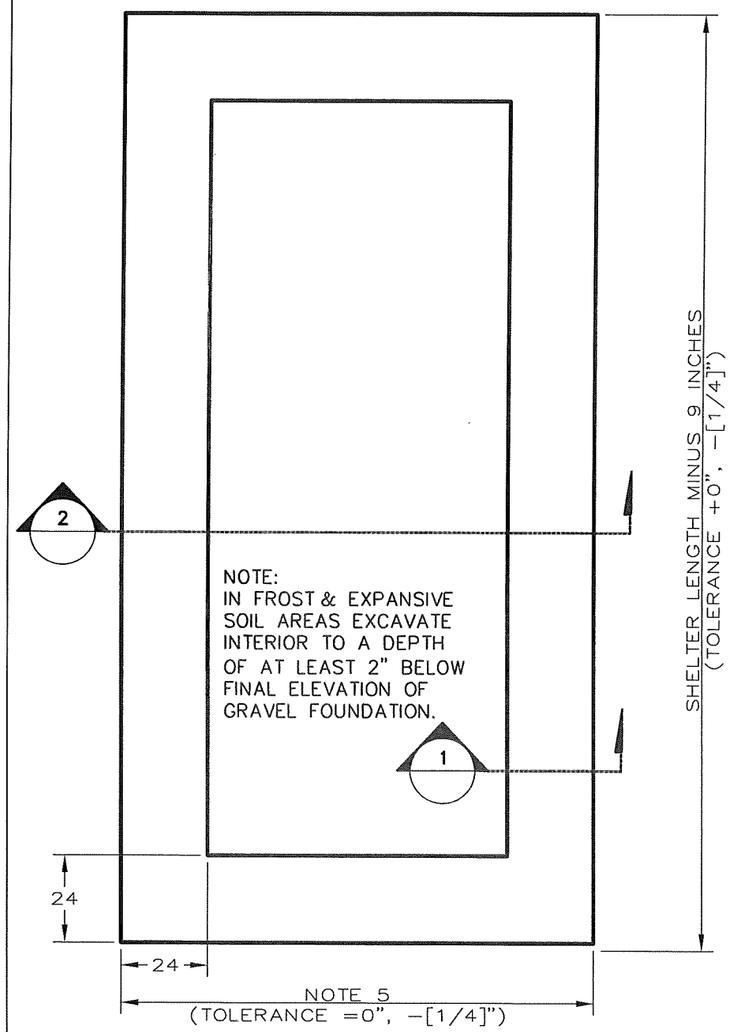
one quarter inch = one foot (0, 4, 8)

three eighths inch = one foot (0, 4)

one half inch = one foot (0, 4)

three quarters inch = one foot (0, 2)

one and one half inch = one foot (0, 1)



PERIMETER GRAVEL BEAM

FIELD WORK

NOTES:

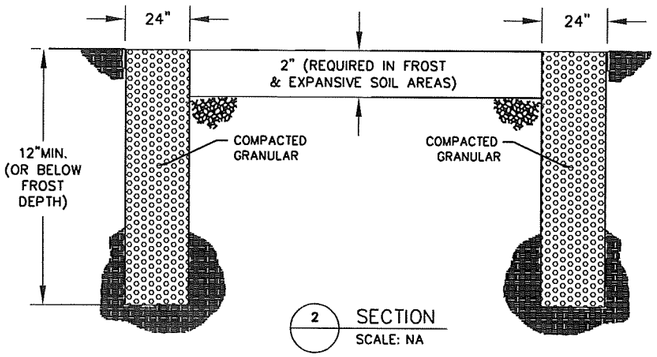
1. PERIMETER BEAM DEPTH SHALL BE BELOW FROST LEVEL (12" MIN. DEPTH BELOW GRADE).
2. TOP OF FOUNDATION WALL ELEVATION TOLERANCE 1/4" IN 10'-0" & 1/2" MAX OVERALL
3. PROVIDE 12 MIL VAPOR BARRIER WITH TAPED & 6" LAPPED JOINTS BETWEEN SUBGRADE & SHELTER. DO NOT PLACE VAPOR BARRIER OVER GRAVEL PERIMETER FOUNDATION.
4. FOUNDATION WIDTH IS BASED ON 2500 PSF ALLOWABLE BEARING PRESSURE.
5. FOUNDATION WIDTH IS AS FOLLOWS:

SHELTER WIDTH	FOUNDATION WIDTH
8'-0"	7'-3"
10'-0"	9'-3"
12'-0"	10'-11"

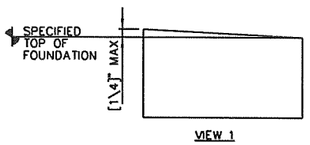
6. WIND SPEED FOR THIS TYPE OF FOUNDATION IS 125 MPH:
   UPLIFT PRESSURE = 37.1 PSF (MAX)
   WINDWARD WALL PRESSURE = 24.9 PSF (MAX)
   LEEWARD WALL PRESSURE = 17.5 PSF (MAX)
   WINDWARD/LEEWARD COMBINED = 31.9 PSF (MAX) (24.9 PSF WINWARD + 7 PSF LEEWARD)

GRANULAR MATERIAL

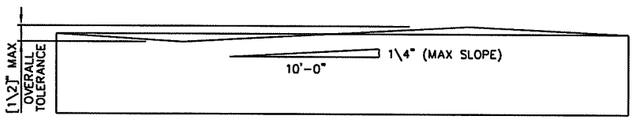
SIEVE SIZE & % PASSING SIEVE	
GRANULAR SIZE	% PASSING SIEVE
1-1/2"	100
1"	95 ± 5
1/2"	75 ± 15
NO. 4	43 ± 13
NO. 16	25 ± 15
NO. 1/200	8 ± 4



