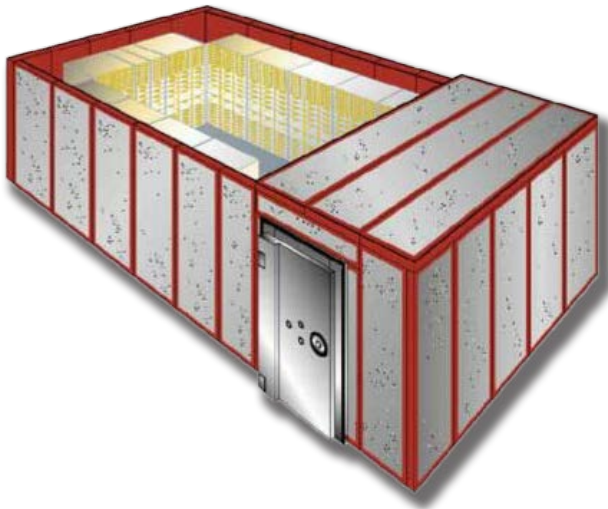

200 Series UL Listed Modular Vault Panel Installation Manual January 01, 2024



Model 222MVM, UL Class M
Model 222MV1, UL Class 1
Model 222MV2, UL Class 2
Model 222MV3, UL Class 3

CAUTION

EXTREMELY HEAVY

THIS PRODUCT SHOULD ONLY BE INSTALLED BY PROFESSIONALS
EXPERIENCED AND QUALIFIED IN THE INSTALLATION OF VAULTS

Manufacture Date:

Installed By / Date:

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Dwg 20220 Modular Vault Panels

Dwg 20221 Vent Port Panels

Dwg 20222 Utility Port Panels

DISCLAIMER

The material in this manual is for information purposes only. The contents and the product described are subject to change without notice. The manufacturer makes no representations or warranties with respect to this manual. This product was designed for certain applications only. It may not be modified and/or used for any applications other than that which it was designed. The design specifications of the product described herein is subject to change without notice. The manufacturer reserves the right to make such changes without incurring any obligation to make them in units previously sold. Differences between the units you have received, and the views contained herein are the result of design improvement and/or the addition of options as specified.

WARNINGS

CAUTION: If not properly installed and maintained, the use of this product presents the possibility of personal injury or property damage. Before use, all persons who will install or maintain this product should read this manual thoroughly. For safe, dependable performance, follow all instructions and recommendations contained herein.

1. INTRODUCTION

1.1 Product Overview

- This product is tested, manufactured, and inspected per UL standard UL608. This category covers panels for use in the construction of vault floors, walls and ceilings designed to offer protection against burglary attacks by cutting torches, fluxing rods, portable electric-powered tools, portable hydraulic tools, and common hand tools.
- It is manufactured using High Strength Fiber Reinforced Concrete (HSFRC), Reinforcing Rod (Rebar) and a mild steel pan. The concrete mix is cast into a five-sided, welded, steel pan with rebar.
- When installed the vault interior will be smooth steel with the exterior exposed concrete. It uses modular panels that are welded together at the job site.

1.2 Part Identification

(Refer to the vault installation drawing(s) included with shipment)

1.3 Specifications

(Refer to drawings 20220, 20221, and 20222)

A.V.C. Model	222MVM	222MV1	222MV2	222MV3
U.L. Classification	M	One	Two	Three
U.L. Attack Resistance	One-Quarter Hour	One-Half Hour	One Hour	Two Hours
Panel Thickness	2-1/2"	3"	5"	7"
Weight (Sq. Ft.)	36 lbs.	42 lbs.	70 lbs.	98 lbs.

2. INSTALLATION

2.1 Safety and Pre-Installation Procedures

- Only professionals experienced and qualified in the installation of Vaults and Vault Doors should install this product. Misuse, lack of supervision and inspection can contribute to serious accidents or death.
- Keep the work area clear of all trash and clutter.
- Because of the extreme and concentrated weight of components, installation can be dangerous. Special methods for installation have been devised. Be sure the appropriate procedures are followed.
- Know location of the nearest medical facility and “911” availability.
- Verify the condition of safety equipment and tools.
- When arriving at the job site introduce yourself to the General Contractor and/or job superintendent, and explain:
 - What equipment you will be installing?
 - What your schedule will be?
 - What will be required of the contractor and/or electrician?
- Check best route into building. Inform G.C. of weights involved. Inform G.C. of existing floor cracks or damage. If a basement or floor exists below the route of travel and/or under the vault area, the G.C. and all trades must be notified.
- Caution other persons in the building to avoid the area in which the vault is being installed. It is recommended to “cordon-off” the area.
- Moving vault panels into position often requires the use of rollers. Do not use rollers of excessive length or diameter and stand clear of the rollers when moving the equipment. Stop motion of the load prior to repositioning a roller. Do not use threaded rod, rebar, conduit, or lightweight pipe for rollers.
- Never stand under or directly in front of a load. Work from the side, allowing oneself plenty of room to move out of the way in case the load shifts.
- Never leave a standing panel unattended unless it is securely fastened or welded in place.
- It is the responsibility of the installer to anticipate and correct all hazardous conditions, including careless or thoughtless act of assistants or technicians who misguidedly try to “help”.
- When welding, use a fire watch and always have a fire extinguisher on hand.
- Vent fumes or smoke from the installation area.

