MODULAR STORAGE MAGAZINE,
BOX-TYPE FLOW-THRU STD 421-80-10
3.0 FOUNDATIONS

3.1 See Civil Drawings and Specifications (part of site adaptations) for foundation preparation of foundations including the removal of organic materials, compacting soil makeup, preparing foundation backfill requirements for excavation and removal of unsuitable materials.

3.2 Maximum allowable net soil, bearing pressures, used for design: 1050 PSF.

3.3 Assumed uncorrected soil load used for design: 1250 PSF.

3.4 All foundation bearing surfaces shall be reviewed by the geotechnical engineer prior to foundation concrete to ensure their compliance with the pressures noted above.

3.5 All footings shall project at least 1'-0" into undisturbed natural soil, or compacted fill. Footings shall be designed based on the effect of the combination of loads, except all footings shall be designed based on the loads specified above.

3.6 All structural steel column and footing rebar configurations shall be replaced with lowcrete.

3.7 Concrete shall not be placed over frozen soil or footing excavations subject to water.

4.0 CONCRETE

4.1 All concrete work (including masonry, fabrication, placement, finishing, and hardening) shall be performed in accordance with ACI 302, "Manual of Standard Practice and Details for Reinforced Concrete Structures" and ACI 318, "Building Code Requirements for Structural Concrete." See Civil Drawings and Specifications for construction documents.

4.2 All concrete shall have a minimum compressive strength of 4000 PSF at 28 days.

4.3 Reinforcing bars shall be deformed type conforming to ASTM A615 Grade 60.

4.4 Welded wire reinforcement shall conform to ASTM A185. Minimum lap and embedment to be 1 1/2 inches.

4.5 Concrete cover for all steel below grade and paint with 2 coats of coal tar epoxy.

4.6 Concrete shall be cast against earth: 3 inches.

4.7 Concrete cast against earth: 3 inches.

4.8 Concrete cast against earth: 1 1/2 inches.

4.9 Concrete cast against earth: 1 inch.

4.10 Concrete cast against earth: 1 1/2 inches.

4.11 Concrete cast against earth: 2 inches.

4.12 Reinforcement shall be continuous through all construction joints, but discontinuous through all interior construction joints. See Civil Drawings and Specifications for construction documents.

4.13 Concrete shall be designed by a qualified professional engineer employed by the fabricator. All reinforcing steel shall be delivered to the job site in accordance with AISC's "Max Total Uniform Load" Table multiplied by a factor of 1.2, unless reactions are shown on structural drawings. Minimum footings shall be 18" in diameter unless otherwise noted.


4.15 Anchor bolts shall be threaded: 1/2"-13, 1"-7, 1 1/8"-12. Anchor bolts shall be grouted with non-erosive grout mix.

4.16 Structural fasteners shall conform to the following ASTM designations:


4.18 Structural steel shall conform to the following ASTM designations:

5.0 STRUCTURAL STEEL

5.1 Structural steel fabrication, erection, and connection design shall conform to AISC's "Specification for Structural Steel Buildings, 10th Edition."

5.2 Structural steel shall conform to the following ASTM designations:

6.0 STRUCTURAL PRECAST CONCRETE

6.1 Precast elements not detailed on drawings shall be designed for the span and loading conditions as required by the structural engineer. All elevation calculations, including the definition of all structural elements and landing points shall be submitted to the contracting officer for review prior to the start of fabrication.

6.2 The precast manufacturer shall be responsible for coordination of all disciplines as they affect the precast elements.

6.3 There shall be no field cutting of precast elements without the approval of the structural engineer.

6.4 Concrete shall have a minimum compressive strength of twenty-eight days of 4000 PSI.

6.5 All slabs shall be non-shrink, non-metallic with F'y = 6000 PSI.

7.0 LIGHTNING PROTECTION SYSTEM (LPS)

7.1 All metal parts, to include reinforcement in floor, precast wall and roof panel steel, shall be electrically connected to the structure with the exception of the foundation (footings), cladding, and plumbing. Lightning rods and other grounding elements shall be given by bonding (clipping), brazing or tack welding. Solid flat or bare stranded copper conductors shall be factory-bonded copper, copper clad steel or metal. Lightning rods shall be provided during construction. Acceptable conductor methods are required to be specified. Further details shall be provided in the structure drawings. See electrical drawings for additional information regarding LPS.