2 SECTION
SCALE: NA



VIEW 1



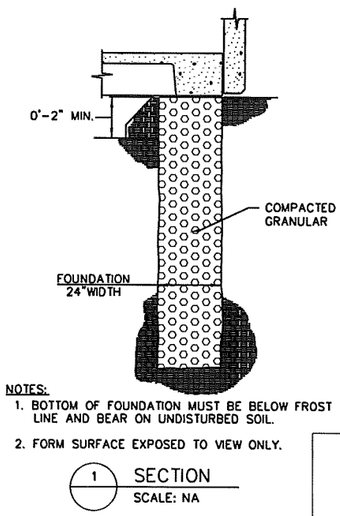
VIEW 2

ELEVATION TOLERANCES AT TOP OF FOUNDATION

FIELD WORK

FOUNDATION GENERAL NOTES

1. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES, SAFETY REGULATIONS AND UNLESS OTHERWISE NOTED.
2. GRANULAR MATERIAL SHALL BE PLACED IN A TRENCH WITH A MINIMUM BEARING CAPACITY OF 2500 PSF, ON NON-EXPANSIVE SOIL.
3. THE TRENCH BASE SHALL BE LEVEL, FREE OF SOIL CLUMPS AND DEBRIS, AND DE-WATERED AT THE TIME OF GRAVEL FOUNDATION PLACEMENT.
4. THE MATERIAL SHALL BE A MINIMUM OF 12" THICK, PLACED IN MAXIMUM 8" LOOSE LIFTS COMPACTED WITH A WACKER OR 23" WIDE WALK BEHIND VIBRATORY COMPACTOR WEIGHING 190 POUNDS OR MORE OR EQUIVALENT. THE COMPACTOR SHALL RUN OVER THE MATERIAL TWICE OR MORE PER LIFT, AT A RATE NO FASTER THAN THAT SPECIFIED BY THE MANUFACTURER.
5. THE INTERIOR SOILS WITHIN THE PERIMETER GRAVEL FOUNDATION SHALL BE EXCAVATED TO 2" BELOW BOTTOM OF CONCRETE FLOOR BEAMS, SO AS TO NOT CARRY ANY LOAD FROM THE STRUCTURE DUE TO POTENTIAL FROST HEAVE OF INTERIOR SOILS AND/OR SETTLEMENT OF GRAVEL FOUNDATION.
6. FOUNDATION INSTALLATIONS SHALL BE SUPERVISED BY PERSONNEL KNOWLEDGEABLE AND EXPERIENCED WITH THE PROPOSED FOUNDATION TYPE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH GENERALLY ACCEPTED INSTALLATION PRACTICES.
7. FOUNDATION DESIGN ASSUMES FIELD INSPECTIONS WILL BE PERFORMED TO VERIFY THAT CONSTRUCTION MATERIALS, INSTALLATION METHODS AND ASSUMED DESIGN PARAMETERS ARE ACCEPTABLE BASED ON CONDITIONS EXISTING AT THE SITE.
8. LOOSE MATERIAL SHALL BE REMOVED FROM BOTTOM OF EXCAVATION PRIOR TO GRANULAR FILL PLACEMENT.



NOTES:
1. BOTTOM OF FOUNDATION MUST BE BELOW FROST LINE AND BEAR ON UNDISTURBED SOIL.
2. FORM SURFACE EXPOSED TO VIEW ONLY.

1 SECTION
SCALE: NA

STATE OF MAINE
JAMES A. ROECKER
No. 6779
LICENSED PROFESSIONAL ENGINEER
04.25.2013

JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title

STANDARD CONCRETE EQUIPMENT SHELTER
GRAVEL FOUNDATION PLAN AND DETAILS

Scale		Unless otherwise specified, dimensions are given in inches. Tolerances	
Drawn by RAP	Date 6-1-09	Decimals +/-	Fractions +/-
Checked by LAM	Date 6-1-09	Materials	Finish
Approved by Engineering	Date	Angles +/-	Weight
Approved by Production	Date	File Number	
Approved by Sales	Date	Drawing Number	A3.2

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one quarter inch = one foot (0, 4, 8)
three eighths inch = one foot (0, 4)
one half inch = one foot (4)
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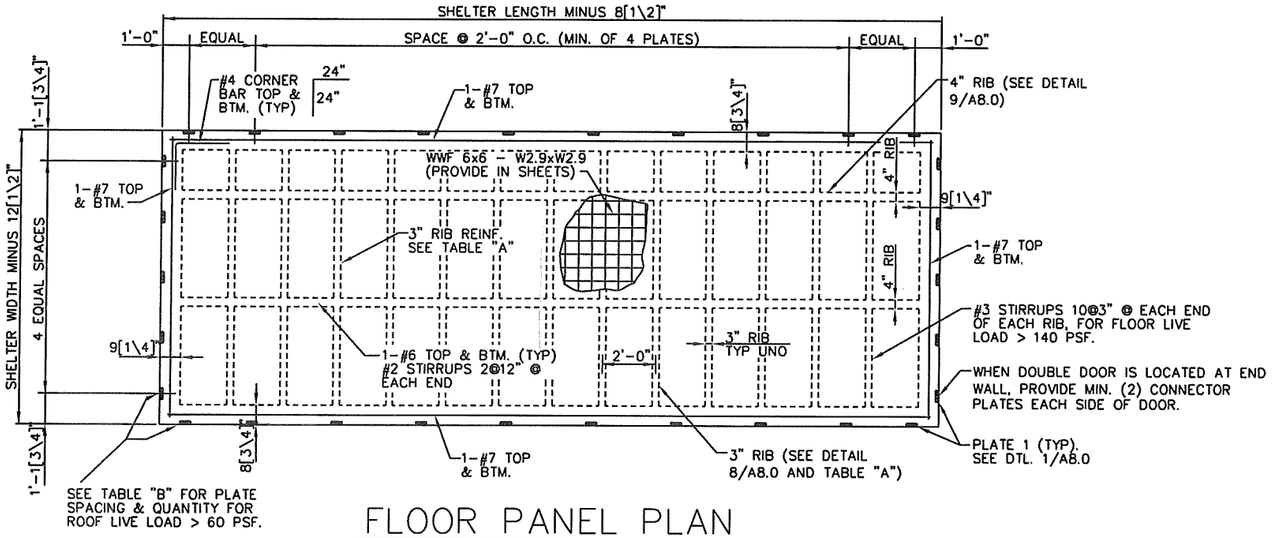
one and one half inch = one foot (0, 1)



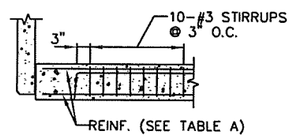
FLOOR PANEL PLAN

SCALE: 3/8" = 1'-0"

NOTES:

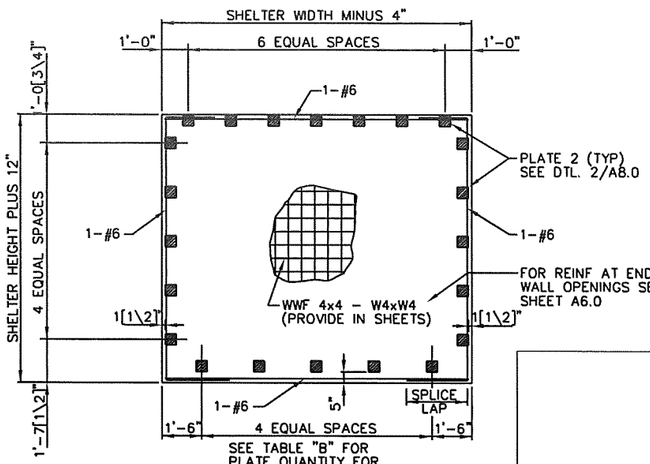
1. FOR STANDARD HOOKS AND LAP SPLICES, SEE SHEET A3.1.
2. SEE SHELTER SCHEDULE ON SHEET A1.0 FOR SHELTER SIZES.

TABLE "A" 3" RIB REINFORCEMENT		
FLOOR LIVE LOAD	TOP	BOTTOM
≤140 PSF	#4	#6
≤200 PSF	#4	#7
≤300 PSF	#4	#7



NOTE:

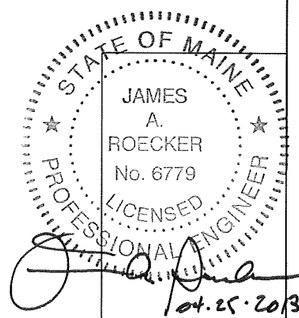
STIRRUPS NOT REQUIRED IF FLOOR LIVE LOAD IS LESS THAN OR EQUAL TO 140 PSF.