2.2 Apparel

- Personal safety equipment required (but not limited to):
Hard Hat, Safety Glasses, Safety Shoes, Gloves, First Aid Kit.
- Wear a hard hat whenever working at an installation or construction site.
- Wear high top safety shoes with non-slip soles. Tools, bars, cribbing, rollers, etc., are frequently dropped and can cause injury.
- Safety glasses are a must.
- Leather faced gloves should be worn when handling cribbing, cables, chains or unfinished metals.

2. INSTALLATION (continued)

2.3 Site Requirements

- Foundation
 - Vault must be provided with a structurally sound foundation. The foundation must support the weight of the vault & door plus installation forces without cracking or settling out of level.
 - For foundation details it is recommended a local registered engineer be contacted.
 - Inspect proposed vault location prior to receiving vault panels. Verify that the general area is clear and accessible. Locate the position of the vault on the floor and mark the perimeters, per the installation drawings.
 - Verify that floor is smooth, level, of sound construction and uniform throughout.
- Job Site Conditions
 - Installer is responsible for ensuring that job site is free and clear of all debris that would prohibit proper and safe installation (example, construction materials, screws, nails, etc.). Inform G.C. if conditions at job site do not provide a safe working environment.
 - Verify any overhead duct work, piping, lighting, or other obstructions will clear the vault by a minimum of 12".
 - Verify that adequate shoring has been provided wherever required.

2.4 Site Preparation

- Mark the location of the vault using chalk line or similar method.
- Identify the highest point on the slab on which a panel must rest.
- If the difference between the highest and lowest points where a panel will rest is greater than 1/16 of an inch, it will be necessary to use shims to set all panels to the same height.

2.5 Recommended Tools

- Forklift - to remove and lift panels from truck, move to installation site and lift during installation
- Fork truck lifting hook (pictured)
- Swivel lift plate
- 6' Level
- Dollies
- Grinder
- Coil Bolt, 3/4" x 4" lg. (Dayton Superior B14 or equivalent)
- Welding Rods (6013-1/8") - If using M.I.G. recommended .035 mild steel with 200+ amps
- Duff Norton Jacks (or equivalent)
- Latex Caulking - for internal seams
- Misc Tools: Sledge Hammer, Pry Bars, Lever Dolly, Cribbing, Blocks, Rollers, Lifting Clamps, Chokers, Chains, etc...



2. INSTALLATION (continued)

2.6 Off-Loading and Temporary Storage of Vault Panels

- Verify that the staging area is sound, level, and dry construction.
- Account for all equipment. Check against the installation drawing(s) and/or the Bill of Lading.
- The panels should be stacked along with the other vault equipment.
- Once the truck has been completely off-loaded and all equipment is accounted for, cover the equipment with tarps.
- Panels should only be stacked to a maximum height of 6'-0".

2.7 Rigging and Lifting Procedures

(Refer to Figure 2-1)

2.8 Installation Instructions (Five Sided Vault)

Note: Required weld specifications are noted on the installation drawing(s) included with shipment.

Note: Vault panels are numbered to correspond to the item numbers on the installation drawing.

Note: All panels are to be installed with the concrete surface to the vault exterior.

- Floor Angle and Anchors
 - Anchor 2" angle to floor using 3/8" x 2-3/4" wedge anchors placed every 24". Start with the back wall and work forward to include side walls. Do not install angle for front wall until the side wall panels are in place and vault growth can be accounted for.
- Plan Shims
 - Wall panels should be shimmed any place where a corner does not contact the floor.
 - Shim the corner of each wall panel as needed.
 - The shim stacks can be shared between two adjacent panels.
 - Shims should be welded together and to panel to prevent shifting.
 - If a beam is required for roof panel support, and the wall panels that support the beam need to be shimmed, let the beam wall panels rest on the slab and shim between the top of the wall panel and the beam. Shim as much of the surface area as possible to evenly distribute the load. Based on 3" square shims, use: 3 shim stacks for Class M and Class 1; 6 shim stacks for Class 2; 9 shim stacks for Class 3.
- Start in Corner
 - Move the first back wall corner panel into position.
 - Shim the panel to the correct height if needed and weld to floor angle.
 - Brace the panel as needed and remove rigging.
(DO NOT remove rigging until panel is anchored and braced)
 - Move the first side wall panel into position creating a corner.
 - Weld the panel to the floor angle and then weld to the first panel.
 - Complete welding all connections so the two panels stand without support.

