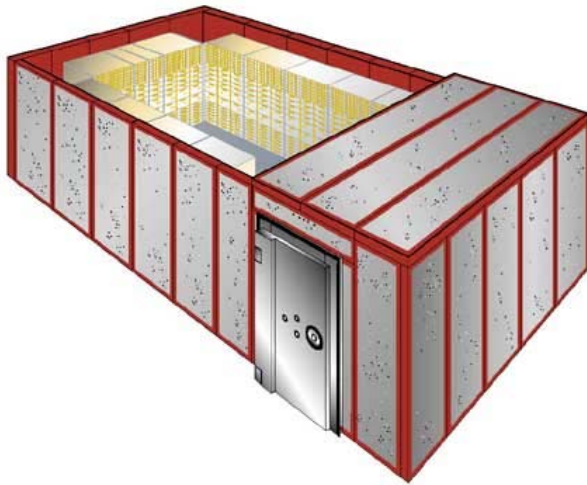


## 210 Series UL Listed Modular Vault Panel Installation Procedures January 15, 2009



Model 210, UL Class M  
Model 211, UL Class 1  
Model 212, UL Class 2  
Model 213, UL Class 3

### **CAUTION**

### **EXTREMELY HEAVY**

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



7500 Mars Drive  
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## 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 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 General Information

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.

## 2 Installation

### 2.1 Safety and Pre-Installation Procedures

1. 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.
2. Keep the work area clear of all trash and clutter.
3. 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.
4. Know location of the nearest medical facility and "911" availability.
5. Verify the condition of safety equipment and tools.
6. When arriving at job-site introduce yourself to the General Contractor and/or job superintendent, explain:
  - The equipment you will be installing.
  - What your schedule will be.
  - What will be required of the contractor and/or electrician?
7. 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.
8. Caution other persons in the building to avoid the area in which the door is being installed. It is recommended to "cordon-off" the area.
9. Moving a 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.
10. 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.
11. Never leave a standing panel unattended unless it is securely fastened or welded in place.
12. 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".
13. When welding, use a fire watch and always have a fire extinguisher on hand.
14. Vent fumes or smoke from the installation area.

### 2.2 Apparel

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

## 2 INSTALLATION (continued)

### 2.3 Site Requirements

#### 2.3.1 Foundation

1. A vault must be provided with a structurally sound foundation. The foundation must support the weight of the vault & vault door plus installation forces without cracking or settling out of level.
2. For foundation details it is recommended a local registered engineer be contacted.

### 2.4 Job Site Conditions

1. 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.
2. 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.
3. Verify any overhead ductwork, piping, lighting or other obstructions will clear vault by a minimum of 12".
4. Verify that floor is smooth, level, of sound construction and uniform throughout.
5. Verify that adequate shoring has been provided wherever required.

## 3 Site Preparation

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

## 4 Recommended Tools

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



## 5 Off-Loading and Temporary Storage of Vault Panels

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

**6 Typical Rigging Procedures (for end lifting wall panels)**

**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 shall 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 ”. Less penetration may cause premature and sudden failure of the lifting insert.**

