

# 8'-0" x 14'-0" (ACTUAL SIZE) 814 GUARD BOOTH WITH HALF BATH

## Twin Modular Services Inc.

1001 Lower Landing Road Suit 607, Blackwood , NJ

DESIGN BASIS	
State/Jurisdiction	Illinois
Building Code	2012 International Building Code
Plumbing Code	2012 International Plumbing Code
Electrical Code	2011 National Electrical Code
Mechanical Code	2012 International Mechanical Code

LIFE SAFETY SUMMARY	
Construction type	VB
Sprinkler Increase, I <sub>S</sub>	1.00
Frontage Increase, I <sub>F</sub>	1.00
Allowable Area Per Story, A <sub>A</sub>	900 ft <sup>2</sup>
Allowable Height Above Grade	2 stories 40 ft

LEVEL	OCCUPANCY	AREA	OCCUPANT LOAD
1	B	112 ft <sup>2</sup>	1

STRUCTURAL DESIGN CRITERIA			
GRAVITY LOADS		SEISMIC (IBC)	
Floor Live	50 psf	Seismic Design Category	C
Floor Dead	10 psf	Site Class	D
Roof Live	20 psf	Importance Category	1.0
Roof Dead	10 psf	Occupancy Category	II
Exterior Wall Dead	5 psf	Mapped Accelerations	
SNOW		SS	0.32
Ground Snow Load, P <sub>g</sub>	25 psf	S1	0.08
Flat-Roof Snow, P <sub>f</sub>	20 psf	Spectral Response	
Importance Factor I <sub>s</sub>	1.00	SDS	0.32
Exposure Factor, C <sub>e</sub>	1.0	SD1	0.12
Thermal Factor, C <sub>t</sub>	1.1	Seismic Force Resisting System	
WIND		A13	
Wind Speed Vult	115 mph	Design Base Shear	0.05W
Wind Speed Vasd	90 mph	Response Modification Factor	6.5
Exposure Category	C	Analysis Procedure	
Risk Category	II	ASCE 7-10	
Internal Pressure, GC <sub>pi</sub>	+/- .18	FLOOD	
Base Wind Pressure, P	26.6 psf	Building shall not be located, in whole or in part, in a flood hazard area as established by the authority having jurisdiction unless set on a foundation designed in accordance with ASCE/SEI 25. The flood resistant foundation shall be designed by a registered design professional and constructed to resist all flood loads without transferring loads to the modular structure.	
Mean Roof Height	15 ft		
Building shall not be placed on the upper half of a hill or escarpment exceeding 15 feet in height.			

COMPONENTS AND CLADDING WIND LOADS		
Component	End Zone (psf)	Interior Zone (psf)
Windows & Siding	+17.7/-23.7	+17.7/-19.2
Doors	+15/-18.4	+15/-16.5
Roof Cladding	+10/-44.6	+10/-17.7
Roof Overhangs	-41.9	-25.5

DRAWING INDEX	
1.	Cover Sheet
1.1	General Notes
1.2	Specifications
2.	Elevations
3.	Floor Plan
3.1	Strapping Details
3.2	Strapping Details
4.	Electrical Plan
5.	Plumbing Schematic
6.	Cross Section
7.	Blocking Plan

THIS PLAN MAY BE REVERSED OR MIRRORED.

#### ACCESSIBILITY EXCEPTIONS

1103.2.7 Raised areas. Raised areas used primarily for purposes of security, life safety, or fire safety including but not limited to, observation galleries, prison guard towers, fire towers or life guard stands are not required to be accessible or to be served by an accessible route.

1103.2.10 Single occupant structures. Single occupant structures accessed only by passageways below grade or elevated above ground including but not limited to, toll booths that are accessed by underground tunnels are not required to be accessible.

Note: Single occupant guard structures will be placed on an elevated entrance island to the park that does not have an accessible route.

#### SPECIAL LIMITATIONS

Adequate handicapped restroom facilities to handle this additional occupant load created by the addition of this building to a site shall be provided in an adjacent building on the same property. The local official having jurisdiction shall verify the existing facilities.

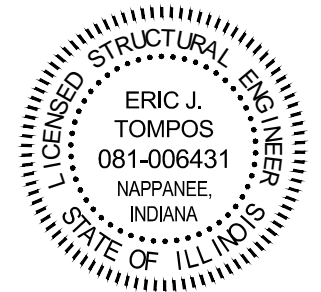
#### ATTENTION LOCAL BUILDING OFFICIAL

All work to be completed on-site is to be in compliance with all state and local codes and is subject to review, approval, and inspection by the local authority having jurisdiction. This building is designed for installation on a permanent foundation and is not intended to be moved once installed. All on-site work shall be performed by a licensed contractor with experience in the setup of modular buildings. The following list is not all inclusive, nor does it limit the items of work or materials that may be required for complete installation.

- Complete foundation support and anchorage system.
- Ramps, stairs and general access to building.
- Electrical service connection (including feeders) to the building.

#### NOTICE

These drawings are applicable only to the elements and loading criteria specifically provided herein. These drawings shall not be construed in any way to specify, certify or design any aspects of the building not contained herein. Elements not contained herein are to be constructed in accordance with the prescriptive requirements of the adopted building code or designed by other registered design professionals, as applicable. Specified design criteria are based solely on information provided by the client and must be verified and approved by the local authority having jurisdiction. NTA, Inc. is not responsible for fabrication or erection. If it is suspected that these drawings have been modified, substituted or altered in any way, contact NTA, Inc. directly to obtain a file copy.



NTA, Inc., 305 N Oakland Ave  
Nappanee, Indiana 46550  
Engineering COA No. 184005670

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REVISIONS:	SCALE: NTS	APPROVED BY:	<b>Twin Modular Services Inc.</b> Blackwood , NJ	TITLE: COVER SHEET	JOB NO: TMS032916-19
	DATE: 4/5/2016	DRAWN BY: R. Knowles		MODEL: 8 x 14 Guardhouse	DRAWING NO: 1

**WOOD FRAMING**

- Structural sawn lumber shall be identified by a grade mark in accordance with DOC PS 20.
- Approved end-jointed lumber may be use interchangeably with solid-sawn member of the same species and grade except in fire rated assemblies.
- Structural sheathing shall be rated and labeled for compliance with DOC PS 1 or DOC PS 2.
- LVL members shall have the following minimum properties, E=2.0, F<sub>v</sub>=2800 psi, unless noted otherwise.
- All wood shall have a moisture content of 19% or less at the time of construction.
- Wood framing members, including wood sheathing, that rest on exterior foundation walls and are less than 8" from exposed earth each shall be naturally durable or preservative treated.
- Wood members shall be cut and joined so no gap larger than 1/8" exists between members.
- Wood in contact with concrete or masonry shall be naturally durable or preservative treated in accordance with AWPA use category UC4C and properly identified as preservative treated.
- Nails and staples shall conform to ASTM F1667. Nails with shank diameters of 0.099" but not larger than 0.142" shall have a minimum average bending yield strength, F<sub>by</sub> = 100 ksi.
- Fasteners shall be installed to avoid splitting of the wood members. If splitting occurs, the connection shall be made by alternate means or otherwise reinforced under the direction of the design engineer.
- Fasteners shall be driven so their head or crown is flush with the surface of the wood member or sheathing. Overdriven fasteners shall be replaced.
- Bolts shall conform to ASTM A307 meeting the requirements of ANSI/ASME B18.2.1 for full-body diameter bolts. Screws and lag screws shall conform to ANSI B18.2.1 and ANSI B18.6.1, respectively.
- Bolt holes shall be at least a minimum of 1/32" and no more than a maximum of 1/16" larger than the bolt diameter.
- Bolt nuts shall be finger-tight plus 1/3 to 1/2 turn with a hand wrench.
- Connection hardware shall be the brand and model specified. Alternate connectors shall be submitted to the design engineer for approval.
- Unless otherwise noted, connectors shall be installed with the maximum number and size of fasteners as required in the manufacturer's installation instructions.
- Prefabricated wood I-joist and structural composite lumber shall not be notched or drilled except where permitted by the manufacturer's recommendations.
- Plywood beams shall be detailed and fabricated in accordance with the latest edition of APA Plywood Design Specification Supplement 5 - Design & Fabrication of All-Plywood Beams.
- Douglas Fir, Hem Fir, or Southern Yellow Pine may be substituted for Spruce-Pine-Fir using an equal size and grade.