END WALL PANEL

SCALE: 3/8" = 1'-0"

TABLE "B" ROOF LIVE LOAD TABLE		
ROOF LIVE LOAD	ENDWALL PLATES	SIDEWALL SPACING
100 PSF	7	20"
150 PSF	8	16"



JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER
FLOOR PANEL & END WALL PANEL

Scale

Unless otherwise specified, dimensions are given in inches. Tolerances
Decimals +/- | Fractions +/- | Angles +/-

Drawn by: GJB — Date: 07/07/04
Materials | Finish | Weight

Checked by: RAB — Date: 07/07/04

Approved by Engineering — Date

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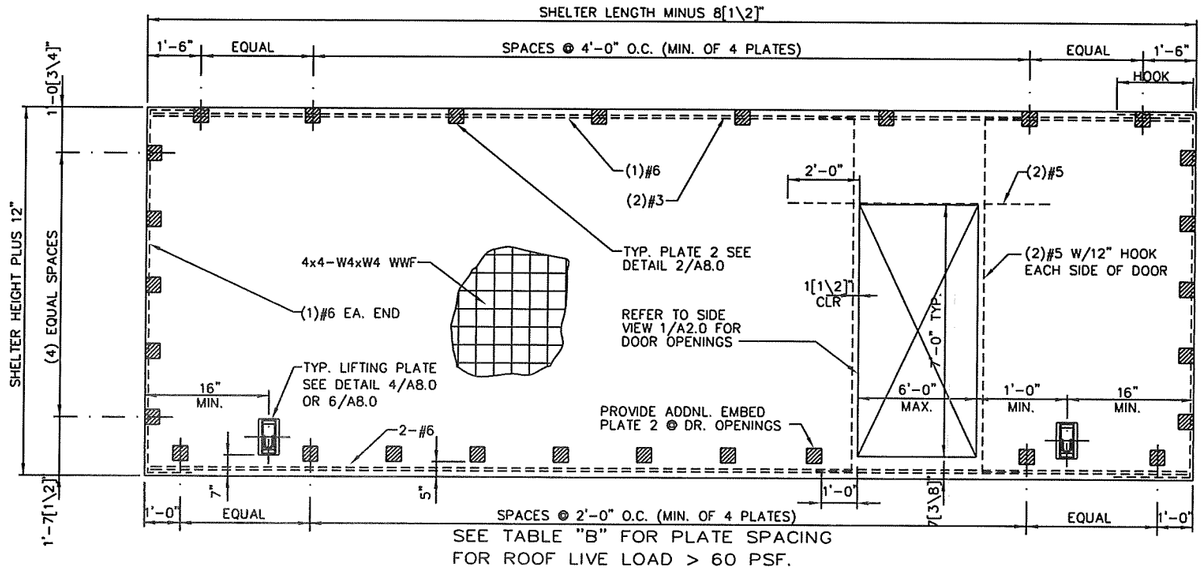
Approved by Production — Date

File Number

Approved by Sales — Date

Drawing Number: A4.0

one quarter inch = one foot (0, 4, 8)
three eighths inch = one foot (0, 4)
one half inch = one foot (0, 4)
three quarters inch = one foot (0, 2)
one and one half inch = one foot (0, 1)



SEE TABLE "B" FOR PLATE SPACING FOR ROOF LIVE LOAD > 60 PSF.

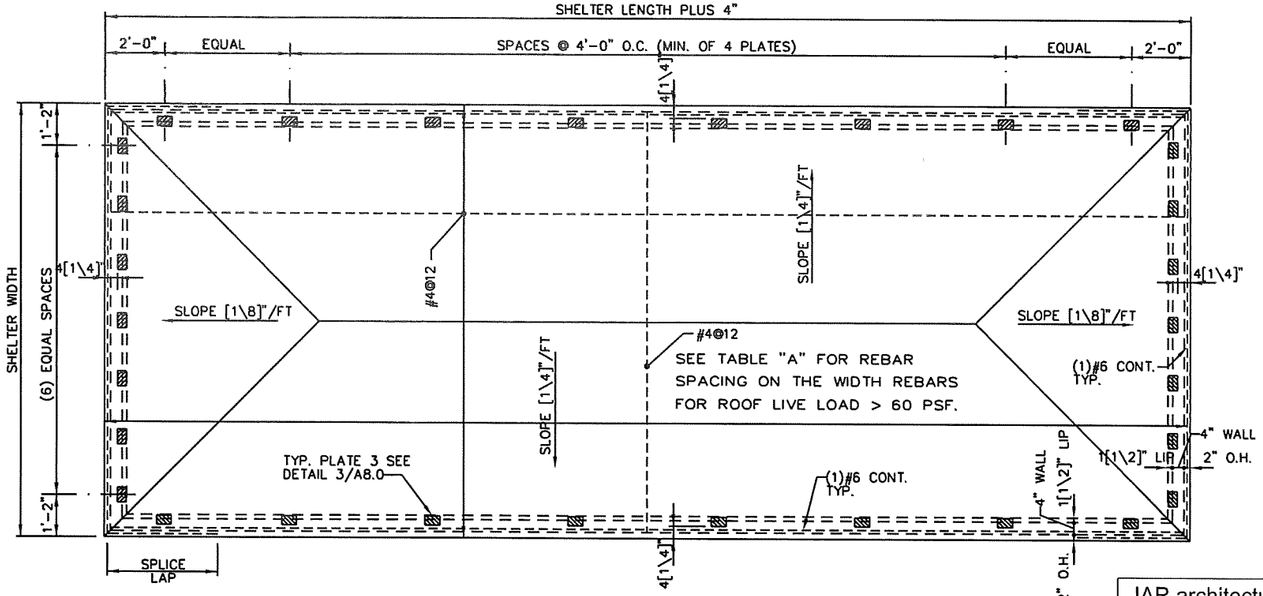
SIDE WALL PANEL

SCALE: 3/8" = 1'-0"

NOTES:

1. FOR STANDARD HOOKS AND LAP SPLICES, SEE SHEET A3.1.
2. SEE SHELTER SCHEDULE ON SHEET A1.0 FOR SHELTER SIZES.

TABLE "B" ROOF LIVE LOAD TABLE		
ROOF LIVE LOAD	ENDWALL PLATES	SIDEWALL SPACING
100 PSF	7	20"
150 PSF	8	16"



ROOF PANEL

SCALE: 3/8" = 1'-0"

TABLE "A" ROOF LIVE LOAD REBAR TABLE		
ROOF LIVE LOAD	REBAR SIZE	REBAR SPACING
100 PSF	#4	10"
150 PSF	#4	8"

one quarter inch = one foot (0, 4, 8)
three eighths inch = one foot (0, 4)
one half inch = one foot (0, 4)
three quarters inch = one foot (0, 2)
one and one half inch = one foot (0, 1)

JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

STATE OF MAINE
JAMES A. ROECKER
No. 6779
LICENSED
PROFESSIONAL ENGINEER
04.25.2013

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER
SIDE WALL & ROOF PANEL

Scale: Unless otherwise specified, dimensions are given in inches. Tolerances: Decimals +/-, Fractions +/-, Angles +/-

Drawn by GJB — Date 07/07/04
Checked by RAB — Date 07/07/04
Approved by Engineering — Date
Approved by Production — Date
Approved by Sales — Date

Materials — Finish — Weight

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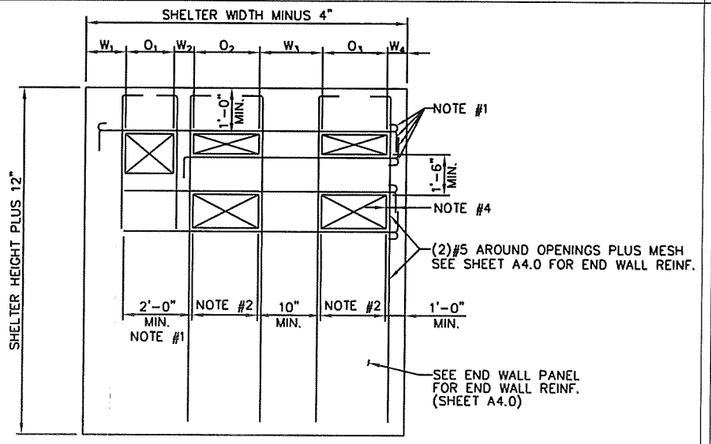
File Number