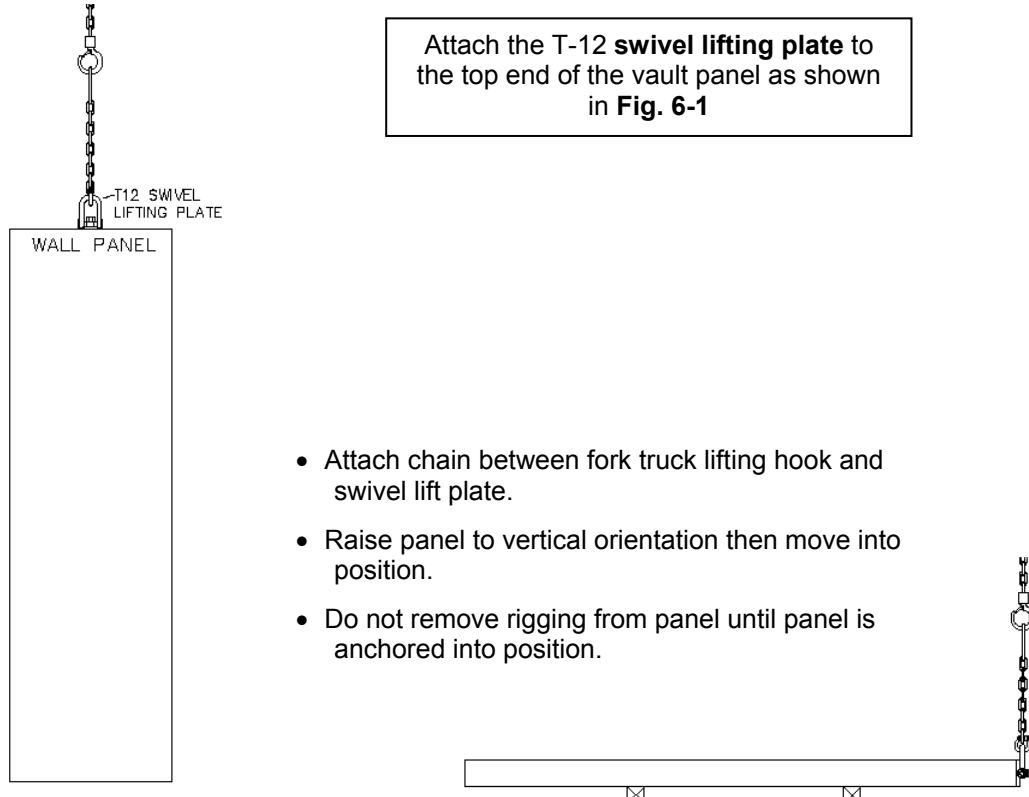


FIGURE 6-1

## 7 Installation Procedure (Five-Sided)

**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 vaults exterior.

### 7.1 Place Floor Angle

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 placed and vault growth can be accounted for.

Place shims at 4 corners for every panel that doesn't contact the floor.

### 7.2 Plan Shims

1. Wall panels should be shimmed any place where a corner does not contact the floor.
2. Every corner (4) should be shimmed as needed.
3. The shim stacks can be shared between 2 adjacent panels
4. Shims should be welded together and to panel to prevent shifting.
5. If a beam is used and the panels that support the beam need to be shimmed, let the beam panels rest on the slab and shim between the top of the panel and the beam. Shim as much of the area as is possible to evenly distribute the load; 3 shim stacks for class M and 1; 6 shim stacks for class 2; 9-12 shim stacks for class 3.

### 7.3 Start in Corner

1. Move the first back wall panel into position.
2. Shim the panel to the correct height if needed and weld to floor angle.
3. Brace the panel as needed and remove rigging.
4. Move the first side wall panel into position creating a corner
5. Shim and weld the panel to the floor angle and weld to first panel
6. Brace the two panels so they can stand unsupported.
7. Complete welding all connections 1" weld per foot.

### 7.4 Complete Back Wall

1. Complete placing the panels for the back wall bracing as you go.
2. Weld all connections 1" weld per foot before placing next panel.
3. Place the wall panel at the end of the back wall and weld in place.
4. Place first ceiling panel and weld in place
5. Complete welding all connections 1" weld per foot.



## 7 Installation Procedures (continued)

### 7.5 Work Toward Front with Wall & Ceiling

1. Work towards the front of the vault by placing both opposite wall panels and welding them in place then place the ceiling (note 1) panel and weld in place before proceeding.

Note 1: If the vault uses a beam, continue placing wall panels and bracing panels until the beam panels can be placed, the beam can then be installed and then place the roof panels. Be sure to complete all welds after each panel is placed.

2. Weld all connections 1" weld per foot before placing next panel.
3. Check length after every panel to insure growth is within guidelines.
4. Place floor angle for front wall
5. Place corner panels for front wall
6. Complete welding all connections 1" weld per foot.
7. Do not place last ceiling panel until front wall is complete.