DESIGNER'S NOTE: TO BE REMOVED WHEN PREPARING CONSTRUCTION DRAWINGS

### SPECIAL INSPECTION SCHEDULE/VERIFICATION

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EXTENT OF INSPECTION</th>
<th>REFERENCE</th>
<th>COMMENT/SCOPE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONCRETE CONSTRUCTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REINFORCING STEEL PLACEMENT</td>
<td>P</td>
<td>ACI 318: 3.5, 7.1-77</td>
<td>INSPECT the size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are of proper size, number, shape, etc. Inspect bars and mechanics for adherence to the Code.</td>
</tr>
<tr>
<td><strong>WELDING OF REINFORCEMENT</strong></td>
<td>C, P</td>
<td>AWS D1.1-04, ACI 318: 3.5.2</td>
<td>INSPECT ALL WELDING OF REINFORCEMENT. Verify that welds are adequately sized and supported on bars or rebars.</td>
</tr>
<tr>
<td><strong>CONCRETE PLACEMENT</strong></td>
<td>C</td>
<td>ACI 318: 5.3.5c</td>
<td>INSPECT PLACEMENT OF CONCRETE. Verify that concrete is conveyed and deposited without segregation or contamination. Verify that concrete is properly consolidated.</td>
</tr>
<tr>
<td><strong>SAMPLING AND TESTING OF CONCRETE</strong></td>
<td>C</td>
<td>ASTM C 109, ASTM C 31</td>
<td>TEST concrete compressive strength, slump, air content and temperature.</td>
</tr>
<tr>
<td><strong>CURRINC AND PROTECTION</strong></td>
<td>P</td>
<td>ACI 318: 11.6.1</td>
<td>INSPECT CURRINC, COLD WEATHER PROTECTION AND WET WEATHER PROTECTION PROCEDURES.</td>
</tr>
<tr>
<td><strong>PRECAST CONCRETE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PLANT OPERATIONS/QUALITY CONTROL PROCEDURES</strong></td>
<td>S</td>
<td></td>
<td>REVIEW OF PLANT OPERATIONS AND QUALITY CONTROL PROCEDURES.</td>
</tr>
<tr>
<td><strong>MIX DESIGN</strong></td>
<td>S</td>
<td></td>
<td>INSPECT CONCRETE BATCHING OPERATIONS AND VERIFY COMPLIANCE WITH APPROVED/DRAWN DESIGN.</td>
</tr>
<tr>
<td><strong>MATERIAL CERTIFICATION</strong></td>
<td>S</td>
<td></td>
<td>REVIEW FOR COMPLIANCE TO NO.2160.</td>
</tr>
<tr>
<td><strong>REINFORCEMENT INSTALLATION</strong></td>
<td>P</td>
<td></td>
<td>INSPECT INSTALLATION OF REINFORCING STEEL.</td>
</tr>
<tr>
<td><strong>DISCONNECT/RECONNECT ITEM</strong></td>
<td>P</td>
<td></td>
<td>INSPECT INTERFACE CONNECTIONS INCLUDING EDGEBANDING. INSPECT INSTALLATION OF PROPER LOCATION AND WELDING OF CONNECTIONS.</td>
</tr>
<tr>
<td><strong>CONCRETE PLACEMENT</strong></td>
<td>C</td>
<td>ACI 318: 5.3.5c</td>
<td>INSPECT PLACEMENT OF CONCRETE. Verify that concrete is conveyed and deposited without segregation or contamination. Verify that concrete is properly consolidated.</td>
</tr>
<tr>
<td><strong>SAMPLING AND TESTING</strong></td>
<td>C</td>
<td></td>
<td>INSPECT FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER FORMED.</td>