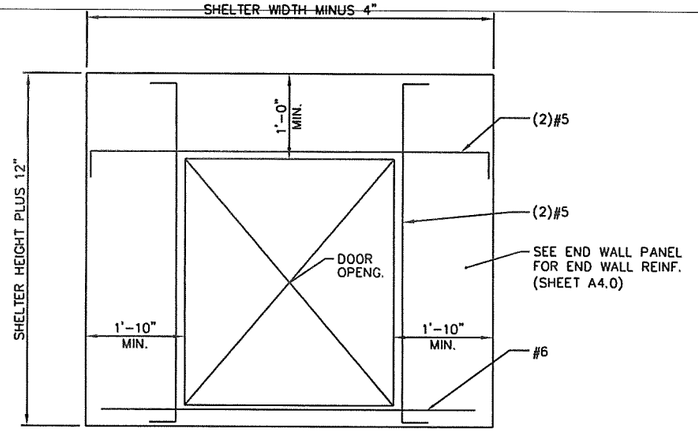
Drawing Number: A5.0



NOTE:

1. MINIMUM REINF LENGTH BEYOND OPENING SHALL BE 2'-0" OTHERWISE PROVIDE HOOKED END.
2. TOTAL WIDTH OF OPENINGS SHALL BE LESS THAN TWICE THE REMAINING CONCRETE WIDTH ACROSS ANY HORIZONTAL PLANE. {i.e. $(O_1+O_2+O_3) < 2(W_1+W_2+W_3+W_4)$}
3. OPENINGS MAY BE USED IN SIDE WALLS.
4. FOR 90? HOOK PROVIDE MINIMUM EMBEDMENT DEPTH (SEE A3.1) WHERE MINIMUM EMBEDMENT DEPTH CAN NOT BE MET, USE 180? HOOKED BARS.

1 / A6.0 REINF. LAYOUT @ OPNGS.
SCALE: 3/8" = 1'-0"



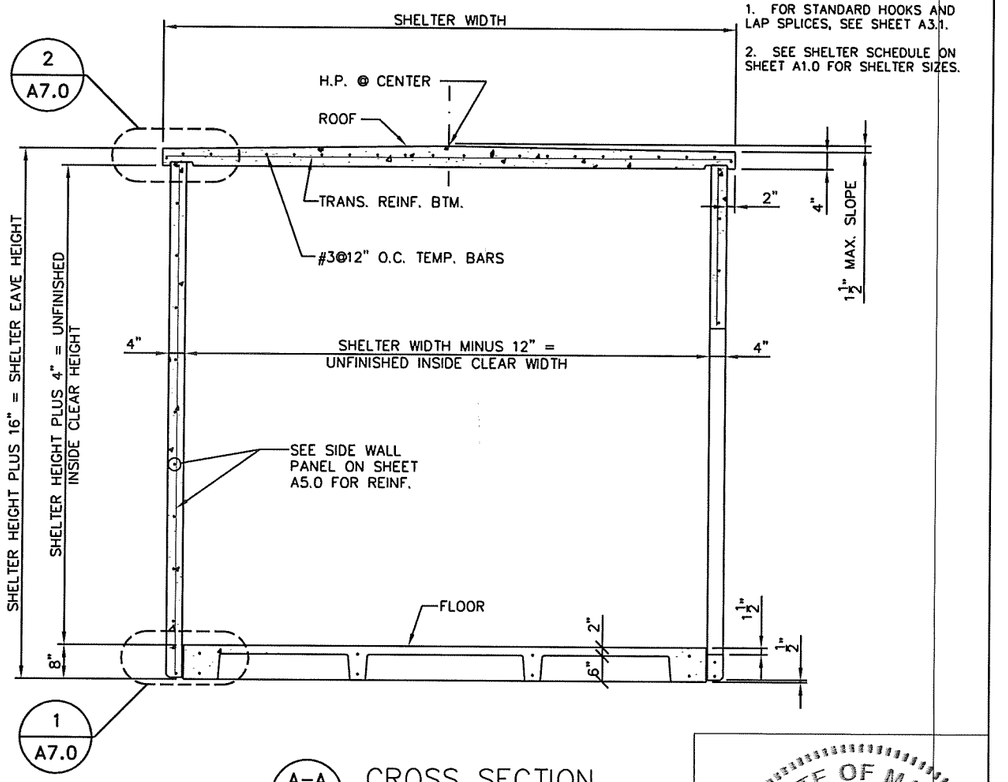
NOTE:

1. THE TOTAL WIDTH OF OPENINGS ALONG ANY HORIZONTAL PLANE SHALL NOT EXCEED THE TOTAL NET WIDTH OF CONCRETE.
2. DOUBLE DOOR CAN BE PUT IN 10'-0" AND 12'-0" WIDE END WALLS ONLY.
3. DOOR(S) MAY BE USED IN SIDE WALLS. SEE SIDE WALL PANEL ON SHEET A5.0.

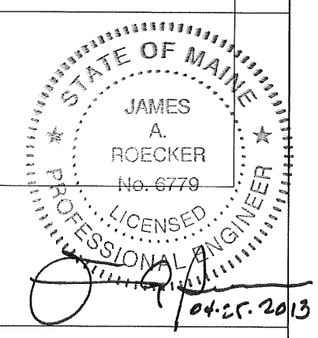
2 / A6.0 REINF. LAYOUT @ DOORS
SCALE: 3/8" = 1'-0"

NOTES:

1. FOR STANDARD HOOKS AND LAP SPLICES, SEE SHEET A3.1.
2. SEE SHELTER SCHEDULE ON SHEET A1.0 FOR SHELTER SIZES.



A-A / A6.0 CROSS SECTION
SCALE: 1/2" = 1'-0"



JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL
61550-1740
docroecker@yahoo.com

No.	Revision Description	Date	By

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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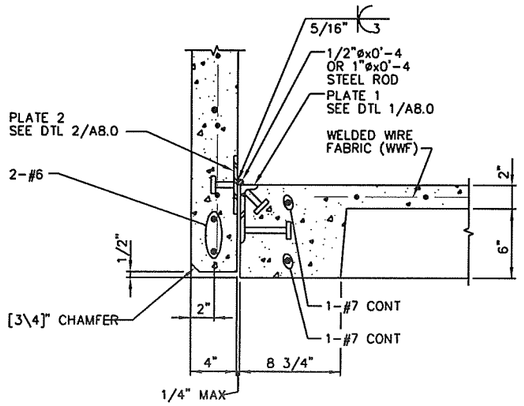
Title: STANDARD CONCRETE EQUIPMENT SHELTER

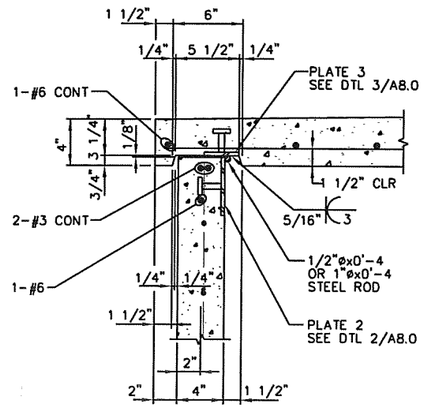
SHELTER SECTION & DETAILS

Scale		Unless otherwise specified, dimensions are given in inches. Tolerances	
Drawn by CLP	Date 03/30/12	Decimals +/-	Fractions +/-	Angles +/-
Checked by LAM	Date 03/30/12	Materials	Finish	Weight
Approved by Engineering	Date	This drawing is the property of Modular Connections, LLC. It is not to be reproduced, copied or traced in whole or in part without our written consent.		
Approved by Production	Date	File Number		
Approved by Sales	Date	Drawing Number		A6.0