### 7.6 Finish Front Wall Including Door Vestibule

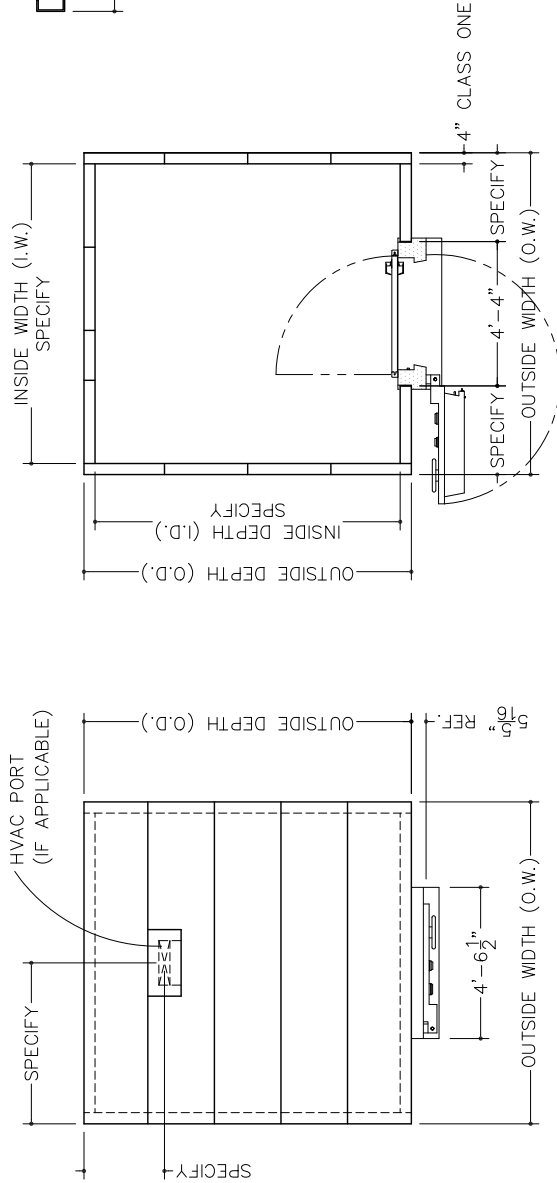
1. Place and weld front wall panels working from outside in to the door .
2. Place and weld door vestibule uprights.
3. Place and weld header panel.
4. Place final ceiling panel.
5. Complete welding all connections 1" weld per foot.

### 7.7 Inspect Grind & Finish

1. Inspect welding to insure 1" weld per foot in every wall to wall joint, every wall to ceiling joint and every wall to floor angle joint.
2. Inspect shim stacks for proper welds to panels.
3. Grind joints as required for applicable finish.
4. If a weld requires excessive grinding due to overfill, place another weld at six inches and take care not to overfill.
5. Caulk interior joints.

## 8 Weld Specifications

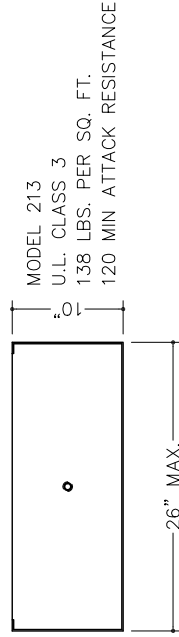
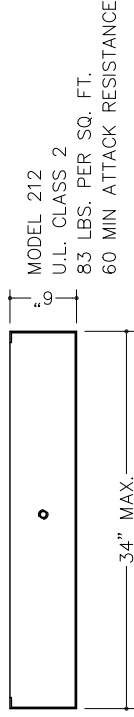
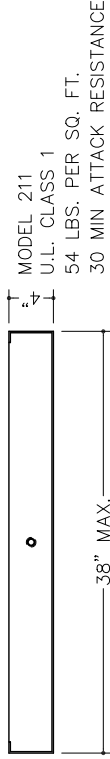
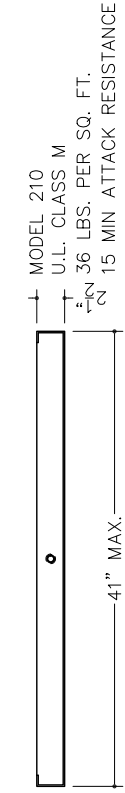
Refer to Figure Drawing #20155