**CORROSION PROTECTION**

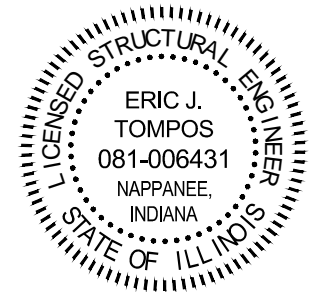
- Metal framing, connectors, fasteners, and flashing in contact with preservative treated or fire retardant treated wood members shall be hot-dipped zinc coated galvanized steel, stainless steel, silicon bronze, copper, or otherwise protected from the corrosive action of the wood member.
- A barrier between the treated members can be used when approved by the design engineer.
- Selection of the appropriate connector and fastener coating shall be based on the intended end use of the connector or fastener and the chemical preservative used in the the treatment of the member for which it is in contact.
- Where connection hardware is used, such as joint hangers, fasteners used shall be made of the same material as the connection hardware.
- Corrosion protection of metal connectors, fasteners, and flashing based on galvanized or stainless steel materials shall be in accordance with the table below.

Product Coatings	Hot Dipped Galvanized (ASTM A153)		Stainless Steel
	G90	G185	
Untreated Wood SBX/DOT CCA-C	Yes	Yes	Yes
ACQ-C & ACQ-B CBA-A & CA-B NON-DOT No Ammonia and Not Rated For Ground Contact	No	Yes	Yes
Unknown Preservative, Contains Ammonia, Rated For Ground Contact or ACZA	No	No	Yes

SBX = DOT Sodium Borate, CCA-C = Chromated Copper Arsenate, ACQ-C & ACQ-D = Alkaline Copper Quat, CBA-A & CA-B = Copper Azote, Non-DOT = Other Borate, ACZA = Ammoniacal Copper Zinc Arsenate

**COASTAL CORROSION PROTECTION**

- The corrosion protection requirements in this sections shall apply to all structures located within 3000' landward of the mean high-tide waterline for all metal components or connectors not contained within the pressure envelope of the structure.
- Fasteners or bolts less than 5/8" in diameter shall be Type 316L stainless steel. Fasteners or bolts 5/8" or larger shall be hot dip galvanized per ASTM A653 or ASTM A153 with a zinc coating thickness of 1.85 oz of zinc per square foot of surface area (G185).
- Connection hardware, such as pre-formed connectors, steel plates, or steel straps, exposed to weather and having a base metal thickness equal to or less than 1/8" shall be Type 303, 304, 305 or 316 stainless steel. Steel exposed to weather having a base metal thickness greater than 1/8" shall be hot dip galvanized per ASTM A653 or ASTM A153 with a zinc coating thickness of 1.85 oz of zinc per square foot of surface area (G185) or painted using one of the following formulations:
  - Epoxy-polyamide
  - Coal-tar epoxy-polyamide
  - Zinc chormate-vinyl butyral primer with asphaltic mastic
- Contact between dissimilar materials (stainless steel and carbon steel) shall be avoided.



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	DATE: 4/5/2016	DRAWN BY: R. Knowles

**Twin Modular Services Inc.**  
Blackwood, NJ

TITLE: COVER SHEET	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 1.1

**CHASSIS**

Type: Perimeter  
Main Beam: 6" C-Beam  
Cross Members: 6" C-Beam at 24" o.c.  
Paint: 2 Part Epoxy Marine Base - Black  
Misc: Steel Fork Slots  
Option: 6" C-Beam, 8.2lbs per foot

**FLOOR**

Insulation: Ridged Insulation R-19  
Moisture Barrier: Tyvek or Equal  
Decking: 3/4" Plywood, Sturdi-I-Floor 24" o.c. Secured Directly to Steel Frame  
Covering: 1/8" Vinyl Tile In Restroom - 1/8" Aluminum Tread Plate In Guard Area  
Trim: 4" Vinyl Cove Base

**EXTERIOR WALLS**

Studs: 2x4 Stud Grade SPF at 16" o.c.  
Bottom Plate: Single 2x4 #3 SPF  
Top Plate: Single 2x4 #3 SPF  
Wall Height: 8'-3"  
Finished Ceiling Height: 7'-9" AFF  
Insulation: R-20.3 R-Max ThermaSheaths 3" Type TSX8500  
Interior Wall Covering: 1/4" Vinyl Covered Panel (Class III)

**INTERIOR WALLS**

Studs: 2x4 Stud Grade SPF at 16" oc  
Bottom Plate: Single 2x4 #3 SPF  
Top Plate: Single 2x4 #3 SPF  
Wall Height: 8'-3"  
Finished Ceiling Height: 7'-9" AFF  
Interior Wall Covering: 1/4" Vinyl Covered Panel (Class III)

**INTERIOR DOOR**

Door: 36"x80" Hollow Core, Pre-Finished, Hinged

**ROOF**

Type: Rafter, 2"x10" #3 SPF at 16" o.c. Bow Type Roof 2% Slope (Vented)  
Ceiling: 2'x4' T-Grid (Class III) Drop Ceiling at 7'-9" AFF  
Insulation: R-31 Fiberglass Batts

**ELECTRICAL**

Main Distribution Panel: Interior Flush Mounted (Weatherproof), 100 Amp. 120/240 Volt Single Phase, 3 wire, 60 HZ with Ground, 12 Spaces 24 Circuits  
Raceway: Minimum #12/2 with Ground 90 Deg. C Type MC Copper  
Interior Lights: 2'x4' LED Lay-In 64 Watt Troffer Per Print  
2'x2' LED Lay-In 39 Watt Troffer Per Print  
Exterior Lights: Exterior LED Light 39 Watt Model - FSL2030L (Weatherproof) or Equal  
Switches: 120V 20 Amp Single Pole Per Print  
Receptacles: 120V 20 AMP Duplex Recept Per Print  
120V 20 AMP Duplex GFI Recept Per Print  
120V 20 AMP Duplex GFI, Weatherproof Recept Per Print

**PLUMBING**

Water Closet: Elongated Bowl, Open Front Seat  
Lav: Wall Hung with Wrist Blade Faucets  
Water Heater: Instantaneous, Under Sink 120 V.A.C. - Cronomite or Equal  
Supply: Type "L" Copper with Shutoff Valves at Each Fixture  
Waste: 3" Schedule 40 PVC  
Misc: Wall Hung Mirror  
Accessories: Toilet Paper Holder, Soap Dispenser Tough Guy Type #3FPN8, Push Operation Paper Towel Dispenser Georgia Pacific #54338

**HVAC**

Heating: 230/208V, 11,600 BTU Cool, 9,500 BTU Heat, Wall Mount A/C and Heat Combo Unit, Single Phase Frigidaire Model- FFTH12222 or Equal. Shipped Loose and Installed On-Site by Others  
Air Conditioning: See Heating  
Wall Heater: 2000 Watt 208/240 V Wall Heater With Fan And Digital Thermostat Per Print

**EXTERIOR WINDOWS AND DOORS**

Doors: 36x80 Steel, 22"x36" Window SG, Lever Hardware, Deadbolt and Lockset (Keyed Alike) and Closer type LCN4041EDA or equal  
Windows: (2) 36"x39" Vinyl Frame, Fixed, DIG Glazing, Thermal Insulated, Tempered  
Option: (1) 36"x39" Vinyl Frame, Sliding, DIG Glazing, Thermal Insulated, Tempered

**EXTERIOR FINISHES**

Siding: 0.19 Aluminum Light Gray  
Trim: 0.19 Aluminum Dark Gray  
Wall Sheathing: 7/16" OSB or CDX Plywood, 16/0 APA Span Index Rating  
Roof Sheathing: 1/2" CDX Plywood, 16/0 Span Rating  
Roof: 0.45 EPDM Rubber Roofing

**FURNITURE**

Counter Top: 2'-0" x 7'-4" Counter Top, Steel Counter With Under Storage Drawer, Steel 3 Draw File Cabinet Center Under Steel Counter