2. INSTALLATION (continued)

2.8 Installation Instructions (Five Sided Vault, continued)

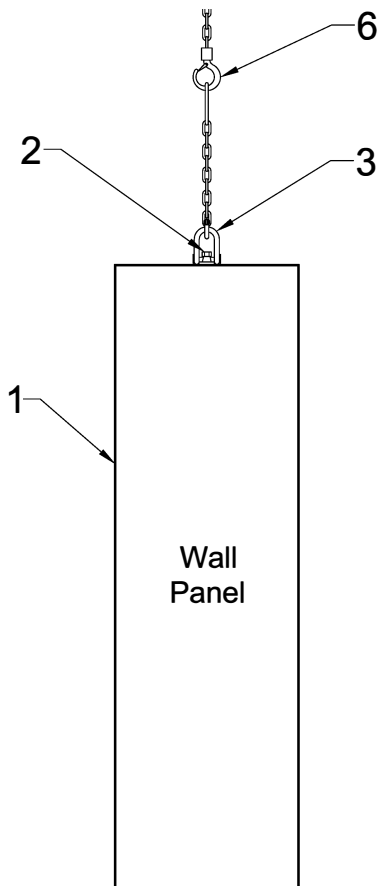
- Complete Back Wall
 - Finish installing the panels for the back wall, bracing as you go.
 - Weld all connections as you go, before installing the next panel.
 - Install a side wall panel at the other end of the back wall and weld in place.
 - Place first ceiling panel onto back wall and two corners.
 - Weld all connections before installing next set of wall & ceiling panels.
- Work Towards Front with Wall & Ceiling
 - Work towards the front of the vault by installing both left & right wall panels and welding them in place. Then install the next ceiling panel and weld in place before proceeding.
Note: If the vault uses a beam, continue installing and bracing wall panels until the beam panels can be placed. The beam can then be installed and welded in place. Roof panels can now be installed. Be sure to complete all welds after each panel is moved into place.
 - Weld all connections as you go, before installing the next panel.
 - Check length after each panel is welded to ensure growth is within guidelines.
 - Install floor angle for the front wall.
 - Place the corner panels for the front wall and weld in place.
 - Do not install the last ceiling panel until front wall is complete.
- Finish Front Wall Including Door Opening Vestibule
 - Place and weld front wall panels, working from each corner to the door opening.
 - Place and weld door opening vestibule panels.
 - Install header panel onto vestibule panels, shim if needed, weld in place.
 - Install the final ceiling panel and weld in place.
 - Complete welding all connections.
- Inspect, Grind, and Finish
 - Inspect welding to ensure all connections meet the required weld specifications, in every wall to wall joint, every wall to ceiling joint, and every wall to floor angle joint.
 - Inspect shim stacks for proper welds to panels.
 - Grind joints as required for applicable finish.
 - If a weld requires excessive grinding due to overfill, place another weld at six inches and take care not to overfill.
 - Caulk interior joints.

Figure 2-1 Lifting and Moving

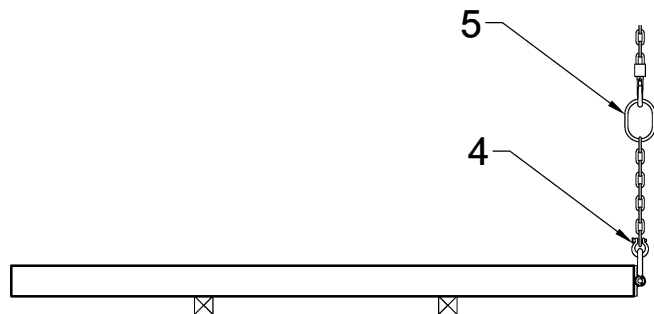
CAUTION: All rigging equipment, including chains, straps, hooks, fixtures, etc... should meet OSHA requirements and should be used in accordance with safe construction practices.

CAUTION: All bolted hardware should have full bearing on the panel surface and all attachment bolts shall bear fully on the hardware. Caution must be used so that the hardware is not subjected to a side loading that will cause additional or unintended loading.

CAUTION: When using coil bolts and inserts, the bolt should always penetrate the panel no less than 2-1/4 inches. Less penetration may cause premature and sudden failure of the lifting insert.



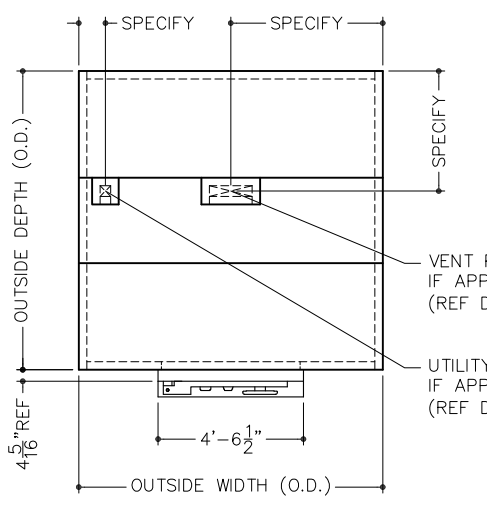
- Attach the T-12 Swivel Lifting Plate to the top end of the vault panel.
- Attach chain between fork truck swivel safety hook and swivel lifting plate.
- Raise panel to vertical position then lift and move into place.
- DO NOT remove rigging from panel until the panel is anchored into position.