PLAN

MODEL 211, U.L. CLASS 1 SHOWN  
MODEL 101-01, U.L. CLASS 1, LEFT SWING DOOR SHOWN

PLAN (WALLS ONLY)



MODEL 210  
U.L. CLASS M  
36 LBS. PER SQ. FT.  
15 MIN ATTACK RESISTANCE

MODEL 211  
U.L. CLASS 1  
54 LBS. PER SQ. FT.  
30 MIN ATTACK RESISTANCE

MODEL 212  
U.L. CLASS 2  
83 LBS. PER SQ. FT.  
60 MIN ATTACK RESISTANCE

MODEL 213  
U.L. CLASS 3  
138 LBS. PER SQ. FT.  
120 MIN ATTACK RESISTANCE

**ONLY PROFESSIONALS EXPERIENCED AND QUALIFIED IN THE INSTALLATION OF MODULAR VAULTS AND VAULT DOORS SHOULD INSTALL THIS PRODUCT.**

**CAUTION!**

- 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 EACH FOOT OF LENGTH.
  - ALL UTILITY CONNECTIONS ARE BY OTHERS.
  - STRUCTURAL DESIGN OF FLOOR AND SUPPORTING FOUNDATION IS BY OTHERS.
  - SEISMIC CALCULATIONS (IF APPLICABLE) ARE BY OTHERS.
  - PANELS ARE SHIPPED "KNOCK-DOWN" TO BE ERECTED AT JOBSITE AS PER SPEC'S FURNISHED.
  - WHERE APPLICABLE FLOOR, CEILING & WALL COVERINGS ARE BY OTHERS.
  - ALL DIMENSIONS ARE NOMINAL. TOLERANCES OF 1/32" PER FOOT OF LENGTH ARE TO BE ALLOWED.
  - THIS STRUCTURE IS NOT DESIGNED FOR ADDITIONAL LOADS APPLIED TO THE ROOF.
  - ELECTRICIAN IS TO INSTALL 120 V, 10 AMP DUPLEX OUTLET ABOVE VAULT DOOR FOR VENTILATOR SUPPLY.
  - IT IS THE RESPONSIBILITY OF THE OWNER/ARCHITECT/GC TO ENSURE THAT ALL LOCAL, STATE & FEDERAL ADA REGULATIONS ARE COMPLIED WITH.
  - PANELS ARE CAST WITH LIFT POINTS EACH END. REQUEST (P/N 9040-0002) 3/4"-12 LIFTING SWIVEL AND (P/N 9040-0006) 3/4"x4" COIL BOLT FOR PROPER RIGGING ATTACHMENT.
  - VAULT DOOR REQUIRES INSTALL KIT FOR PROPER INSTALLATION. REQUEST KIT P/N 102-2200.

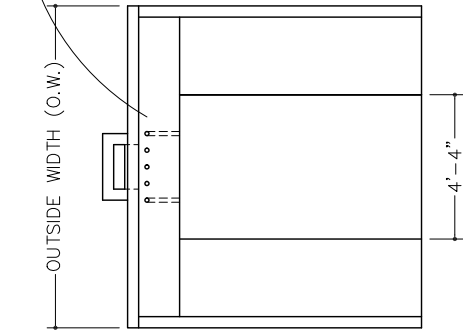
WHEN SPECIFYING VAULT PROVIDE THE FOLLOWING:

- U.L. CLASS (M,1,2,3)
- NUMBER OF SIDES (5,6)
- INSIDE DIMENSIONS (WIDTH x DEPTH x HEIGHT)
- VAULT DOOR LOCATION
- HVAC PORT LOCATION (IF APPLICABLE)

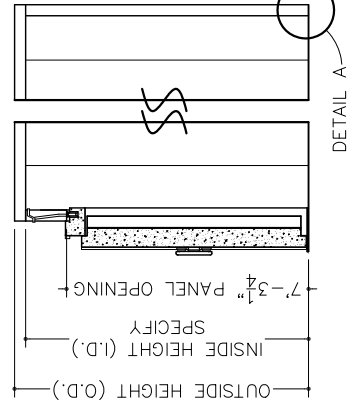
EXAMPLE:

CLASS 1, 5 SIDED, 9'-0" D x 12'-0" D x 8'-6" H)  
L.S. DOOR CENTERED ON 9'-0" WALL

- (2) FOR ALARM & VENTILATOR
- (3) FOR ELECTRICAL

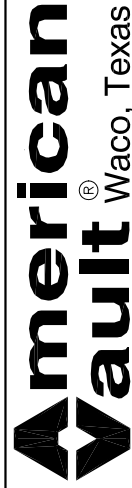


FRONT ELEVATION



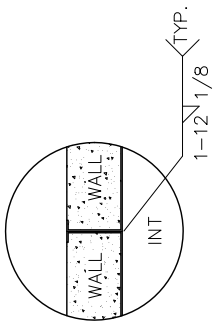
DETAIL A

SECTION THRU DOOR OPENING

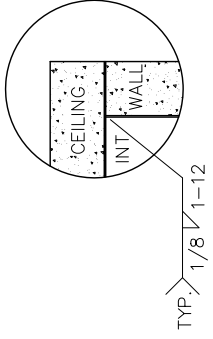


DESCRIPTION PRODUCT APPLICATION DRAWING  
210 SERIES BURGLARY RESISTANT  
MODULAR VAULT PANELS

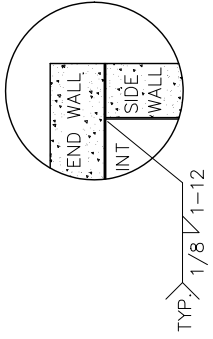
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<b>B</b>	20155	01.08.09		
			SHEET	1 of 2



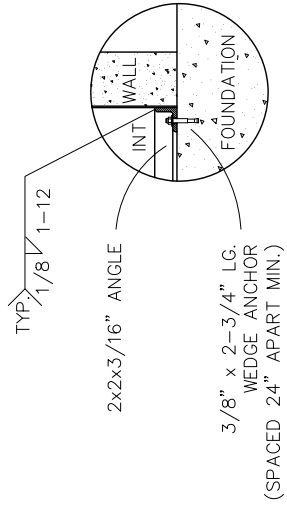
WALL TO WALL CONNECTION



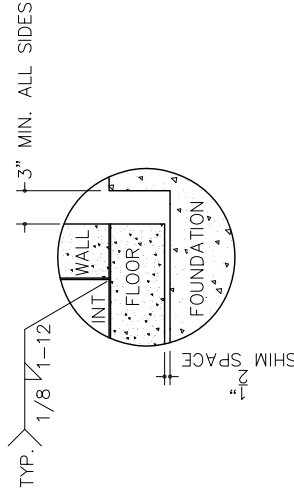
WALL TO CEILING CONNECTION



WALL TO WALL CORNER CONNECTION



WALL TO FOUNDATION CONNECTION  
FIVE SIDED VAULT

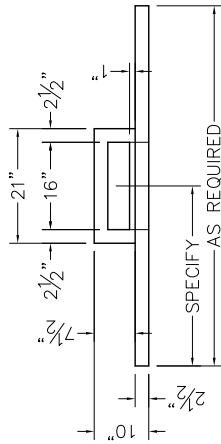


WALL TO FLOOR CONNECTION  
SIX SIDED VAULT WITH PIT

DESCRIPTION PRODUCT APPLICATION DRAWING  
210 SERIES BURGLARY RESISTANT  
MODULAR VAULT PANELS

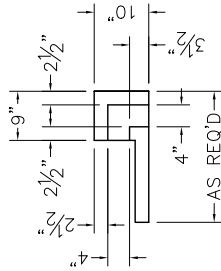
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SHEET 2 of 2