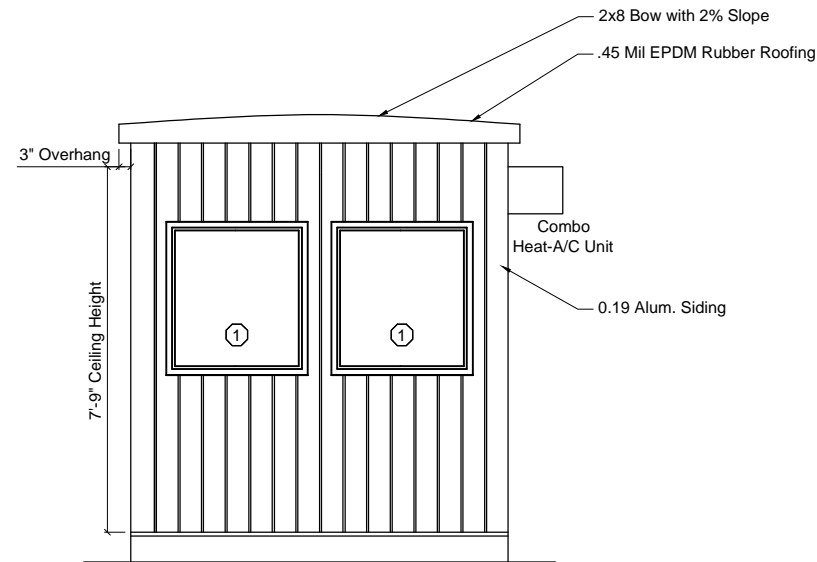
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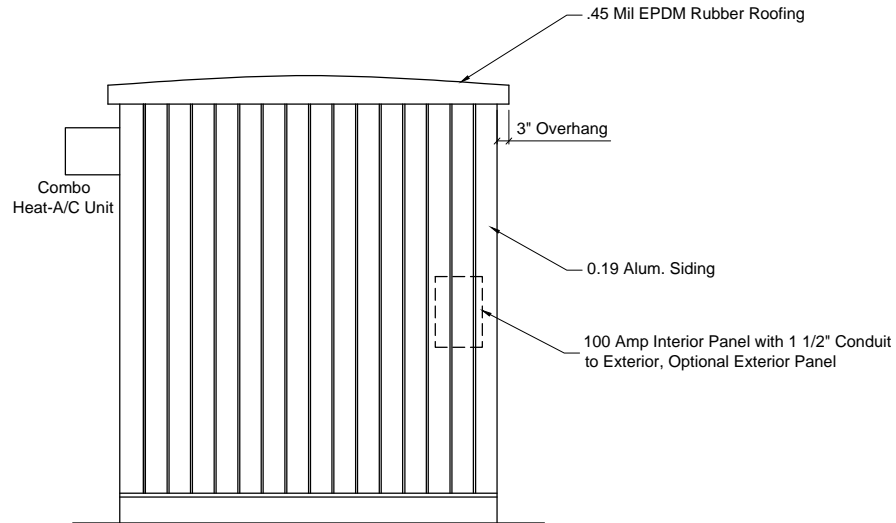
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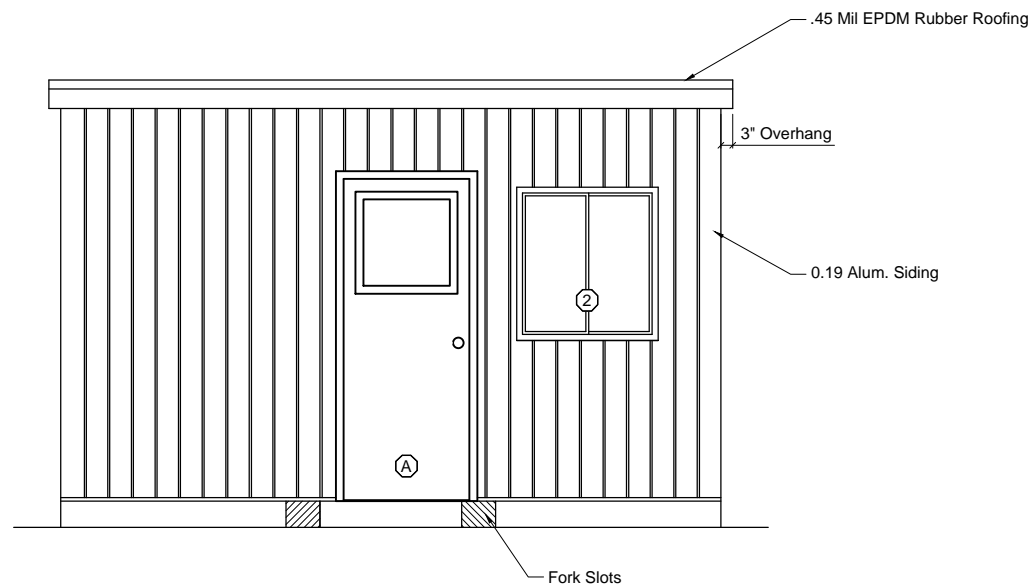
TITLE: SPECIFICATIONS	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 1.2



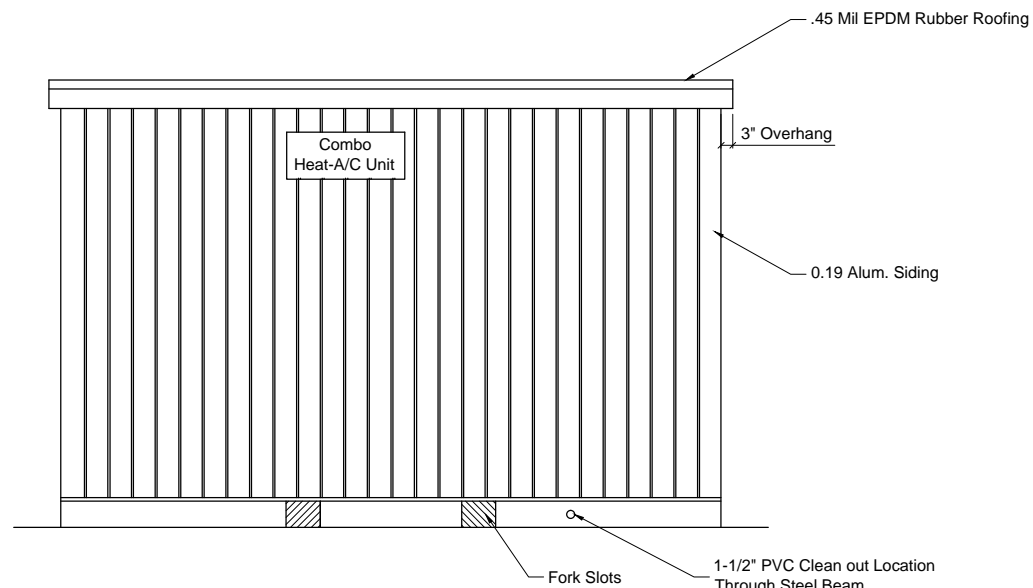
FRONT ELEVATION  
SCALE: 1/4" = 1'-0"



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



CURB SIDE ELEVATION  
SCALE: 1/4" = 1'-0"



ROAD SIDE ELEVATION  
SCALE: 1/4" = 1'-0"



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DOOR SCHEDULE	
Mark	Description
Ⓐ	36"x80" Steel, 22"x22" with SG Window
WINDOW SCHEDULE	
Mark	Description
①	36"x39" Vinyl Frame, Fixed, DIG Glazing, Thermal Insulated, Tempered
②	36"x39" Vinyl Frame, Sliding, DIG Glazing, Thermal Insulated, Tempered

**ATTIC VENTILATION**  
Vents shall be installed to provide a total net free ventilating area not less than 1/150 of the area of the space being ventilated. Vents shall be positioned to provide cross ventilation.

48 Area /150= 0.32 sq. ft. Ventilation Required

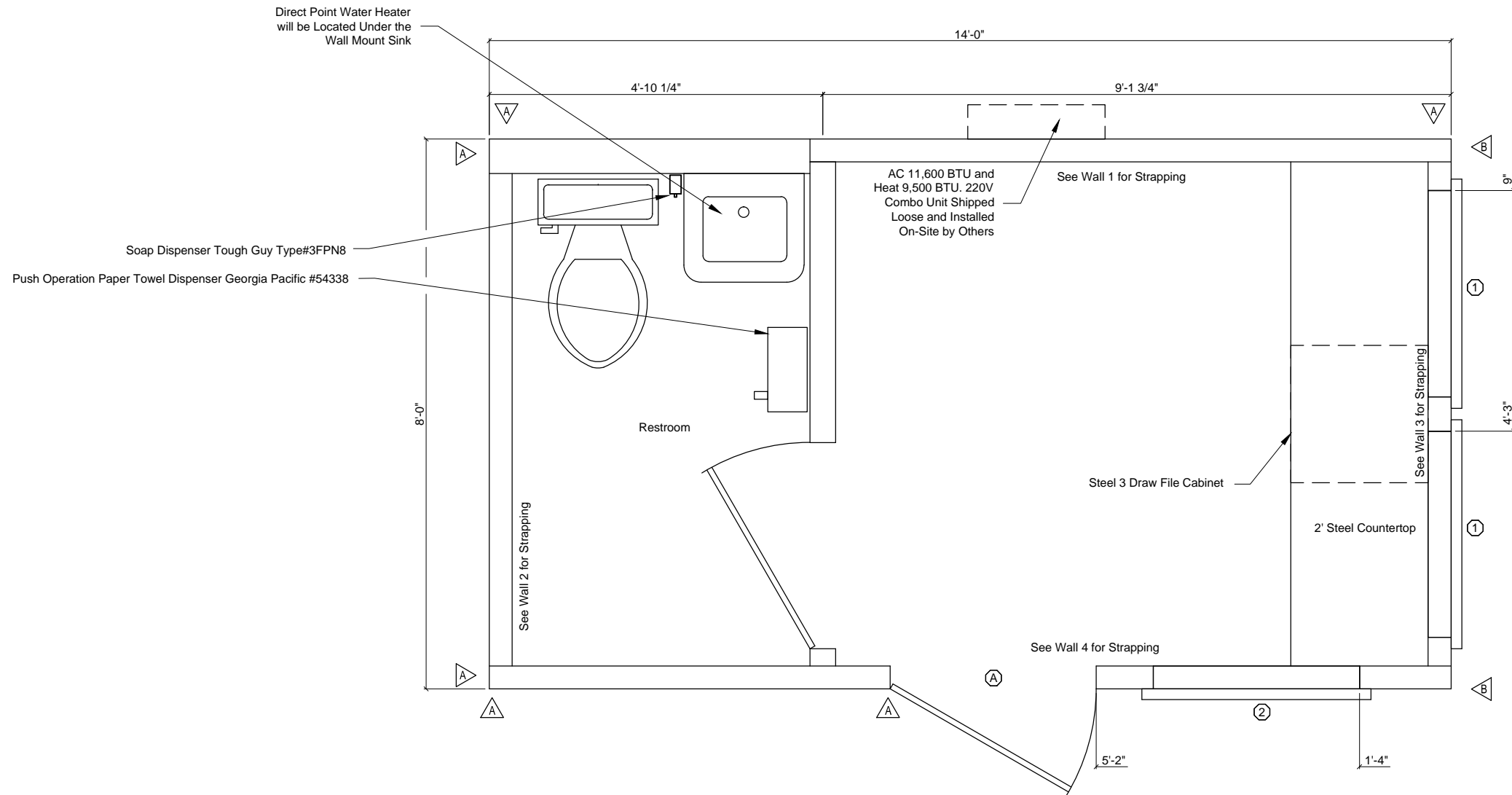
**SITE INSTALLED ITEMS**  
Steps, rails, and decks are to be designed by others and built on-site in accordance with local codes and subject to approval by the local authority having jurisdiction.