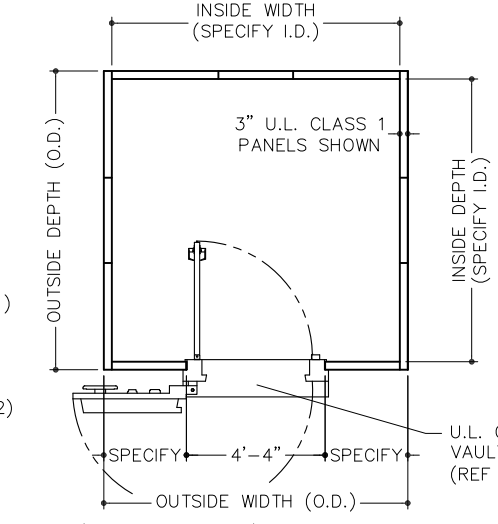
1. Modular Vault Panel
2. 3/4" x 4" Lg. Coil Bolt
3. 3/4" T-12 Swivel Lifting Plate
4. Connecting Link

5. Chain Sling
6. 360° Swivel Safety Hook (from Lifting Device)

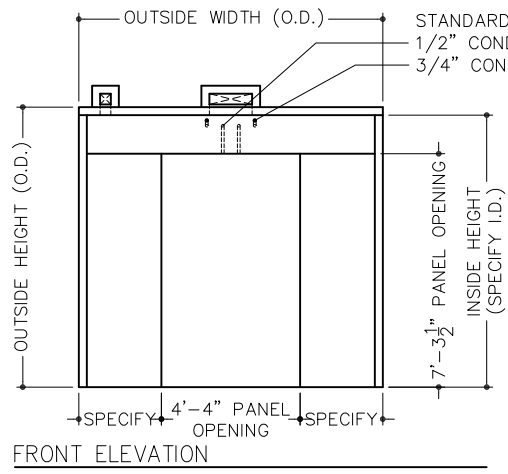
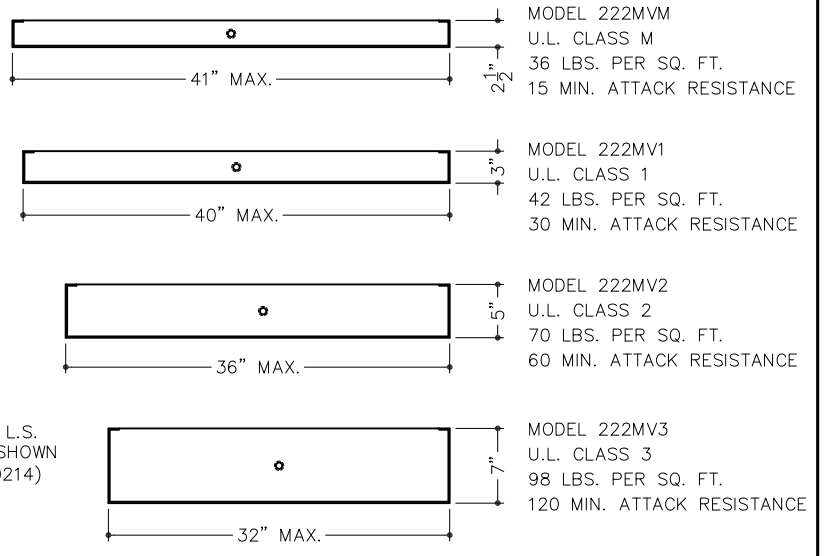
Figure 2-1



PLAN (ROOF PANELS)

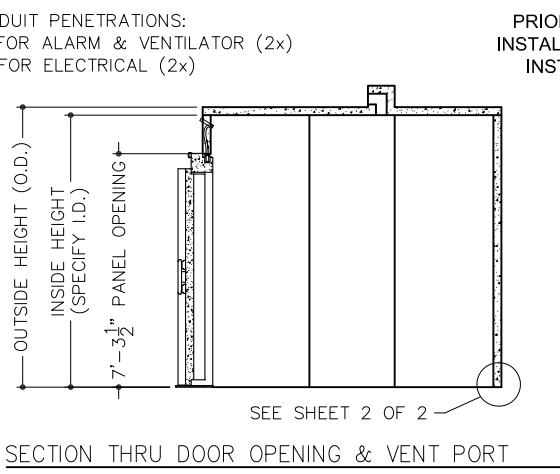


PLAN (WALLS PANELS)



NOTES:

- PANELS ARE CONSTRUCTED OF FIBER REINFORCED CONCRETE AND REBAR IN A FIVE-SIDED STEEL PAN. STEEL PAN FORMS INTERIOR OF VAULT WITH EXPOSED CONCRETE ON EXTERIOR.
- ALL INSIDE ADJOINING SURFACES TO BE WELDED WITH 1" OF 1/8" WELD PER FOOT OF LENGTH.
- ALL UTILITY CONNECTIONS ARE BY OTHERS.
- STRUCTURAL DESIGN OF FLOOR AND SUPPORTING FOUNDATION BY OTHERS.
- SEISMIC CALCULATIONS ARE BY OTHERS, IF APPLICABLE.
- PANELS ARE SHIPPED "KNOCK-DOWN" TO BE ERECTED AT JOB SITE PER SPECIFICATIONS FURNISHED.
- WALL, ROOF, & FLOOR COVERINGS ARE BY OTHERS, WHERE APPLICABLE. APPROPRIATE UNDERLAYMENT MATERIAL APPLIED PRIOR TO FINAL FLOOR COVERING MAY BE REQUIRED FOR A SMOOTH FLOOR ON INSTALLATIONS THAT INCLUDE FLOOR PANELS.
- ALL DIMENSIONS ARE NOMINAL. TOLERANCES OF 1/32" PER FOOT OF LENGTH ARE TO BE ALLOWED.



NOTES CON'T:

- THIS STRUCTURE IS NOT DESIGNED FOR ADDITIONAL LOADS APPLIED TO THE ROOF.
- ELECTRICIAN IS TO INSTALL 120V, 10A DUPLEX OUTLET ABOVE DOOR FOR VENTILATOR SUPPLY.
- IT IS THE RESPONSIBILITY OF THE OWNER/ARCHITECT/GENERAL CONTRACTOR TO ENSURE THAT ALL LOCAL, STATE, & FEDERAL ADA REGULATIONS ARE IN COMPLIANCE. FLOOR FINISH TO THE VAULT DOOR THRESHOLD IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- PANELS ARE CAST WITH LIFT POINTS AT EACH END. REQUEST (P/N 9040-0002) 3/4" T-12 LIFTING SWIVEL & (P/N 9040-0006) 3/4" x 4" COIL BOLT FOR PROPER RIGGING ATTACHMENT.
- VAULT DOOR REQUIRES INSTALL KIT FOR PROPER INSTALLATION. REQUEST (P/N 102-2200).

CAUTION!
PRIOR TO INSTALLATION READ VAULT PANEL INSTALLATION PROCEDURES AND VAULT DOOR INSTALLATION MANUAL PROVIDED. ONLY PROFESSIONALS EXPERIENCED AND QUALIFIED IN THE INSTALLATION OF MODULAR VAULTS AND VAULT DOORS SHOULD INSTALL THIS PRODUCT.

- WHEN SPECIFYING THE VAULT, PROVIDE THE FOLLOWING:
- UL CLASS (M, 1, 2, OR 3)
 - NUMBER OF SIDES (5 OR 6)
 - INSIDE DIMENSIONS (WIDTH x DEPTH x HEIGHT)
 - VAULT DOOR LOCATION & SWING (LEFT OR RIGHT)
 - VENT PORT LOCATION (IF APPLICABLE)
 - UTILITY PORT LOCATION (IF APPLICABLE)

EXAMPLE:
UL CLASS 1, 5 SIDED VAULT,
(I.D. = 9'-0" W x 12'-0" D x 8'-6" H)
LEFT SWING DOOR CENTERED ON 9'-0" WALL

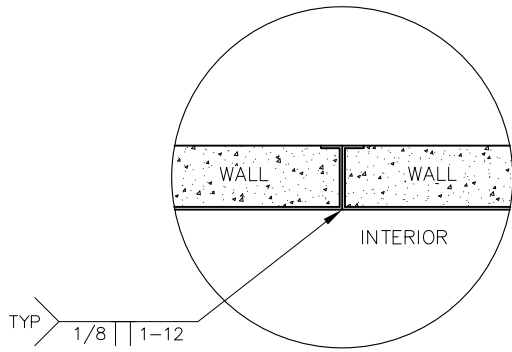


DO NOT SCALE

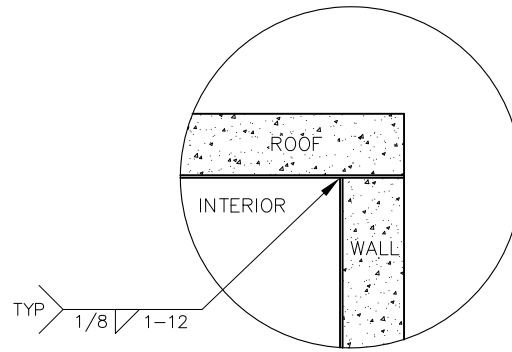


PRODUCT APPLICATION DRAWING
200 SERIES MODULAR VAULT
PANELS (MODEL 222)