</tr>
<tr>
<td><strong>CURRINC AND PROTECTION</strong></td>
<td>P</td>
<td></td>
<td>INSPECT DIRECTION OF PRECAST CONCRETE INCLUDING MOLD CONFIGURATION, CONNECTIVE, WELDING AND GRouting.</td>
</tr>
<tr>
<td><strong>DOOR CONSTRUCTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FABRICATOR QUALITY CONTROL PROCEDURES</strong></td>
<td>S</td>
<td></td>
<td>REVIEW OF FABRICATOR'S QUALITY CONTROL PROCEDURES OR ASBC CERTIFICATION.</td>
</tr>
<tr>
<td><strong>FABRICATOR INSPECTION</strong></td>
<td>P</td>
<td></td>
<td>INSPECT PRECAST FABRICATION. OR REVIEW FABRICATOR'S APPROVED IN-PROCESS/INSPECTION AGENCY'S METHODS.</td>
</tr>
<tr>
<td><strong>SPECIAL ITEMS RELATED TO OTHER EXPLOSIVES SAFETY RELATED ITEMS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>REBAR BARRIER SHIELD</strong></td>
<td>P</td>
<td>DWG S-101-1, 1-12</td>
<td>INSPECT REINFORCING STEEL TO ENSURE ELECTRICAL CONTINUITY BETWEEN THE CAVITY WALLS. SLAB AND FOUNDATION THROUGH BONDING WELDS/DOCQUEMENTS BONDS WITH STUCO AND CONTINUITY TEST.</td>
</tr>
<tr>
<td><strong>GROUNDING</strong></td>
<td>P</td>
<td>DWG S-101-1, 1-12</td>
<td>INSPECT REINFORCING STEEL TO ENSURE ELECTRICAL CONTINUITY BETWEEN THE CAVITY WALLS. SLAB AND FOUNDATION THROUGH BONDING WELDS/DOCQUEMENTS BONDS WITH STUCO AND CONTINUITY TEST.</td>
</tr>
<tr>
<td><strong>GROUNDING SYSTEM</strong></td>
<td>P</td>
<td>DWG S-101-1, 1-12</td>
<td>INSPECT REINFORCING STEEL TO ENSURE ELECTRICAL CONTINUITY BETWEEN THE CAVITY WALLS. SLAB AND FOUNDATION THROUGH BONDING WELDS/DOCQUEMENTS BONDS WITH STUCO AND CONTINUITY TEST.</td>
</tr>
<tr>
<td><strong>INDIVIDUAL BOUNDS</strong></td>
<td>P</td>
<td>EPA, NFPA 70, NFPA 780, DG FM 3654-11, 12</td>
<td>INSPECT ALL BOUNDS WITH LOOSE CONNECTIONS THAT MIGHT RESULT IN HIGH RESISTANCE CONNECTIONS.</td>
</tr>
<tr>
<td><strong>LPS COMPONENTS</strong></td>
<td>P</td>
<td>NFPA 780, NFPA 91, CFM 300-11</td>
<td>INSPECT LPS COMPONENTS FOR SECURITY MOUNTING AND PROTECTION AGAINST ACCIDENTAL MECHANICAL DAMAGE, FAILURE, AND INCOMPATIBILITY.</td>
</tr>
<tr>
<td><strong>LPS TESTING</strong></td>
<td>S</td>
<td>NFPA 780, NFPA 91, DG FM 3654-11, 12</td>
<td>INSPECT BOUNDING STRAP ACROSS EACH H.A.H. AND AN ARTIFICIAL ELECTRIC TEST OF THE LPS.</td>
</tr>
<tr>
<td><strong>EARTH COVER</strong></td>
<td>P</td>
<td>DWG S-301-32</td>
<td>INSPECT DEPTH GUIDES ON ROOF PROOF TO EARTH COVER PLACEMENT FOR SIZE AND STABILITY. INSPECT EARTH COVER 20 FT NORTH AND SOUTH TO ENSURE 11'-2&quot; ME. PROVIDED. REFER TO EARTH FRAME.</td>
</tr>
<tr>
<td><strong>DOOR LIPS</strong></td>
<td>P</td>
<td>DWG S-781</td>
<td>PERFORM BOUNDING TEST ACROSS EACH H.A.H. AND AN ARTIFICIAL ELECTRIC TEST OF THE LPS.</td>
</tr>
</tbody>
</table>