**HEIGHT ABOVE FINISHED GRADE**  
Height above finished grade shall be established by a site-specific foundation design or by the local authority having jurisdiction. In no case shall the bottom of the floor joists be closer than 18" to exposed ground.

REVISIONS:	SCALE: 1/2" = 1'-0"	APPROVED BY:
	DATE: 4/5/2016	DRAWN BY: R. Knowles

**Twin Modular Services Inc.**  
Blackwood, NJ

TITLE: ELEVATIONS	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 2



**GENERAL**

- All glazing within 24" arc of doors, whose bottom edge is less than 60" above the floor, and all glazing in door shall be safety glazed, tempered or acrylic plastic sheet.
- Minimum corridor width shall not be less than 36".
- Exterior windows and sliding doors shall be labeled as conforming to AAMA/WDMA/CSA101/I.S.2/A440.
- Windows in buildings located in windborne debris regions shall be protected in accordance with Section 301.2.1.2 of the residential code.

**SHEARWALL CONSTRUCTION**

- A holdown shall be provided at each "shearwall mark" location on the plan above. The wall between marks shall be constructed as specified in the table above.
- In corners, where two holdowns are required (one in each orthogonal direction) the lower capacity holdown may be omitted when the walls are interconnected to transfer the lower chord force to the larger anchor.
- Stagger all fasteners spaced 2" oc, or less, in multiple rows with the rows staggered not less than 1.5" apart.
- Truss(es) shall be placed over each interior shearwall and the truss(es) shall be sheathed in the same manner as the wall below.
- Alternate holdown of equal or greater capacity may be substituted for holdowns specified.
- Holddowns to be installed in accordance with manufacturer's installation instructions.
- Where holdowns are to be installed on-site, a clearly marked access panel shall be provided.

**DOOR SCHEDULE**

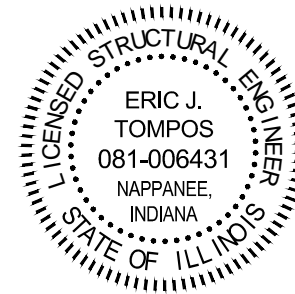
Mark	Description	Hardware	Header	Jack Studs	Jamb Studs
Ⓐ	36"x80" Steel, 22"x36" with SG Window	Lever	(1) 2x4 #2 SPF	1	1

**WINDOW SCHEDULE**

Mark	Description	Glazed Area	Vent Area	Header	Jack Studs	Jamb Studs
①	36"x39" Vinyl Frame, Fixed, DIG Glazing, Thermal Insulated, Tempered	9.75 ft <sup>2</sup>	4.87 ft <sup>2</sup>	(1) 2x4 #2 SPF	0	1
②	36"x39" Vinyl Frame, Sliding, DIG Glazing, Thermal Insulated, Tempered	9.75 ft <sup>2</sup>	4.87 ft <sup>2</sup>	(1) 2x4 #2 SPF	0	1

**SHEARWALL SCHEDULE**

Mark	Sheathing	Fastening	Framing
Ⓐ	7/16" Structural Sheathing, One Side, Blocked	0.113" x 2.5" nails 6/12 (edge/field)	2x4 SPF @ 16" oc
Ⓑ	7/16" Structural Sheathing, One Side, Blocked	0.113" x 2.5" nails 4/12 (edge/field)	2x4 SPF @ 16" oc



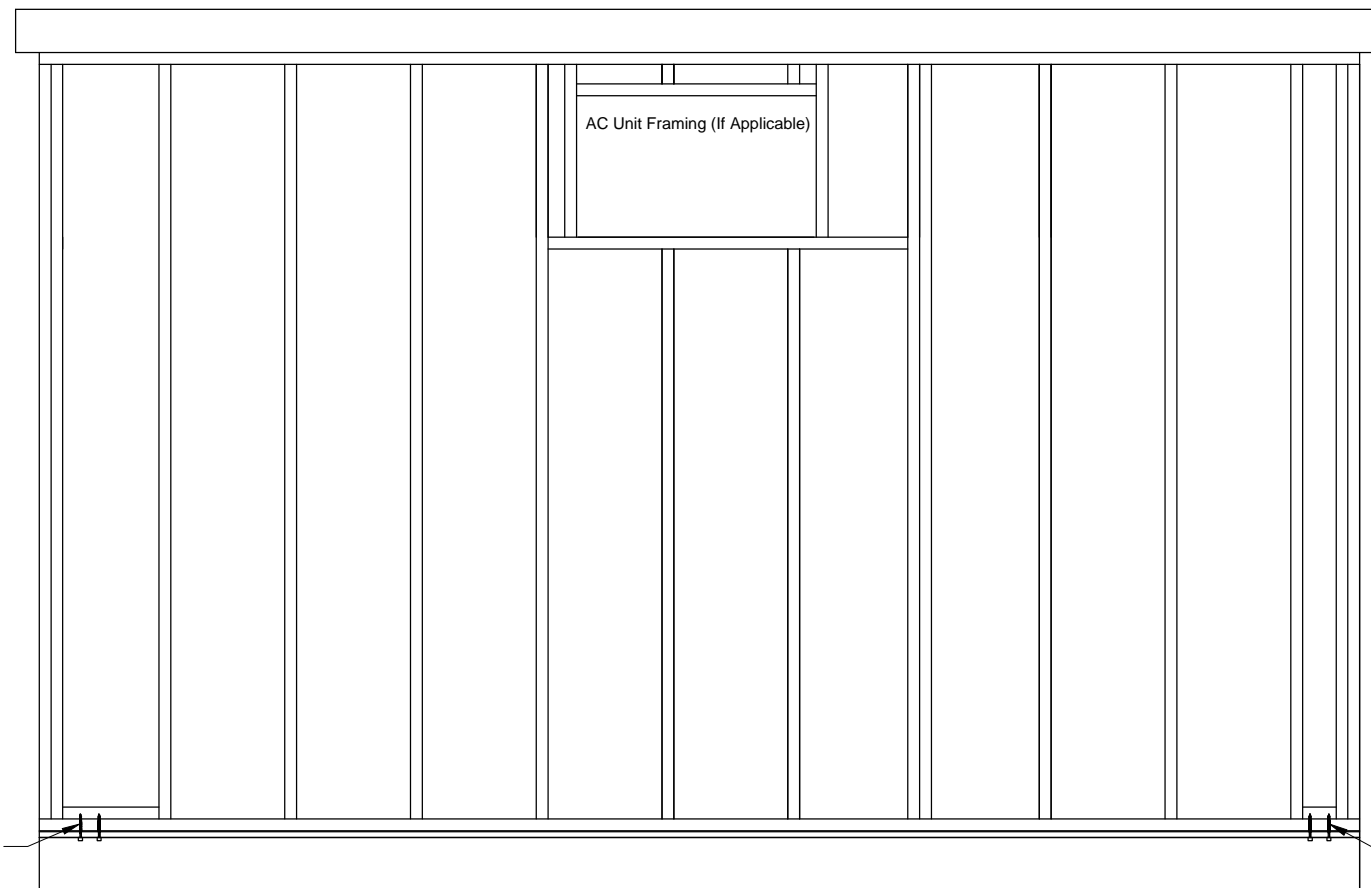
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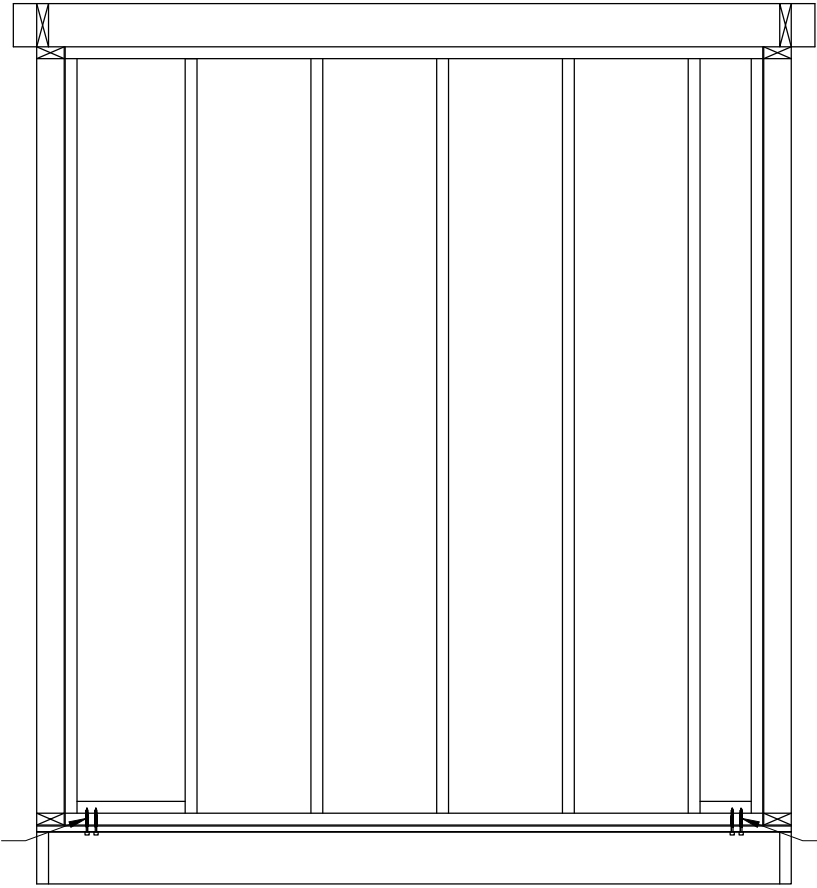
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Blackwood, NJ