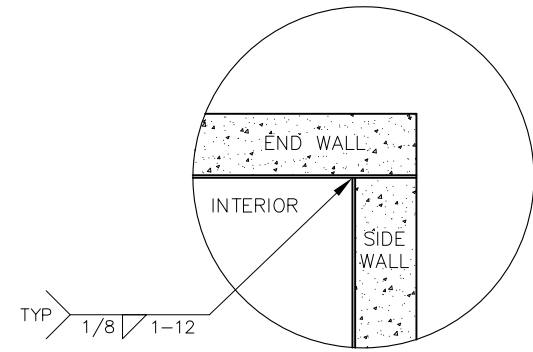
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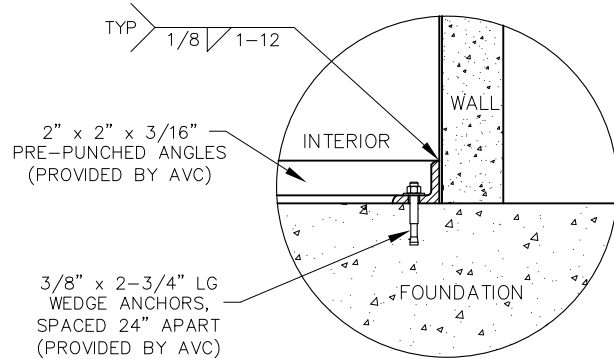
WALL TO WALL CONNECTION



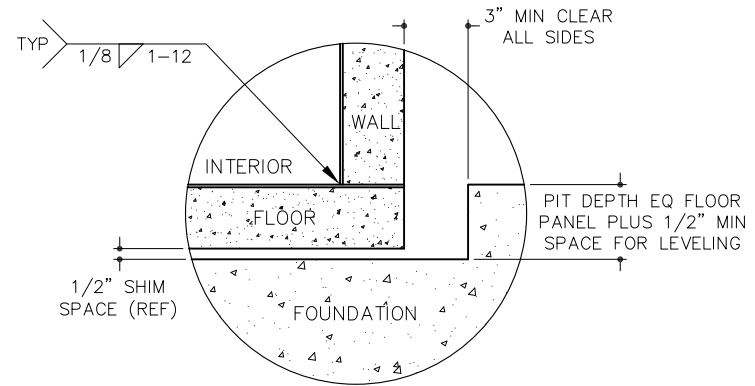
WALL TO ROOF CONNECTION



WALL TO WALL CORNER CONNECTION



WALL TO FOUNDATION CONNECTION
FIVE SIDED VAULT



WALL TO FLOOR CONNECTION
SIX SIDED VAULT WITH PIT



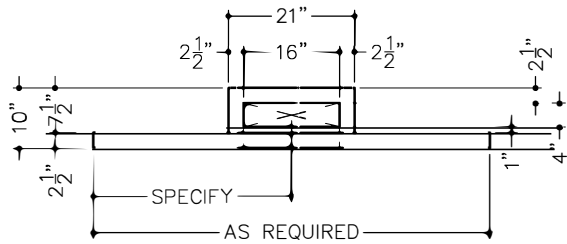
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PRODUCT APPLICATION DRAWING
200 SERIES MODULAR VAULT
PANELS (MODEL 222)

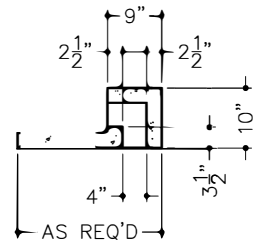
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INSTALLATION MANUAL PROVIDED. ONLY PROFESSIONALS EXPERIENCED AND QUALIFIED IN THE
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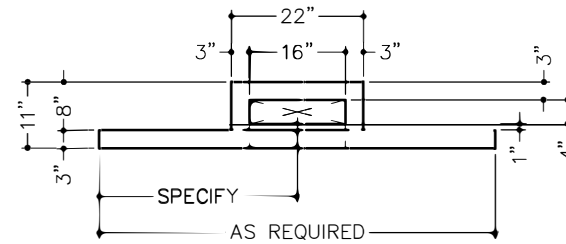