**SPECIAL INSPECTION NOTES:**

1. INSPECTION INTERVENS ARE AS FOLLOWING:
   - **C:** Continuous. The full-time observation of an approved special inspector who is present in the area where work is being performed.
   - **P:** Periodic. The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where work is being performed.
   - **S:** Submittal. The approval of materials, processes, and workmanship by an approved special inspector who is present in the area where work has been done or is being performed and at the completion of the work.

2. STRUCTURAL TEST AND SPECIAL INSPECTIONS ARE BASED ON CHAPTER 17 OF THE 2009 INTERNATIONAL BUILDING CODE.

3. CONTRACTOR SHALL HIRE A QUALIFIED INSPECTION AND TESTING AGENCY TO PERFORM SPECIAL INSPECTIONS AND TESTING IN ACCORDANCE WITH THE IBC. SUBMIT INSPECTION REPORTS TO THE CONTRACTING OFFICER FOR EACH SPECIAL INSPECTIONS AND TESTING IS PERFORMED.
1. Top of slab (finish floor elevation) = 0'-0" U.O.N.
2. Slab-on-grade, 5" concrete on 4" capillary water barrier 
   placed with 84 at 12" C.C. Each way supported 
   1/2" from top of slab unit.
3. Place control joints in slab-on-grade at 18'-0" O.C. (Max.) 
   Control joints shall be completed as soon as possible.
4. Provide 24" of earth cover minimum on roof.
5. It is the responsibility of the site-adapt designer-of-record to 
   determine the size, location, and quantity of tilt-up brace attachment points 
   and lifting inserts to be determined by contractor/prefab. 
   (Footings to meet local, state, and federal codes and topographical conditions.
6. Size, location, and quantity of tilt-up brace attachment points 
   and lifting inserts to be determined by contractor/prefab. 
   (Footings to meet local, state, and federal codes and topographical conditions.
7. It is the responsibility of the site-adapt designer-of-record to 
   modify these drawings to meet local, state, and federal codes.
8. Panels may be prefabricated by a manufacturer specializing in precast or 
   may be precast at the job site.
1. PROVIDE 24" OF EARTH COVER MINIMUM ON ROOF.
2. WATERPROOF ALL SURFACES OF THE SHELTER WHICH WILL BE IN CONTACT WITH EARTH FALL AFTER EARTH REINFORCEMENT.
3. SIZE, LOCATION, AND QUANTITY OF TILT-UP BRACE ATTACHMENT POINTS AND LIFTING POINTS TO BE DETERMINED WITHIN CONTRACT DRAWINGS TO MEET LOCAL SITING, FOUNDATION, AND TOPOGRAPHIC CONDITIONS.
4. IT IS THE RESPONSIBILITY OF THE SITE ADAPTION ENGINEER TO MODIFY THESE DRAWINGS TO MEET LOCAL SITING FOUNDATION, AND TOPOGRAPHIC CONDITIONS.
5. PANELS MAY BE PRECAST BY A MANUFACTURER SPECIALIZING IN PRECAST OR MAY BE PRECAST AT THE JOB-SITE.
6. PROVIDE ELECTRICAL CONTINUITY WITHIN THE PRECAST ROOF PANELS BY TACK WELDING 3/8" CORRUGATED SEMI-RIGID INSERTS TO BE DETERMINED BY CONTRACTOR/PRECAST MANUFACTURER.

COIL INSERT:
- SEE PANEL 1 CROSS-SECTION ON SHEET S-502

VENTILATOR:
- SEE PANEL 2 CROSS-SECTION ON SHEET S-502

DEPTH GAUGE:
- SEE PANEL 3 CROSS-SECTION ON SHEET S-502

PRECAST ROOF PANEL ATTACHMENT:
- SEE PANEL 3 CROSS-SECTION ON SHEET S-502

CONC. RETAINING WALL (SLOPED):
- SEE PANEL 4 CROSS-SECTION ON SHEET S-502

1. PROVIDE 24" EARTH COVER MINIMUM ON ROOF.
2. WATERPROOF ALL SURFACES OF THE SHELTER WHICH WILL BE IN CONTACT WITH EARTH FALL AFTER EARTH REINFORCEMENT.
3. SIZE, LOCATION, AND QUANTITY OF TILT-UP BRACE ATTACHMENT POINTS AND LIFTING POINTS TO BE DETERMINED WITHIN CONTRACT DRAWINGS TO MEET LOCAL SITING FOUNDATION, AND TOPOGRAPHIC CONDITIONS.
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# Sections

**S-304**

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### Support Value Engineering - It Pays

---

"S-304" Sheet 1 of 28
DRAWN BY:
DESIGNED BY:
CHECKED BY:

NUMBER:
SHEET OF:

DATE:

DESCRIPTOR:

REVISIONS:

US ARMY CORPS OF ENGINEERS
HUNTSVILLE CENTER

STANDARD 421-80-10
BOX-TYPE FLOW-THRU MODULAR STORAGE MAGAZINE

SCALE: 3/4"=1'-0"

STIRRUP TYPE "1" 10'-2 3/8"
STIRRUP TYPE "2" 9 1/4"
STIRRUP TYPE "3" 6 3/4"

STUDS AT 12" O.C.
1/2" DIA. x 4" LG. HEADED (START 8" FROM END)
#4 HORZ. REINF. AT 2"
#6 BAR CONT., TYP.
#4 STIRRUPS, 1" RADIUS, TYP.
#4 STIRRUPS 1" RADIUS, TYP.