TITLE: FLOOR PLAN A	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 3



Wall 1 Elevation



Wall 2 Elevation

Note:  
 1. Block between studs at all strap locations with 2x4 Stud Grade SPF lumber.  
 2. Fasten Sheathing to bottom plate and additional blocking at 4" o.c. entire perimeter.

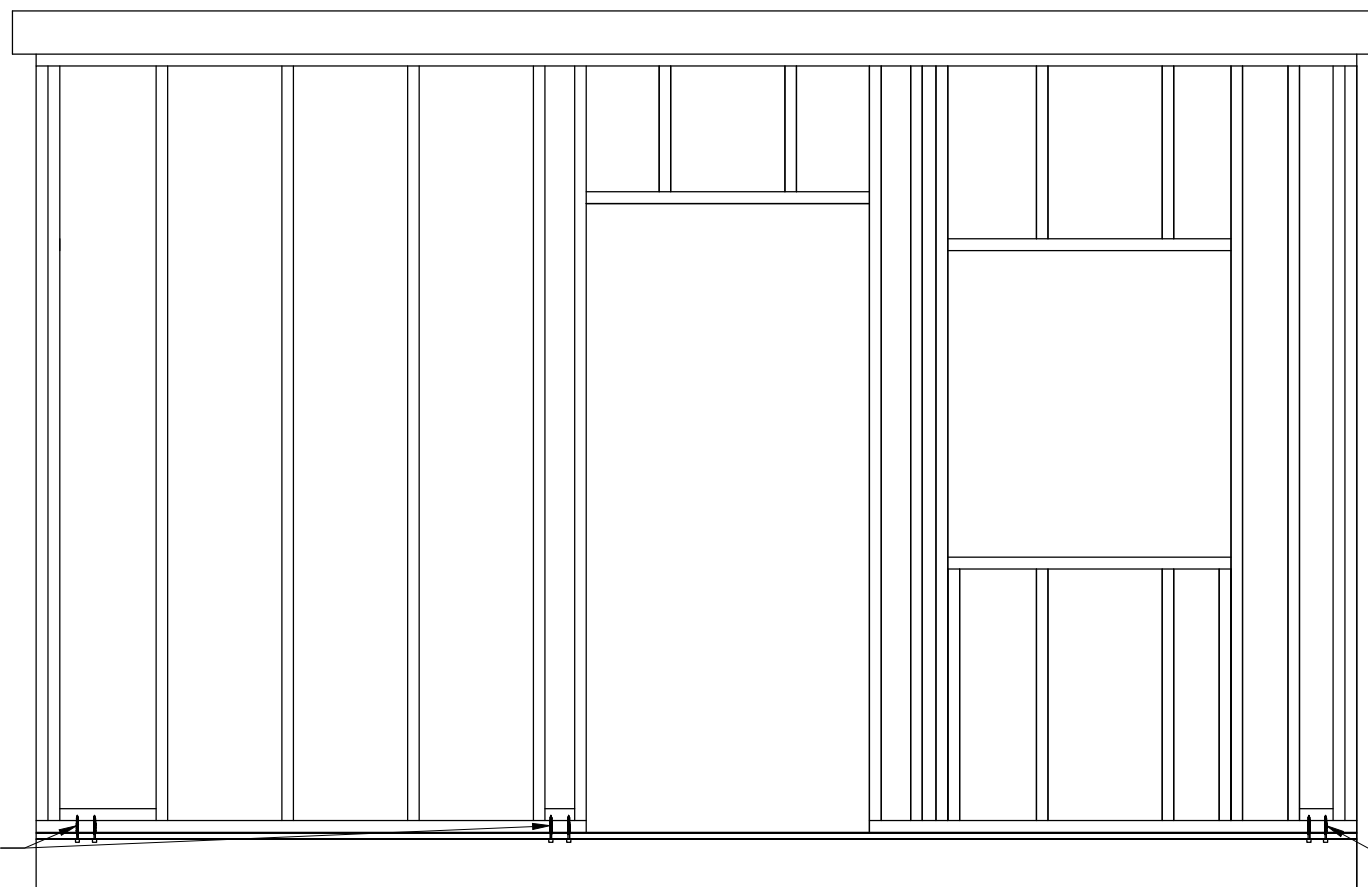


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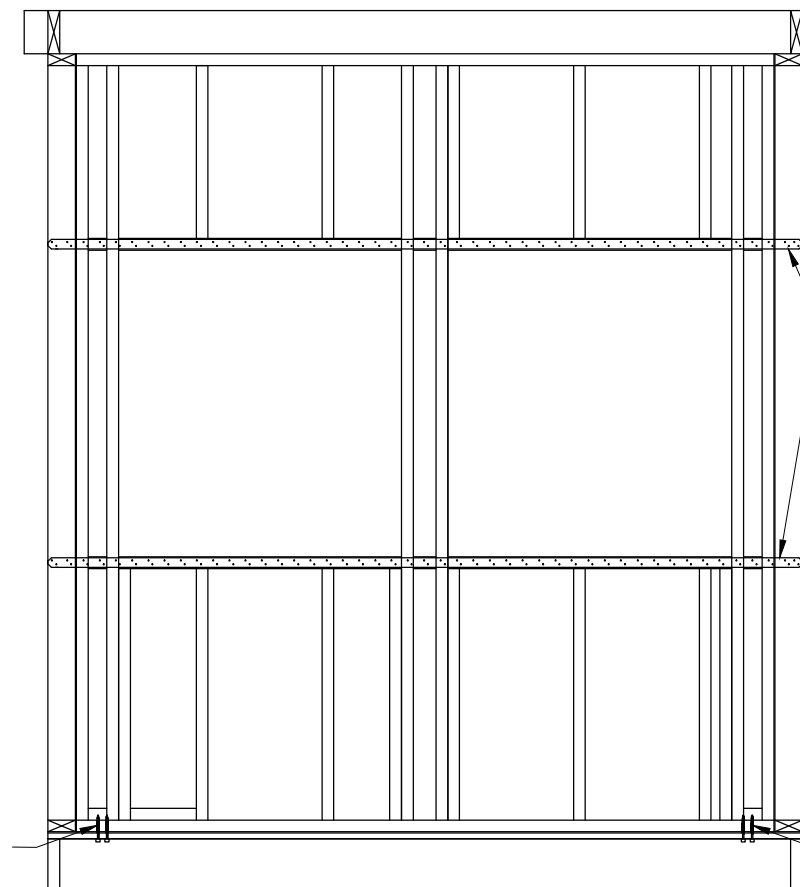
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 Blackwood , NJ

TITLE: STRAPPING DETAILS	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 3.1



Wall 4 Elevation



Wall 3 Elevation

CS22 Straps full width of wall with  
(7) 0.131"x2.5" nails in each  
header sill and blocking

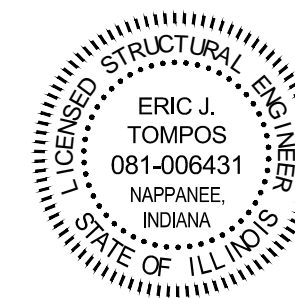
(2) 1/4" x 3" Torx Screws at Corner,  
Add Blocking Between Studs

(2) 1/4" x 3" Torx Screws at Corner,  
Add Blocking Between Studs

(2) 1/4" x 3" Torx Screw at Corner,  
Add Blocking Between Studs

(2) 1/4" x 3" Torx Screw at Corner,  
Add Blocking Between Studs

Note:  
1. Block between studs at all strap locations with 2x4 Stud Grade SPF lumber.  
2. Fasten Sheathing to bottom plate and additional blocking at 4" o.c. entire perimeter.