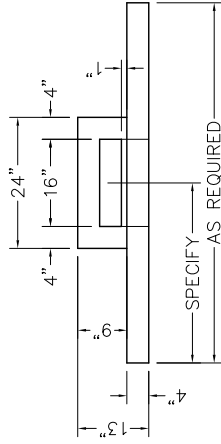


FRONT ELEVATION

MODEL 210-VP, U.L. CLASS M

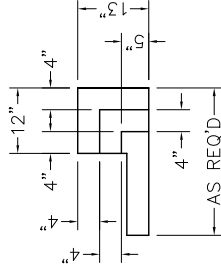


VERTICAL SECTION

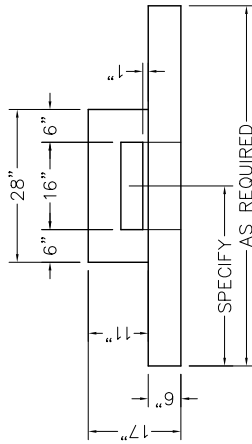


FRONT ELEVATION

MODEL 211-VP, U.L. CLASS 1

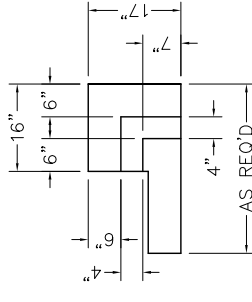


VERTICAL SECTION

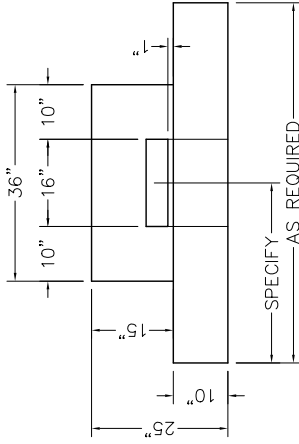


FRONT ELEVATION

MODEL 212-VP, U.L. CLASS 2

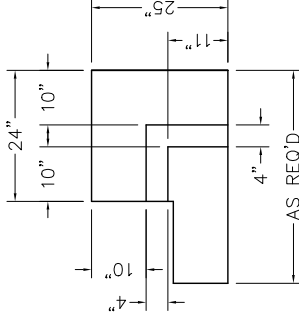


VERTICAL SECTION



FRONT ELEVATION

MODEL 213-VP, U.L. CLASS 3



VERTICAL SECTION

NOTES:

1. VAULT-VENTILATING PORTS (HVAC PORT) ARE USED FOR A SECURE CONNECTION OF AN OUTSIDE VENTILATING SYSTEM THAT PROVIDES CIRCULATING AIR WITHIN THE VAULT.
2. HVAC PORTS CAN BE CAST INTO A MODULAR VAULT WALL OR ROOF 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 EACH FOOT OF LENGTH.
6. ALL UTILITY CONNECTIONS ARE BY OTHERS.
7. STRUCTURAL DESIGN OF FLOOR AND SUPPORTING FOUNDATION IS BY OTHERS.
8. SEISMIC CALCULATIONS (IF APPLICABLE) ARE BY OTHERS.
9. PANELS ARE SHIPPED "KNOCK-DOWN" TO BE ERRECTED AT JOBSITE AS PER SPEC'S FURNISHED.
10. WHERE APPLICABLE FLOOR, CEILING & WALL COVERINGS ARE BY OTHERS.
11. ALL DIMENSIONS ARE NOMINAL. TOLERANCES OF 1/32" PER FOOT OF LENGTH ARE TO BE ALLOWED.
12. THIS STRUCTURE IS NOT DESIGNED FOR ADDITIONAL LOADS APPLIED TO THE ROOF.
13. IT IS THE RESPONSIBILITY OF THE OWNER/ARCHITECT/GC TO ENSURE THAT ALL LOCAL, STATE & FEDERAL ADA REGULATIONS ARE COMPLIED WITH.
14. PANELS ARE CAST WITH LIFT POINTS EACH END. REQUEST (P/N 9040-0002) 3/4"-12 LIFTING SWIVEL AND (P/N 9040-0006) 3/4"x4" COIL BOLT FOR PROPER RIGGING ATTACHMENT.

**CAUTION!**

**ONLY PROFESSIONALS EXPERIENCED AND QUALIFIED IN THE INSTALLATION OF MODULAR VAULTS AND VAULT DOORS SHOULD INSTALL THIS PRODUCT.**

DO NOT SCALE



**American Vault<sup>®</sup>.us**

PRODUCT APPLICATION DRAWING  
HVAC PORT

FOR USE WITH 210 SERIES MODULAR VAULT

SIZE **B**

DWG NO 20156

DATE 01.08.2009

SHEET 1 OF 1