FRONT ELEVATION

MODEL 222VPM, U.L. CLASS M

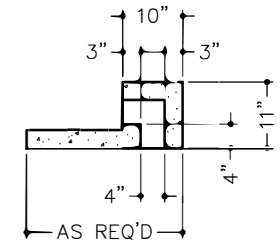


VERTICAL SECTION

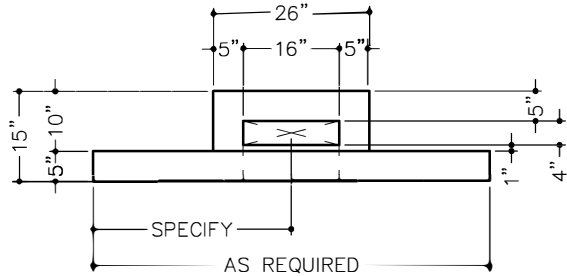


FRONT ELEVATION

MODEL 222VP1, U.L. CLASS 1

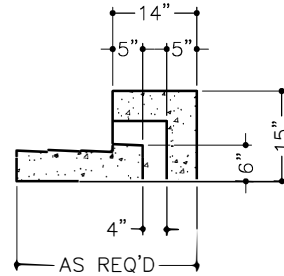


VERTICAL SECTION

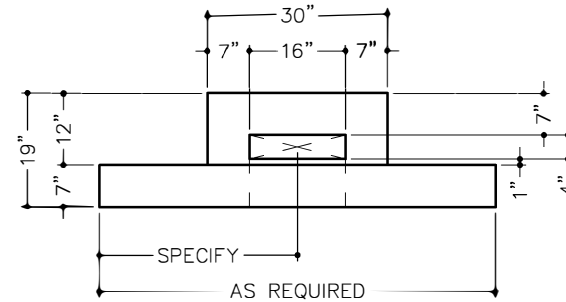


FRONT ELEVATION

MODEL 222VP2, U.L. CLASS 2

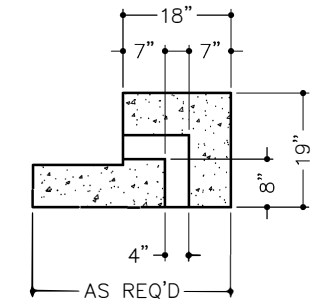


VERTICAL SECTION



FRONT ELEVATION

MODEL 222VP3, U.L. CLASS 3



VERTICAL SECTION

NOTES:

1. VENT PORTS ARE USED FOR A SECURE CONNECTION OF AN OUTSIDE VENTILATING SYSTEM THAT PROVIDES CIRCULATING AIR WITHIN THE VAULT.
2. VENT PORTS CAN BE CAST INTO A MODULAR VAULT ROOF PANEL (SHOWN) OR WALL PANEL.
3. SPECIFY AT THE TIME OF MODULAR VAULT ORDER.
4. PANELS ARE CONSTRUCTED OF FIBER REINFORCED CONCRETE AND REBAR IN A FIVE-SIDED STEEL PAN. STEEL PAN FORMS INTERIOR OF VAULT WITH EXPOSED CONCRETE ON EXTERIOR.
5. ALL INSIDE ADJOINING SURFACES TO BE WELDED WITH 1" OF 1/8" WELD PER FOOT OF LENGTH.
6. ALL UTILITY CONNECTIONS ARE BY OTHERS.
7. PANELS ARE SHIPPED "KNOCK-DOWN" TO BE ERECTED AT JOB SITE PER SPEC'S FURNISHED.
8. ALL DIMENSIONS NOMINAL. TOLERANCES OF 1/32" PER FOOT OF LENGTH ARE TO BE ALLOWED.
9. THIS STRUCTURE IS NOT DESIGNED FOR ADDITIONAL LOADS APPLIED TO THE ROOF.
10. IT IS THE RESPONSIBILITY OF THE OWNER/ARCHITECT/GENERAL CONTRACTOR TO ENSURE THAT ALL LOCAL, STATE, & FEDERAL ADA REGULATIONS ARE IN COMPLIANCE.
11. PANELS ARE CAST WITH LIFT POINTS EACH END. REQUEST (P/N 9040-0002) 3/4" T-12 LIFTING SWIVEL AND (P/N 9040-0006) 3/4"x 4" COIL BOLT FOR PROPER RIGGING ATTACHMENT.

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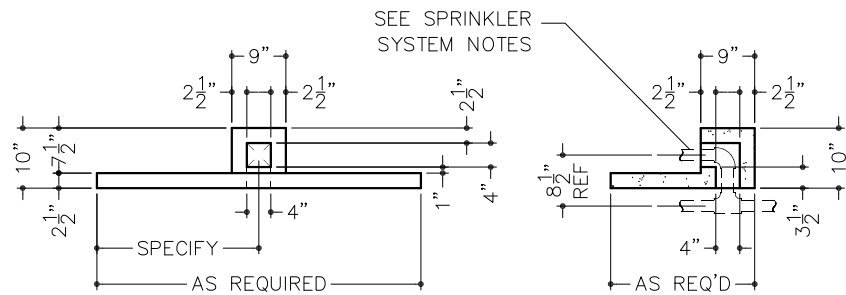


DO NOT SCALE

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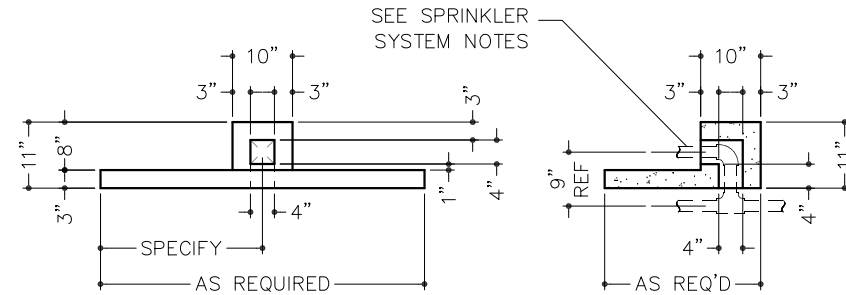
PRODUCT APPLICATION DRAWING
200 SERIES VENT PORT
PANEL (MODEL 222VP)