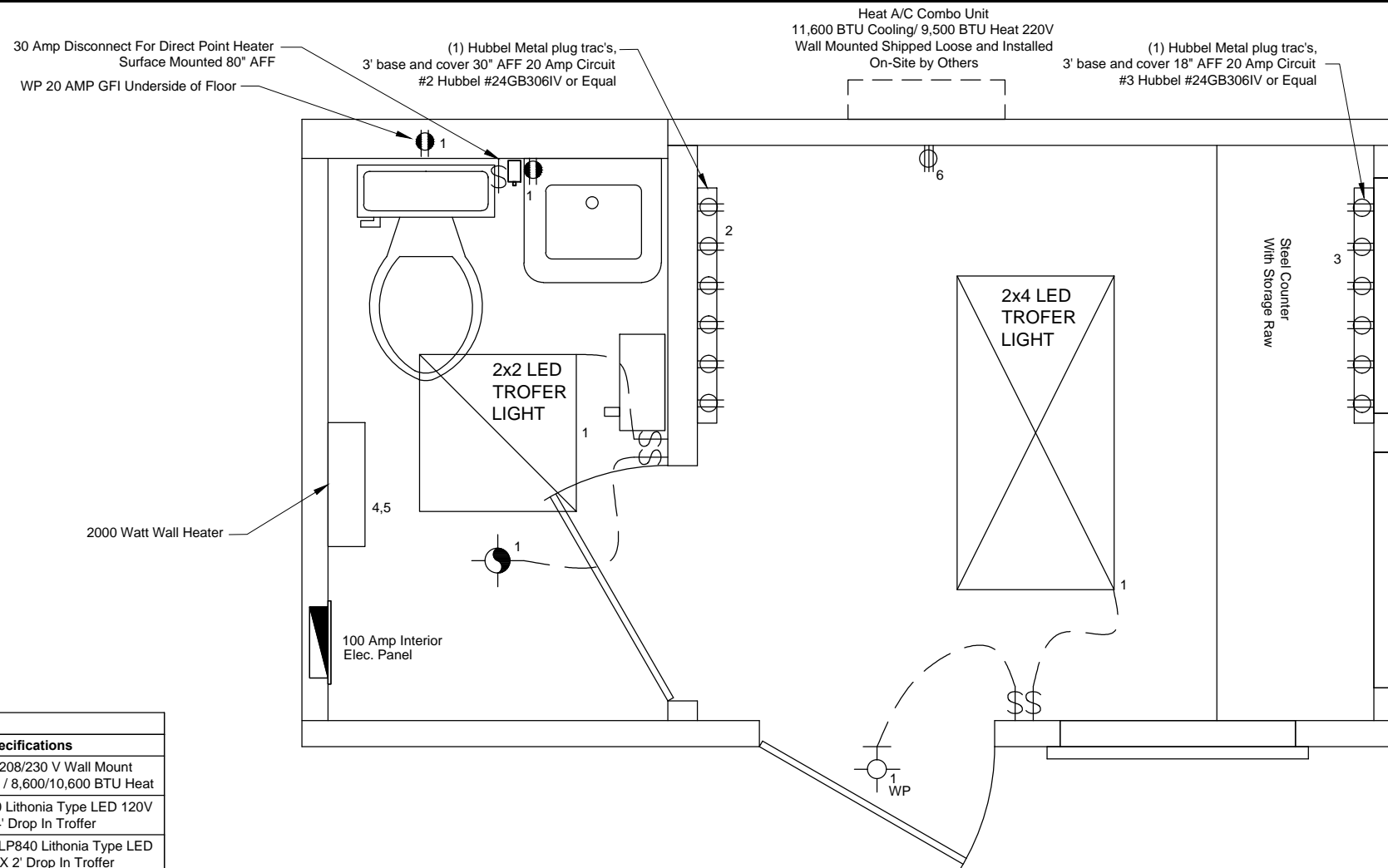
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REVISIONS:	SCALE: 1/2" = 1'-0"	APPROVED BY:
	DATE: 4/5/2016	DRAWN BY: R. Knowles

**Twin Modular Services Inc.**  
Blackwood , NJ

TITLE: STRAPPING DETAILS	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 3.2



**Electrical Specifications**

Product	Manufacturer	Model and Specifications
Heat A/C Combo Unit	Frigidaire	Model FFTH12222 208/230 V Wall Mount 11,600/12,000 BTU AC / 8,600/10,600 BTU Heat
Interior Drop in Light	Lithonia	Model #EVTR2X4BL40 Lithonia Type LED 120V 64 Watt 2' x 4' Drop In Troffer
Interior Drop in Light	Lithonia	Model #2GTL2A12120LP840 Lithonia Type LED 120V 39 Watt 2' X 2' Drop In Troffer
Exterior Lighting	Lithonia	Exterior LED Light 39 Watt Lithonia Type Model FSL2030L (Weatherproof) or Equal

Note: Products may be substituted for an equal or better model.

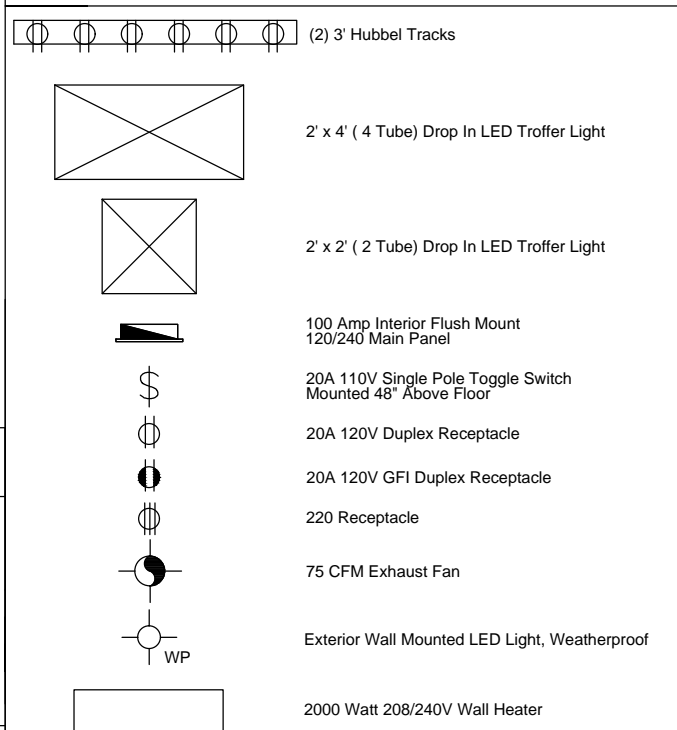
**100 Amp. ELECTRICAL PANEL SCHEDULE  
120/240-V, 3-Wire, Single Phase  
12 Space, 24 Circuit Minimum**

Circuit Number & Type	Wire Size & Quantity	Breaker		Description
		Trip	Pole	
1	12-2	20	1	Lights/ Recepts
2	12-2	20	1	Recepts
3	12-2	20	1	Recepts
4	12-2	20	2	Wall Heater
5				
6	12-2	20	2	A/C Heat Combo
7	10-2	30	1	Direct Point Water Heater

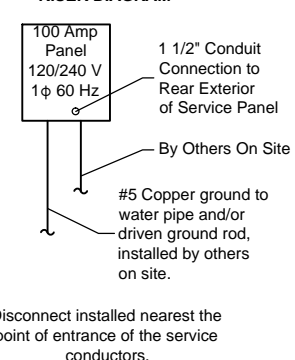
**DISTRIBUTION PANEL SIZING  
120/240-V, 3-Wire, Single Phase**