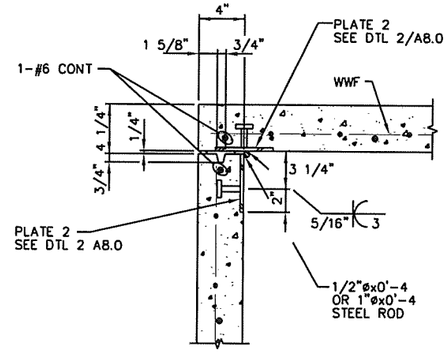
one quarter inch = one foot (0 4 8)
three eighths inch = one foot (0 4)
one half inch = one foot (0 4)
three quarters inch = one foot (0 2)
one and one half inch = one foot (0 1)



1 A7 SECTION @ FLOOR TO SIDE WALL CONNECTION
SCALE: 1 1/2" = 1'-0"



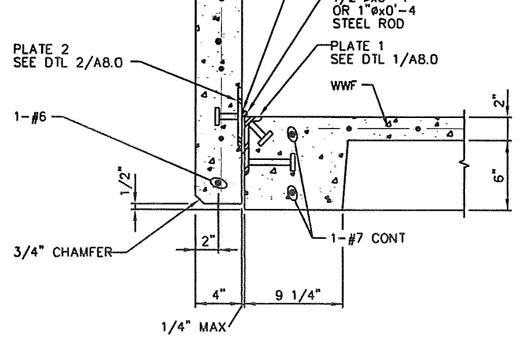
2 A7 SECTION @ ROOF TO SIDE WALL CONNECTION
SCALE: 1 1/2" = 1'-0"



3 A7 SECTION @ CORNER CONNECTION
SCALE: 1 1/2" = 1'-0"

NOTES:

1. FOR STANDARD HOOKS AND LAP SPLICES, SEE SHEET A3.1.



4 A7 SECTION @ FLOOR TO END WALL CONNECTION
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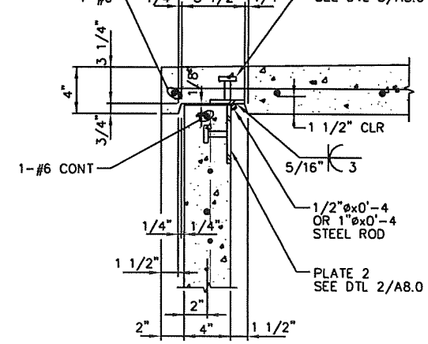
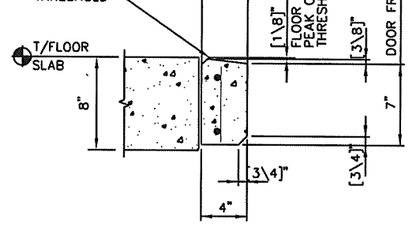
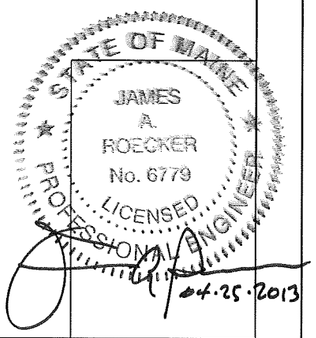


5 A7 SECTION @ ROOF TO END WALL CONNECTION
SCALE: 1 1/2" = 1'-0"



6 A7 DOOR FRAME DETAIL
SCALE: 1 1/2" = 1'-0"



No.	Revision Description	Date	By
1	UPDATED DETAILS 2/A7.0 AND 5/A7.0	9/24/04	RAB

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fax 877-675-5851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER

MISC. DETAILS

Scale: Unless otherwise specified, dimensions are given in inches. Tolerances: Decimals +/-, Fractions +/-, Angles +/-

Drawn by	Date	Materials	Finish / Weight
GJB	07/07/04		
Checked by	Date		
RAB	07/07/04		
Approved by Engineering	Date		
Approved by Production	Date	File Number	
Approved by Sales	Date	Drawing Number	A7.0

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JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

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three eighths inch = one foot (0, 4)
one half inch = one foot (0, 4)
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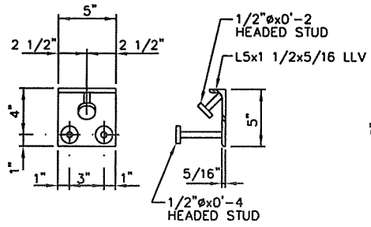
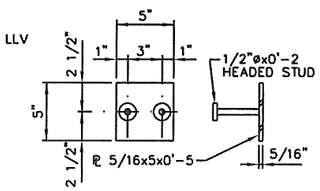
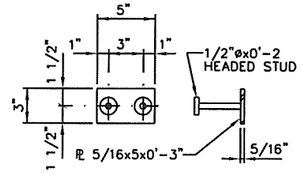
one and one half inch = one foot (0, 1)



1 A8.0 PLATE 1
SCALE: 1 1/2" =1'-0"



2 A8.0 PLATE 2
SCALE: 1 1/2" =1'-0"



3 A8.0 PLATE 3
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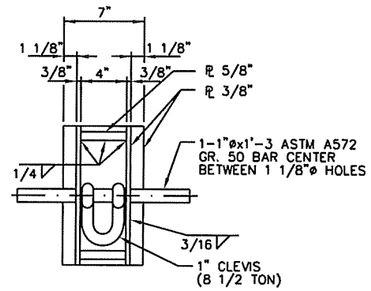
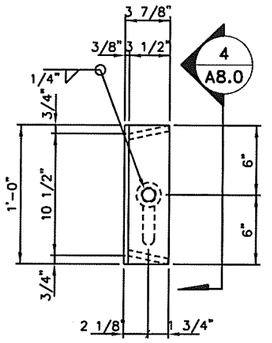
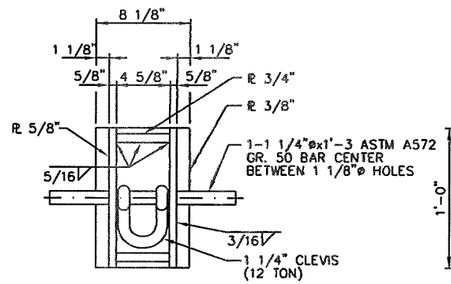


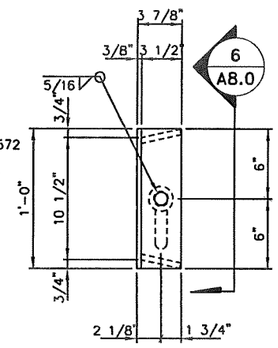
4 A8.0 8 1/2 TON LIFTING PLATE
SCALE: 1 1/2" =1'-0"



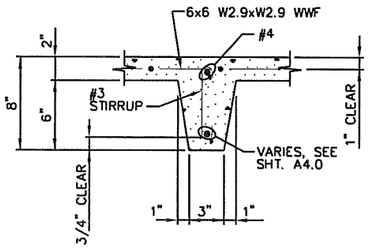
5 A8.0 8 1/2 TON LIFTING PLATE
SCALE: 1 1/2" =1'-0"



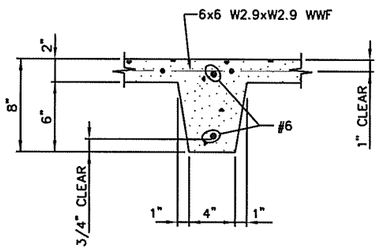
6 A8.0 12 TON LIFTING PLATE
SCALE: 1 1/2" =1'-0"