SIZE	DWG NO	DATE	SHEET
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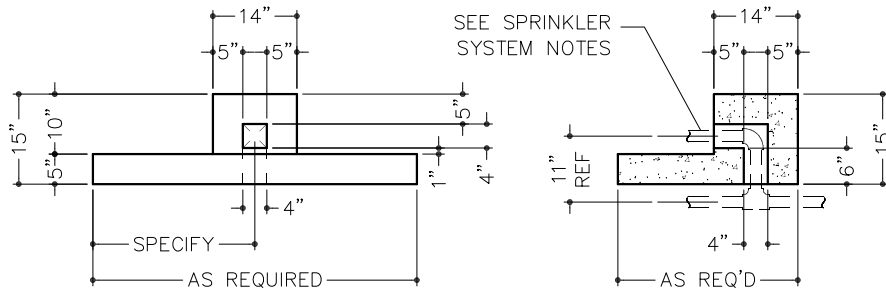
FRONT ELEVATION
MODEL 222UPM, U.L. CLASS M

VERTICAL SECTION



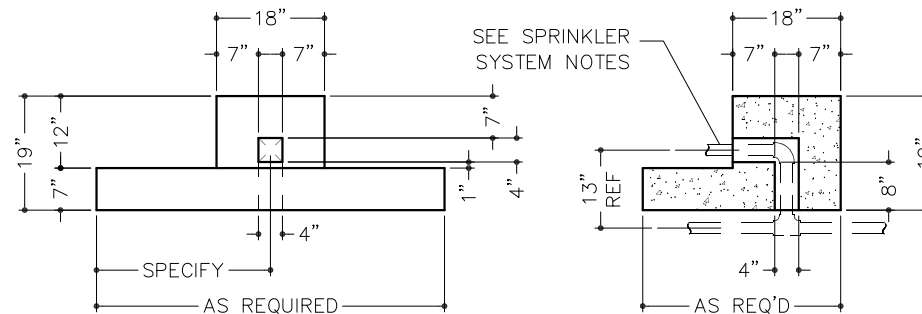
FRONT ELEVATION
MODEL 222UP1, U.L. CLASS 1

VERTICAL SECTION



FRONT ELEVATION
MODEL 222UP2, U.L. CLASS 2

VERTICAL SECTION



FRONT ELEVATION
MODEL 222UP3, U.L. CLASS 3

VERTICAL SECTION

NOTES:

1. UTILITY PORTS ARE USED TO PROVIDE A SECURE CONNECTION OF THE FIRE SPRINKLER SYSTEM FROM OUTSIDE THE VAULT TO WITHIN THE VAULT.
2. UTILITY PORTS CAN BE CAST INTO A MODULAR VAULT ROOF PANEL (SHOWN) OR WALL PANEL.
3. SPECIFY AT THE TIME OF MODULAR VAULT ORDER.
4. PANELS ARE CONSTRUCTED OF FIBER REINFORCED CONCRETE AND REBAR IN A FIVE-SIDED STEEL PAN. STEEL PAN FORMS INTERIOR OF VAULT WITH EXPOSED CONCRETE ON EXTERIOR.
5. ALL INSIDE ADJOINING SURFACES TO BE WELDED WITH 1" OF 1/8" WELD PER FOOT OF LENGTH.
6. ALL UTILITY CONNECTIONS ARE BY OTHERS.
7. PANELS ARE SHIPPED "KNOCK-DOWN" TO BE ERECTED AT JOB SITE PER SPEC'S FURNISHED.
8. ALL DIMENSIONS NOMINAL. TOLERANCES OF 1/32" PER FOOT OF LENGTH ARE TO BE ALLOWED.
9. THIS STRUCTURE IS NOT DESIGNED FOR ADDITIONAL LOADS APPLIED TO THE ROOF.
10. IT IS THE RESPONSIBILITY OF THE OWNER/ARCHITECT/GENERAL CONTRACTOR TO ENSURE THAT ALL LOCAL, STATE, & FEDERAL ADA REGULATIONS ARE IN COMPLIANCE.
11. PANELS ARE CAST WITH LIFT POINTS EACH END. REQUEST (P/N 9040-0002) 3/4" T-12 LIFTING SWIVEL AND (P/N 9040-0006) 3/4"x 4" COIL BOLT FOR PROPER RIGGING ATTACHMENT.

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SPRINKLER SYSTEM NOTES:

THE 4" SQUARE OPENING PROVIDED THRU EACH UTILITY PORT WILL ACCOMMODATE UP TO 1-1/2" SCHEDULE 40 PIPE FITTINGS, SHOWN. FITTINGS SHOWN FOR REFERENCE ONLY, SPRINKLER SYSTEM BY OTHERS.

DO NOT SCALE

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PRODUCT APPLICATION DRAWING
200 SERIES UTILITY PORT
PANEL (MODEL 222UP)



SIZE	DWG NO	DATE	SHEET
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