Receptacles (14x180)	2,520 W
Lighting (142w x 1.25%)	178 W
A/C- Heat Combo Unit	1,335 W
Wall Heater	2,000 W
Water Heater	4,600 W
<b>10,633 W / 240 V = 45A Service Rating</b>	

**ELECTRICAL LEGEND**

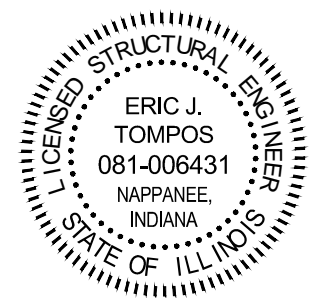


**100 AMP ELECTRICAL RISER DIAGRAM**



**ELECTRICAL**

- All Receptacles to be the grounding type.
- All Wiring to be per the edition of the NEC Listed on the Cover Page, Type MC CU with ground.
- Main panel to be marked "Suitable For Use As Service Equipment" and be equipped with breaker/ fuse type overcurrent protection.
- Proper thermal overload protection to be provided for all motors.
- Disconnecting means within sight required for all motors.
- Weather proof protection required for all outdoor lights, receptacles and disconnects.
- Proper working clearances shall be provided and maintained for all electrical equipment.
- All florescent fixture's required thermal protection and proper clearances from insulation, also applicable for incandescent fixture's.
- Combination exhaust fan/light and all recessed incandescent fixture's to be with thermal protection.
- Exit lights, if electric, must be fed from an approved emergency service connected ahead of, but not within main service disconnection means enclosure, and installed as per service requirements, or be battery backup type units.
- Service conductors located within the perimeter of the building, shall be installed in accordance with article 230-6, per the edition of the NEC on the cover page.
- Maximum 15 (2) tube florescent lights in 15A circuit, Maximum 10 receipts on 15A circuit, Maximum 7 (4) Tube florescent lights on a 15A circuit.
- Maximum 20 (2) tube florescent lights in 20A circuit, Maximum 13 receipts on 20A circuit, Maximum 10 (4) Tube florescent lights on a 120A circuit.
- All circuits and equipment shall be grounded in accordance with the appropriate articles of the National Electrical Code (NEC).
- HVAC equipment shall be provided with readily accessible disconnects adjacent to the equipment served. A unit switch with a marked "off" position that is a part of the HVAC equipment and disconnects all ungrounded conductors shall be permitted as the disconnecting means where other disconnecting means are also provided by a readily accessible circuit breaker.
- Prior to energizing the electrical system the interrupt rating of the main breaker must be designed by a local electrical consultant to verify compliance with NEC 110-9.
- The electrical feeders are designed by others, site installed and subject to review and approval by the authority having jurisdiction.
- Ceiling Luminary boxes shall be designed for the purpose and required to support a minimum of 50 lbs.



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REVISIONS:

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DATE: 4/5/2016

APPROVED BY:  
DRAWN BY: R. Knowles

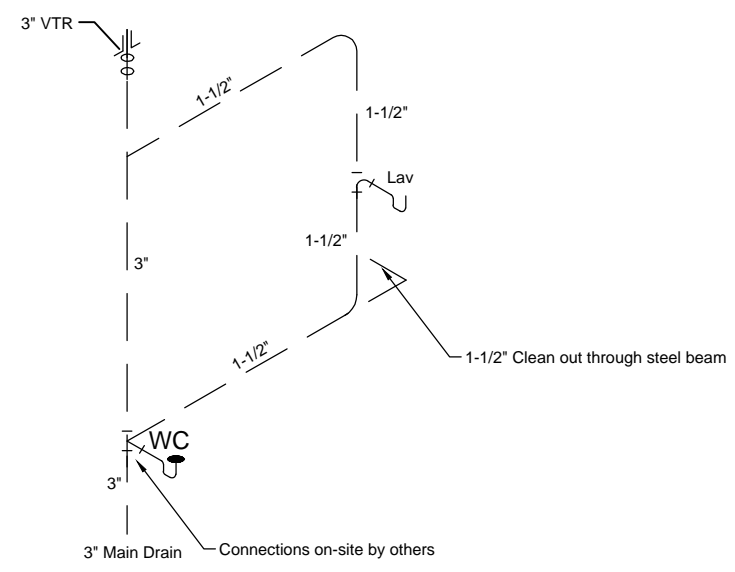
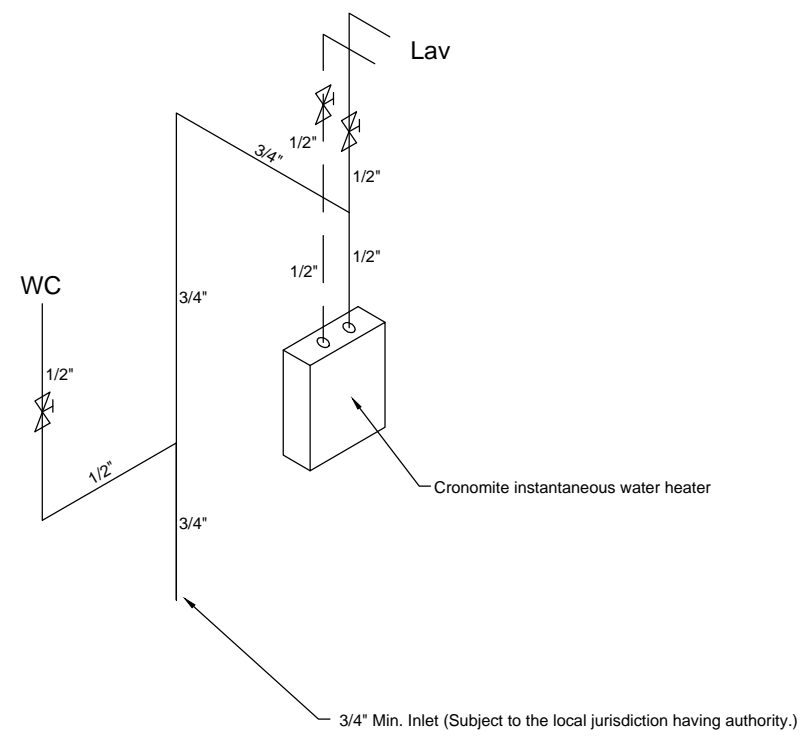
**Twin Modular Services Inc.**  
Blackwood, NJ

TITLE: ELECTRICAL PLAN A  
MODEL: 8 x 14 Guardhouse

JOB NO: TMS032916-19  
DRAWING NO: 4



DWV LEGEND	
	Drain/waste
	Vent
	Fixture Trap
	Clean Out
ABBREVIATIONS	
LP	Loop vent
AV	Auto vent (optional)
VTR	Vent through roof
WHA	Water hammer arrestor
WC	Water closet
LAV	Lavatory



- PLUMBING SYSTEM**
1. Plumbing fixtures shall have separate shut-off valves.
  2. Water heater shall have a safety pan with 3/4" minimum drain to exterior, T&P relief valve with drain to exterior, and a shut off valve within 3' on a cold water supply line.
  3. Water pipes installed in a wall exposed to the exterior shall be located on the heated side of the wall insulation. Water piping installed in an unconditioned attic shall be insulated with R6.5 insulation minimum.
  4. DWV system shall be either ABS or PVC
  5. Water supply lines shall be copper water lines only.
  6. Building drain and cleanouts are to be designed by others on site and subject to review and approval by the local authority having jurisdiction.
  7. Tub access provided under home unless otherwise noted.
  8. Shower stalls shall be covered with non-absorbent material to a height of 72" above the finish floor.
  9. A thermal expansion device shall be provided at the water heater if required by the manufacturer's installation instructions.
  10. A water hammer arrestor shall be installed where quick closing valves are utilized, unless otherwise approved. Water hammer arrestors shall be installed in accordance with manufacturer's installation instructions.
  11. Building must be connected to a public water supply and sewer system if available.
  12. Shower and tub/shower combination valves shall be equipped with control valves of the pressure-balance, thermostatic-mixing or combination pressure-balance/thermostatic-mixing valve types with a high limit stop in accordance with ASSE 1016 or CSA B125. High limit stop shall limit the maximum water temperature to 120° F.
  13. Bathtubs and whirlpool bathtubs hot water shall be limited to a maximum temperature of 120° F by a water temperature limiting device.