7 A8.0 12 TON LIFTING PLATE
SCALE: 1 1/2" =1'-0"



8 A8.0 3" RIB
SCALE: 1 1/2" =1'-0"



9 A8.0 4" RIB
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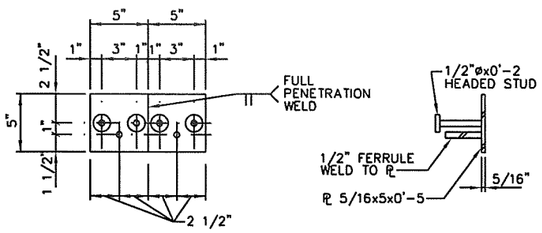

10 A8.0 PLATE 4
SCALE: 1 1/2" =1'-0"

NOTES:

1. FOR STANDARD HOOKS AND LAP SPLICES, SEE SHEET A3.1.

JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

STATE OF MAINE
JAMES A. ROECKER
No. 6779
LICENSED PROFESSIONAL ENGINEER
04.25.2013

No.	Revision Description	Date	By
1	UPDATED DETAILS 8/A8.0 AND 9/A8.0	9/24/04	RAB

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-3851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER
MISC. DETAILS

Scale

Unless otherwise specified, dimensions are given in inches. Tolerances
Decimals +/- | Fractions +/- | Angles +/-

Drawn by GJB Date 07/07/04
Checked by RAB Date 07/07/04
Approved by Engineering Date
Approved by Production Date
Approved by Sales Date
Materials | Finish | Weight

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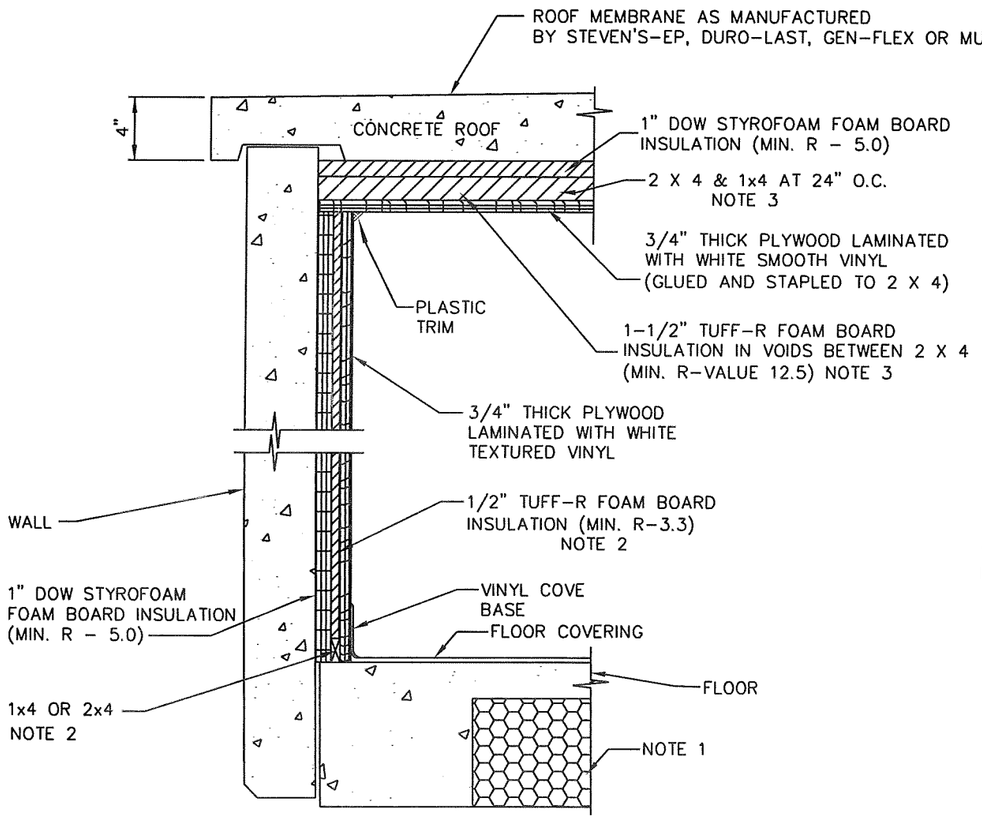
File Number
Drawing Number A8.0

one quarter inch = one foot (0 4 8)
three eighths inch = one foot (0 4)
one half inch = one foot (0 4)
three quarters inch = one foot (0 2)
one and one half inch = one foot (0 1)

BUILDING WITHOUT INTERIOR WILL HAVE PAINTED WHITE WALLS AND CEILING



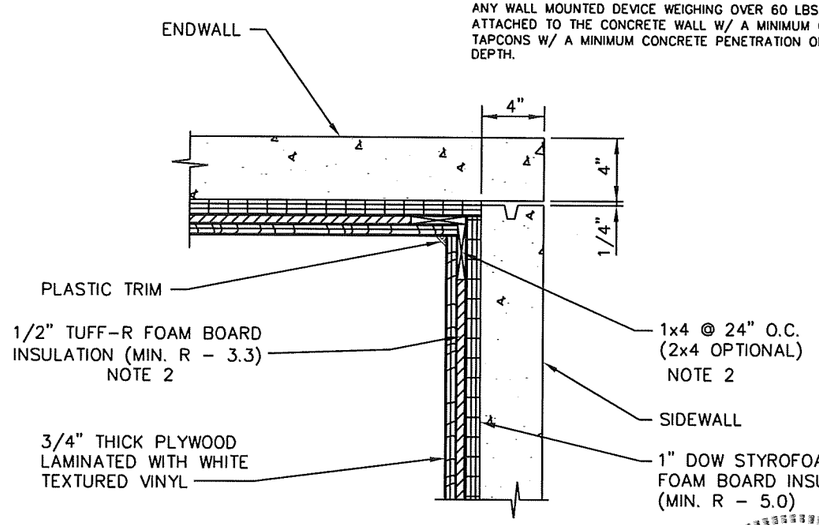
NOTE: ANY WOOD IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED UTILITY GRADE OR BETTER. WALL FURRING STRIPS SHALL BE UTILITY GRADE SPF OR BETTER.

1 / A9.0 WALL SECTION
SCALE: 1 1/2" = 1'-0"

INTERIOR FINISH FASTENER SCHEDULE		
LOCATION	MEMBER	FASTENING
CEILING	2x2 OR 2x4	0.120 OD x 2 1/4" HD GALV. NAILS @ 12" O.C.
WALL	1x4	0.120 OD x 2 1/4" HD GALV. NAILS @ 12" O.C.
	2x4 (OPTIONAL)	0.120 OD x 3 1/4" HD GALV. NAILS @ 12" O.C.
	PLYWOOD	CONSTRUCTION ADHESIVE TO MEET APA AFG-01 AND USE 16 GA. x 2" STAPLES @ 10" O.C. @ PERIMETER
FLOOR	1/8" VINYL	PER MANUFACTURER

NOTE:

ANY WALL MOUNTED DEVICE WEIGHING OVER 60 LBS. WILL BE ATTACHED TO THE CONCRETE WALL W/ A MINIMUM OF (4) 1/4" TAPCONS W/ A MINIMUM CONCRETE PENETRATION OF 1 3/4" IN DEPTH.