SECTION Y-Y
SCALE: 3/4"=1'-0"

PRECAST ROOF PANEL DETAIL
SCALE: 3/4"=1'-0"

NOTES:

1. PROVIDE ELECTRICAL CONTINUITY WITHIN THE PRECAST ROOF PANEL BY BONDING #4 BAR AT 5'-0" O.C. MAX, EACH SIDE, TO A 1/2" DIA. x 4" LG. HEADED ANGLE FOR ELECTRICAL CONTINUITY (SEE NOTE 6 ON S102).
2. TACK WELDED TO HORIZ. REINF. AND #4 BAR AT 5'-0" O.C. MAX, EACH SIDE.
3. PROVIDE ELECTRICAL CONTINUITY AS SHOWN IN SECTION AS EJECVE.

SEE PLAN FOR SPACING L4x3x3/8 x 0'-8" LG. (LLV), SEE PLAN FOR SPACING (LLV)
L 3 1/2" x 6" x 3/8" LLH (SEE NOTE 6 ON S102)

TYP.
#10 BARS CONT., TYP.
#6 BAR CONT., TYP.
#4 STIRRUPS
#4 STIRRUPS

NOTE: 87 (3 EQ. SP.)

(SEE NOTE 6 ON S102) ANGLE FOR ELECTRICAL CONTINUITY TACK WELDED TO HORIZ. REINF. AND #4 BAR AT 5'-0" O.C. MAX, EACH SIDE.
A N D  D E T A I L S  

D O O R  F R A M E  E L V E A T I O N S

JM U

JM U

RSW

S-701

A S  S H O W N

CONTRACT DOCUMENTS FOR THE SYSTEM NOT USED.

REDUNDANT SHEETS FROM THE CONSTRUCTION

LOCKING SYSTEM REQUIRED AND REMOVE THE

WITH THE CONTRACTING OFFICER THE CORRECT

LOCKING SYSTEMS. THE DESIGNER SHALL VERIFY

S701(A) - S705(A) (ILD) IDENTIFY TWO DIFFERENT

SHEETS S701 - S705 (HIGH SECURITY HASPS) AND

CONSTRUCTION DRAWINGS FOR SITE ADAPTION DESIGN

DESIGNER NOTE: TO BE REMOVED WHEN PREPARING

NAVY PROJECTS

HIGH SECURITY HASP NOT PERMITTED

*** SAFETY FIRST ***

*** SUPPORT VALUE ENGINEERING - IT PAYS ***
1. HIGH SECURITY HASPS SHALL CONFORM TO MILITARY SPECIFICATION MIL-DTL-29181C, STYLE 1-HASP (M29181-01) FOR RIGHT HAND SWINGING DOOR AND STYLE 2-HASP (M29181-02) FOR LEFT HAND SWINGING DOOR. HIGH SECURITY PADLOCKS SHALL CONFORM TO MILITARY STYLE 1-HASP (M29181-01) FOR RIGHT HAND SWINGING DOOR AND STYLE 2-HASP (M29181-02) FOR LEFT HAND SWINGING DOOR.

2. NO MODIFICATIONS AND/OR DEVIATIONS TO THE DOOR CONSTRUCTION SHOWN IN THE STANDARD SPECIFICATION MIL-DTL-43607J.

3. DOOR MANUFACTURER WILL COORDINATE WITH THE GOVERNMENT ON INSTALLATION AND ATTACHMENT DETAILS OF THE HASPS AND PROVIDE THE NECESSARY STIFFENERS AND ADDITIONAL FRAMING (IF REQUIRED) TO ACCOMMODATE THE HIGH SECURITY HASPS.

4. SEE DOOR FRAME AND DOOR DETAILS ON SHEETS S701 - S704.

ADDITIONAL FRAMING (IF REQUIRED) TO ACCOMMODATE THE HIGH SECURITY HASPS.

HIGH SECURITY HASP NOTES:

- FIGURE 1: Style 1, NR 2 MOD 2

- NOTES:
  1. On back side of each half, machine or cast 3 holes to accept 2.375-inch (62.8 mm) square carriage bolts. Holes to be centered horizontally and vertically spaced 4.0-inches (101.6 mm) from top and bottom outside surface. Bolt hole centers 2.0-inches (50.8 mm) apart.