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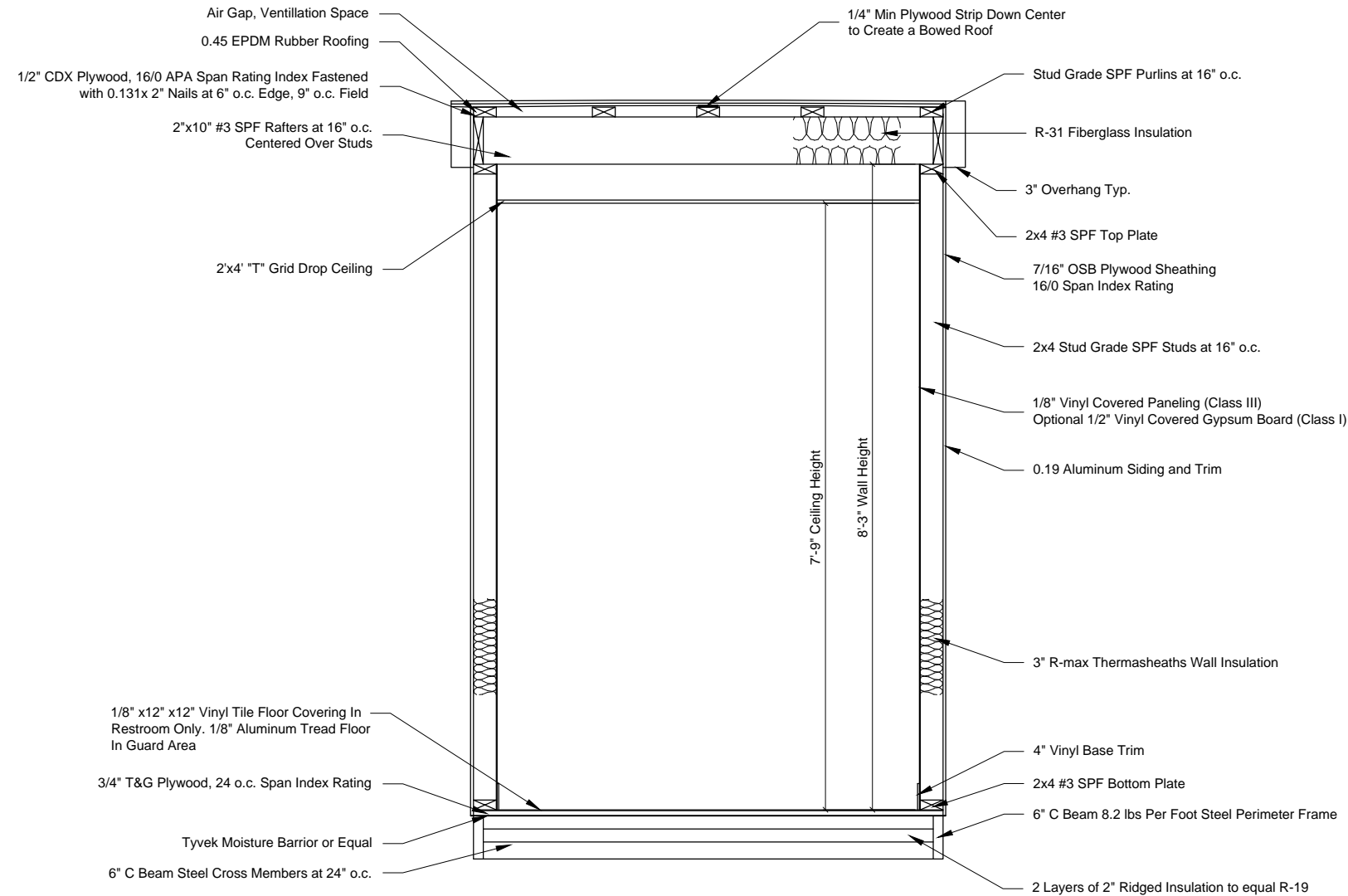
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WATER SUPPLY LEGEND	
	Cold water line
	Hot water line
	Shut off valve

REVISIONS:	SCALE: 1/2" = 1'-0"	APPROVED BY:
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**Twin Modular Services Inc.**  
Blackwood, NJ

TITLE: PLUMBING SCHEMATIC	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 5



**NOTES**

1. Fireblocking shall be installed at the floor and ceiling level. Fireblocking material shall be as permitted in NC Building Code. Exterior joints in the building envelope that are sources of air leakage, such as floor and ceiling lines, door and windows, or any other penetrations through the building envelope shall be caulked, gasketed, weather-stripped, wrapped or otherwise sealed to limit uncontrolled air movement. Stopping materials installed on-site are subject to local review, approval and inspection.
2. In all framed walls, floors and roof/ceiling comprising elements of the building thermal envelope, a vapor retarder shall be installed on the warm-in-winter side of the insulation with the following exceptions:
  - A. Where the framed cavity or space is ventilated to allow moisture to escape.
3. Where required, the vapor retarder shall be comprised of any material (kraft backing, polyethylene, spray applied) approved for such use and having a perm rating of 1 or less.



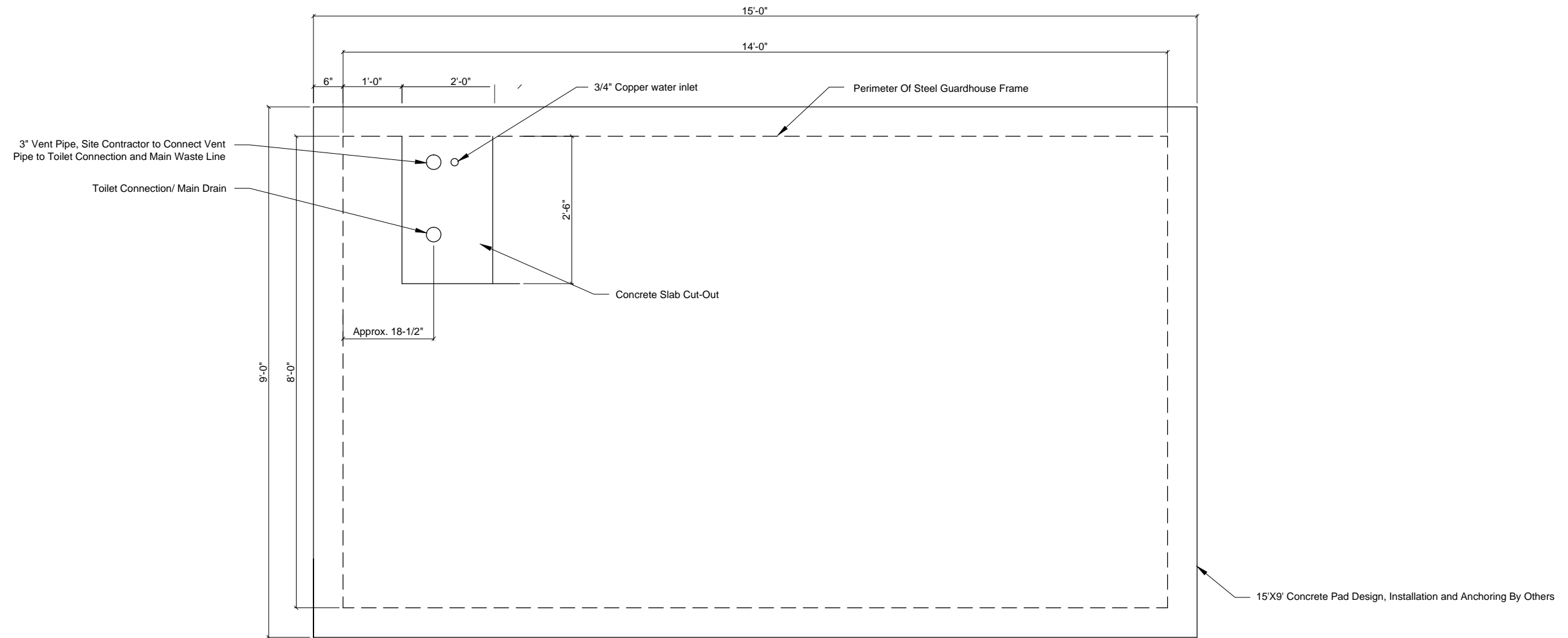
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**Twin Modular Services Inc.**  
Blackwood, NJ

TITLE: CROSS SECTION	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 6



Note: Secure to foundation at corners to resist 500 lbs overturning force.  
Fasten perimeter to foundation to resist 1015 lbs shear force at each wall.



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Notes:

1. Pier locations shown on this plan are for the purpose of identifying the location of the required blocking points and the loads applied at each point for this building. Foundation requirements are not known due to varying soil conditions.
2. Foundation Design by others. Foundation review and approval is to be performed by the local official having jurisdiction.
3. Provide positive drainage under unit.

THIS DRAWING IS NOT FOR CONSTRUCTION. This drawing is intended to show the minimum foundation loads and minimum foundation support locations and is not to be used for construction or certification of any foundation for any building. The foundation for this modular building shall be designed and sealed by a local engineer for the conditions present on-site in accordance with local codes. Additionally, the foundation designed by others shall be reviewed and approved by the local authority having jurisdiction.

**Twin Modular Services Inc.**  
Blackwood, NJ

REVISIONS:	SCALE: 1/2" = 1'-0"	APPROVED BY:
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TITLE: BLOCKING PLAN	JOB NO: TMS032916-19
MODEL: 8 x 14 Guardhouse	DRAWING NO: 7