2 / A9.0 CORNER DETAIL
SCALE: 1 1/2" = 1'-0"

ADDITIONAL R-VALUES IN FLOOR, WALLS AND ROOF PROCEDURES:

1.) When insulating the floor cast in 6" thick Expanded Polystyrene board (R-3.85 per 1") the following average values for each width shelter: A.) 8' Wide Shelters use R-15.3 (U = 0.0654) B.) 10' Wide Shelter use R-16.5 (U = 0.0606) C.) 12' Wide Shelter use R-17 (U = 0.0588)

2.) When increasing the insulation value in the walls add additional 1x4 or 2x4 or replace the 1x4 with a 2x4 (depends on additional insulation value needed) and add 1/2" or 1-1/2" thick polyisocyanurate foam core (Dow Tuff-R) insulation to the cavity for additional cavity insulation needed.

3.) When increasing the insulation value in the roof add additional 1x4 or 2x4(depends on additional insulation value needed) and add 1/2" or 1-1/2" thick polyisocyanurate foam core (Dow Tuff-R) insulation to the cavity for additional cavity insulation needed.

4.) Standard Insulation Values: Floor R-(0.9) Walls R-(13.31) Roof R-(22.57)

JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

STATE OF MAINE
JAMES A. ROECKER
No. 6779
LICENSED PROFESSIONAL ENGINEER

04.05.2013

No.	Revision Description	Date	By
1	UPDATED FOR OPTIONAL INSUL VALUES	06/29/12	CLP

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title: STANDARD CONCRETE EQUIPMENT SHELTER
INTERIOR FINISHES & MISC. DETAILS

Scale		Unless otherwise specified, dimensions are given in inches. Tolerances	
		Decimals +/-	Fractions +/-
Drawn by GJB	Date 07/07/04	Materials	Finish
Checked by RAB	Date 07/07/04		
Approved by Engineering	Date		
Approved by Production	Date	File Number	
Approved by Sales	Date	Drawing Number	A9.0

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one and one half inch = one foot (0, 1)

GENERAL SPECIFICATIONS FOR STANDARD MODULAR CONNECTIONS, LLC
CONCRETE EQUIPMENT SHELTERS

1.0 Scope

THE SPECIFICATIONS CONTAINED HEREIN ENCOMPASS THE LABOR, EQUIPMENT AND MATERIALS FOR THE FABRICATION OF A TRANSPORTABLE, BULLET RESISTANT, VANDAL RESISTANT CONCRETE EQUIPMENT SHELTER.

THE SHELTER SHALL WITHSTAND 30/06 RIFLE FIRE AT 15' DISTANCE PER UL752 STANDARDS.

THE SHELTER SHALL BE DESIGNED FOR THE EXPLICIT USE OF HOUSING ELECTRONIC EQUIPMENT, FIBEROPTICS EQUIPMENT, MEASURING DEVICES AND OTHER RELATED COMPONENTS, WITHIN A CONTROLLED ATMOSPHERE REQUIRED FOR THE PROPER OPERATING CONDITIONS FOR THE EQUIPMENT.

2.0 GENERAL

2.1 SHELTER TYPE

THE SHELTER SHALL BE PRECAST, PREASSEMBLED CONCRETE.

2.2 SHELTER SIZE

WIDTH SHALL BE TO EDGE OF ROOF.
WIDTH SHALL BE 8'-4", 10'-4", OR 12'-0".
LENGTH SHALL BE TO OUTSIDE EDGE OF SHELTER WALLS.
LENGTH SHALL BE 8'-0" TO 36'-0" IN 2'-0" INCREMENTS.

HEIGHTS SHALL BE 8'-0", 9'-0", OR 9'-8" NOMINAL FROM FINISHED FLOOR TO FINISHED CEILING.

2.3 OPERATING ENVIRONMENT

THE SHELTER SHALL BE SEALED TO RESIST DUST INFILTRATION AND BE WATERTIGHT.

THE OPTIMUM OPERATING TEMPERATURE OF THE EQUIPMENT TO BE INSTALLED SHALL BE ASSUMED TO BE 78 DEGREES F (25.6 DEGREES C) UNLESS OTHERWISE SPECIFIED BY THE PURCHASER. THE HEATING AND COOLING REQUIREMENTS FOR A SHELTER SHALL BE BASED UPON THE OUTSIDE AMBIENT TEMPERATURE AND EQUIPMENT OPERATING HEAT OUTPUT SPECIFIED BY THE PURCHASER.

3.0 STRUCTURAL

STRUCTURAL DESIGN AND MANUFACTURING SHALL CONFORM TO REQUIREMENTS OF ACI 318.

3.1 FLOOR SECTION

FLOOR SECTION SHALL BE AN 8" WAFFLED STRUCTURAL PRECAST CONCRETE SECTION. RIBS SHALL BE 2'-0" O.C. TRANSVERSE AND 4'-0" O.C. LONGITUDINAL. ALL SURFACES SHALL BE SMOOTH.

THE INTERIOR SURFACE SHALL BE COVERED WITH 1/8"X12"X12" SQUARE VINYL FLOOR COVERING.

3.2 ROOF SECTION

ROOF SECTION SHALL BE CONCRETE WITH 1/4" PER FOOT DRAINAGE SLOPE.

CEILING PANEL SHALL BE 1 LAYER 1" DOW STYROFOAM INSULATION BOARD, 2 X 4 & 1 X 4 AT 24" O.C. & 1 LAYER 1-1/2" TUFF-R FOAM BOARD INSULATION & [3\4]" PLYWOOD LAMINATED WITH HIGH DENSITY POLYETHYLENE WITH PLASTIC JOINT OR CORNER TRIM SHALL BE INSTALLED AT ALL PANEL JOINTS.

ROOF SECTION SHALL PROVIDE A 2" OVERHANG ON ALL SIDES. THE ROOF WILL BE A HIP TYPE SLOPING IN 4 DIRECTIONS. IT SHALL BE A CAP AND FIT OVER THE WALLS LEAVING NO EXPOSED ROOF TO WALL JOINT.

3.3 WALL SECTIONS

WALL SECTION SHALL BE 4" SOLID CONCRETE WITH AN EXTERIOR EXPOSED AGGREGATE FINISH.

WALL INSULATION AND FINISH SHALL BE 1/2" CELOTEX THERMAX AND 1" DOW STYROFOAM FOAM BOARD INSULATION COVERED WITH 3/4" THICK WAFERBOARD (OR PLYWOOD) LAMINATED WITH WHITE TEXTURED FIBERGLASS REINFORCED PLASTIC. PLASTIC JOINT OR CORNER TRIM SHALL BE INSTALLED AT ALL PANEL JOINTS.

FLOOR/WALL INTERSECTION SHALL BE FINISHED WITH 4" VINYL BASEBOARD.

THE WALLS SHALL OVERHANG THE FLOOR A MINIMUM OF 7" FROM THE TOP FLOOR SURFACE. THERE SHALL BE NO EXPOSED WALL TO FLOOR JOINT.

4.0 THERMAL

4.1 INSULATION

STANDARD WALL INSULATION SHALL BE [1\2]" CELOTEX AND 1" DOW STYROFOAM FOAM BOARD INSULATION W/ [3\4]" THICK PLYWOOD LAMINATED WITH WHITE TEXTURED HIGH DENSITY POLYETHYLENE.

STANDARD CEILING INSULATION SHALL BE TOTAL 4" OF OWENS CORNING FOAMULAR 250 FOAM BOARD INSULATION AND [3\4]" VINYL COATED PLYWOOD.

5.0 SPECIFICATIONS

5.1 CONCRETE SPECIFICATIONS

CONCRETE COMPRESSIVE STRENGTH SHALL BE 4500 PSI AT 28 DAYS.

MIX DESIGN SHALL BE 114-118 LB./CU.FT. STRUCTURAL LIGHTWEIGHT CONCRETE USING EXPANDED SHALE OR EXPANDED CLAY AGGREGATE. MIX SHALL BE HOMOGENOUS. SEEDING OF AGGREGATES FOR EXPOSED AGGREGATE FINISH IS NOT ALLOWED.