- HIGH SECURITY HASP

- HIGH SECURITY HASP NOT PERMITTED

- NAVY PROJECTS

- SHEET SIZE, B75, HIGH SECURITY HASPS AND SPECIAL SYMBOLS IDENTIFY THE DIFFERENT LOCKING SYSTEMS. THE DESIGNER SHALL STRIP LOCKS FROM SYSTEM SECURITY AND MAINTAIN THE ACCOMPANYING SHEETS FROM THE CONSTRUCTION CONTRACT DOCUMENTS FOR THE SYSTEM NOT USED.
INTERNAL LOCKING DEVICE (ILD) NOTES:


2. NO MODIFICATIONS AND/OR DEVIATIONS TO THE DOOR CONSTRUCTION SHOWN IN THE STANDARD DRAWINGS ARE PERMITTED TO ACCOMMODATE THE ILD UNLESS APPROVED BY THE U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE (STRUCTURAL BRANCH).

3. DOOR MANUFACTURER WILL COORDINATE WITH THE GOVERNMENT ON INSTALLATION AND ATTACHMENT DETAILS OF THE ILD AND PROVIDE THE NECESSARY STIFFENERS AND ADDITIONAL FRAMING IF REQUIRED TO ACCOMMODATE THE ILD.

4. SEE ILD MANUFACTURERS INSTALLATION DRAWINGS FOR ADDITIONAL INFORMATION NOT SHOWN IN THESE DRAWINGS.

5. SEE DOOR FRAME AND DOOR DETAILS ON SHEETS S701(A) - S705(A) FOR ORDERING INFORMATION.

INTERNAL LOCKING DEVICE (ILD) DRAWING INFORMATION:

- Foot & Head Bolt Shown Disengaged
- View from Inside of Magazine
- Scale: NTS

INTERNAL LOCKING DEVICE (ILD) DRAWING TITLE:

INTERNAL LOCKING DEVICE (ILD) A - B

DRAWN BY:

DESIGNED BY:

CHECKED BY:

DATE:

PROJECT ENGINEER/ARCHITECT:

MARCH 2019

U.S. ARMY CORPS OF ENGINEERS

Huntsville Center

Sheet:

28 of 28

*** SAFETY FIRST ***

*** SUPPORT VALUE ENGINEERING - IT PAYS ***

S-705(A)

STANDARD DRAWING SHEETS:

- S-701(A) - HIGH SECURITY HASPS AND Sec. Straps/Strap Identity
- S-702(A) - Door Butt Jams, Door Edge Protection
- S-703(A) - Door Locks, Door Lock Protection
- S-704(A) - Door Details
- S-705(A) - Internal Locking Device

SUPPORTING DRAWING SHEETS:

- S-421-80-10 - Box-Type Flow-Through Modular Storage Magazine

CONTRACT DOCUMENTS FOR THE SYSTEM NOT USED.
GROUND WELL

GROUND ROD

GROUND RING (LOOP)

CONDUCTOR #4

NOTE 3

GROUND ROD TEST

WELD CONNECTIONS

GROUND RING AND #4/0 BARE COPPER CONNECTION (TYP) EXOTHERMIC WELDED TO #4/0 GROUND RING WELDED CONNECTION

#4/0 BARE COPPER CABLE CONNECTOR (TYP)

#4/0 BARE COPPER CABLE CONNECTOR (TYP)

NOTE 3

#4/0 BARE COPPER CABLE CONNECTOR (TYP)

#4/0 BARE COPPER CABLE CONNECTOR (TYP)

NOTE 3

#4/0 BARE COPPER CABLE CONNECTOR (TYP)

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NOTE 3
TYPICAL HEADWALL DETAIL WITH ROLLING SPHERE ANALYSIS
N.T.S.

TYPICAL CROSS SECTION DETAIL WITH ROLLING SPHERE ANALYSIS
N.T.S.

TYPICAL ISOMETRIC VIEW WITH ROLLING SPHERE ANALYSIS
N.T.S.

NOTE: ISOMETRIC VIEW SHOWN IS TYPICAL FOR 40 FT. E.D.W.
TYPICAL RSM ANALYSIS DIAGRAM - 120 FT. ECM

Note: Air terminals, unless otherwise noted, 24" in diameter.

1. All ventilators may not be shown for clarity. Any ventilators or other structures for earth covered magazines for clarity. Any ventilators or other structures for earth covered magazines shall have an air terminal at the top of the structure and be bonded to grade within munitions storage.

2. Grounding connections not shown for ground similarly as shown. Have an air terminal at the top of the structure.

FOR EARTH COVERED MAGAZINES

TYPICAL AIR TERMINAL PLACEMENT

FOR EARTH COVERED MAGAZINES

NOTE: 24" AIR TERMINALS UNLESS OTHERWISE NOTED.