MAXIMUM SLUMP SHALL BE 6".

5.2 MATERIALS SPECIFICATIONS

CEMENT USED IN CONCRETE SHALL BE STANDARD PORTLAND CEMENT CONFORMING TO THE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR PORTLAND CEMENT," ASTM DESIGNATION C150.

CONCRETE AGGREGATES SHALL CONFORM TO ONE OF THE FOLLOWING SPECIFICATIONS:

"SPECIFICATIONS FOR CONCRETE AGGREGATES," ASTM DESIGNATION: C33.

"SPECIFICATIONS FOR LIGHTWEIGHT AGGREGATES FOR STRUCTURAL CONCRETE," ASTM DESIGNATION C330.

"SPECIFICATIONS FOR STRUCTURAL STEEL" ASTM DESIGNATION A36.

WATER SHALL BE FREE FROM INJURIOUS QUANTITIES OF OIL, ALKALI, VEGETABLE MATTER AND SALT. NON-POTABLE WATER SHALL NOT BE USED IN MIXING CONCRETE.

REINFORCEMENT BARS SHALL BE DEFORMED STEEL BARS CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT," ASTM DESIGNATION: A615. (FY = 60 KSI)

ALL WELDING AND WELDED STUDS SHALL CONFORM TO THE REQUIREMENTS OF THE "STRUCTURAL WELDING CODE-STEEL" ANSI/AWS D1.1

ALL WELDING ELECTRODES SHALL BE E70XX. FOR SHIELDED METAL ARC WELDING (SMAW) USE LOW HYDROGEN ELECTRODES.

ALL WELDING WIRE SHALL BE 0.035 MIG WIRE FOR GAS METAL ARC WELDING (GMAW).

WELDED SMOOTH WIRE FABRIC SHALL BE STEEL WIRE FABRIC CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR WELDED STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT," ASTM DESIGNATION: A185.

ADMIXTURES TO BE USED IN THE CONCRETE SHALL BE SUBJECT TO PRIOR APPROVAL BY THE QUALITY CONTROL SUPERVISOR AND SHALL BE SHOWN CAPABLE OF MAINTAINING ESSENTIALLY THE SAME COMPOSITION AND PERFORMANCE THROUGHOUT THE WORK AS THE PRODUCT USED IN ESTABLISHING THE CONCRETE PROPORTIONS IN THE MIX DESIGN.

AIR-ENTRAINING ADMIXTURES SHALL CONFORM TO "SPECIFICATIONS FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE," ASTM DESIGNATION: C260.

WATER REDUCING ADMIXTURES, RETARDING ADMIXTURES, ACCELERATING ADMIXTURES, WATER REDUCING AND RETARDING ADMIXTURES, AND WATER REDUCING AND ACCELERATING ADMIXTURES SHALL CONFORM TO "SPECIFICATIONS FOR CHEMICAL ADMIXTURES FOR CONCRETE," ASTM DESIGNATION: C494.

6.0 SEALING

6.1 JOINTS

ALL JOINTS SHALL BE SEALED WITH A COMPRESSIBLE, RESILIENT SEALANT.

THERE SHALL BE NO EXPOSED ROOF TO WALL OR WALL TO FLOOR JOINTS.

6.2 EXTERIOR WALLS AND ROOF

EXTERIOR SURFACES OF WALLS AND ROOF SHALL BE SEALED WITH TWO COATS OF THOROGLAZE H SEALER, OR ACCEPTABLE EQUAL IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS, UNLESS OTHERWISE NOTED.

7.0 DOOR

7.1 FRAME

DOOR FRAME SHALL BE 18 GAUGE GALVANIZED STEEL, PRIMED, PAINTED, AND CAST INTO THE WALL PANEL.

7.2 GENERAL

DOOR SHALL VARY IN WIDTH FROM 3'-0" TO 6'-0" WIDE BY 7'-0" HIGH BY 1 3/4" 18 GAUGE GALVANIZED STEEL, INSULATED, PRIMED, PAINTED BROWN, AND INSTALLED FLUSH WITH DOOR CHECK, DOOR STOP, WEATHERSTRIPPING, MORTICE LOCKSET, AND STAINLESS STEEL BALL BEARING HINGES. BULLET RESISTANT DOOR CAN BE SUPPLIED AS AN OPTION.

8.0 DESIGN LOADING

SHELTER SHALL BE DESIGNED FOR THE FOLLOWING LOADING (ASSUMES WORST CASE BUILDING SIZE):

8.1 FLOOR

PER IBC UNIFORM DISTRIBUTED LOAD OF 150 LBS. PER SQ.FT., OR OPTIONAL AS PER CUSTOMER SPECIFICATIONS. HIGHER UNIFORM DISTIBUTED LOAD UP TO 300 LBS. PER SQ. FT. IS AVAILABLE.

8.2 ROOF

PER IBC ROOF SNOW LOAD SPECIFICATIONS OF 60 LBS. PER SQ. FT. WITH OPTIONAL 100 AND 150 LBS PER SQ. FT.

8.3 WIND

PER IBC WIND SPEED SPECIFICATIONS OF 150 MPH(3-SECOND GUST). OPTIONAL WIND SPEEDS ARE AVAILABLE.

8.4 EARTHQUAKE

IBC $S_s^v = 1.5$, $S_1^A = 0.6$ PERFORMANCE CATEGORY D (5 STORIES OR LESS)

9.0 ELECTRICAL SYSTEM

9.1 INSTALLATION AND WIRING

ELECTRICAL INSTALLATION AND WIRING SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND SHALL CONSIST OF THE FOLLOWING AS A MINIMUM: SURFACE MOUNTED EMT CONDUIT: GROUNDED DUPLEX OUTLETS, ONE EVERY 4' ON 3 WALLS: FLUORESCENT LIGHTS (TWO LAMP FIXTURES) WITH INSIDE SWITCH: 100 AMP 120/240 VAC MAIN: 20 POSITION BREAKER BOX WITH 12 SINGLE POLE 20 AMP BREAKERS. (NOTE: 230 VOLT, 50 CYCLE WITH INCANDESCENT LIGHTS AVAILABLE UPON REQUEST).

9.2 CONDUIT & BOX INTALLATION TOLERANCE ±2"

STATE OF MAINE
JAMES A. ROECKER
No. 6779
LICENSED PROFESSIONAL ENGINEER
1/04.25.2013

No.	Revision Description	Date	By
2	UPDATED SECTION 3.2	02/11/08	RAB

MODULAR CONNECTIONS, LLC
1090 Industrial Blvd.
Bessemer, AL 35022
Ph# 205-980-4565
Fx# 877-675-5851
Email: info@modularconnections.com

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Title

STANDARD CONCRETE EQUIPMENT SHELTER
GENERAL SPECIFICATIONS

Scale		Unless otherwise specified, dimensions are given in inches. Tolerances	
Drawn by GJB	Date 07/07/04	Decimals +/-	Fractions +/-
Checked by RAB	Date 07/07/04	Materials	Finish
Approved by Engineering	Date	Angles +/-	Weight
Approved by Production	Date	File Number	
Approved by Sales	Date	Drawing Number	A10.0

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JAR architecture / structures
Phone: 309.472.1507
416 N. NEBRASKA AVENUE
MORTON, IL 61550-1740
docroecker@yahoo.com

one quarter inch = one foot
0 4 8

three eighths inch = one foot
0 4

one half inch = one foot
0 4

three quarters inch = one foot
0 2

one and one half inch = one foot
0 1