

NOTES FOR DESIGNER:

(DO NOT INCLUDE ON CONSTRUCTION DRAWINGS)

USE OF THIS STANDARD:

1. READ THROUGH LIMITATIONS AND ENSURE APPLICATION MEETS REQUIREMENTS SPECIFIED. IF ANY LIMITATIONS APPLY, CONSULT A STRUCTURAL ENGINEER.
3. SHEET NO. ST-F1033-3 IS FOR USE WITH EQUIPMENT WEIGHTING LESS THAN 100 LBS (SMALL). SHEET NO. ST-F1033-4 IS FOR USE WITH EQUIPMENT WEIGHING FROM 100 LBS TO 250 LBS (LARGE).
4. CONSULT THE LIST OF APPROVED ENCLOSURES (ST-F1033-2). THIS STANDARD ONLY APPLIES TO EQUIPMENT ON THE LIST AND/OR WITHIN THE RANGE OF ACCEPTABLE WEIGHTS AND DIMENSIONS AS SPECIFIED ON SHEET ST-F1033-2.
5. THIS STANDARD IS NOT APPLICABLE TO EQUIPMENT EXCEEDING 250 LBS OR OUTSIDE OF THE ACCEPTABLE WEIGHT AND/OR DIMENSION RANGE.
6. THIS DRAWING IS VERIFIED FOR THE CONNECTION TO EACH WALL TYPE SPECIFIED. IT DOES NOT ADDRESS THE OVERALL WALL STRUCTURAL CAPACITY THAT CAN BE SUBJECT TO SITUATION VARIATION AND SHOULD BE CONSIDERED IF DEEMED NECESSARY.

GENERAL CRITERIA:

1. THIS DESIGN MAY BE USED AS A STAND ALONE PACKAGE OR AS PART OF A LARGER DRAWING PACKAGE. ENGINEERING REVIEW AND APPROVAL SHALL BE OBTAINED FOR SITE-SPECIFIC CONDITIONS.
2. ANY DISCREPANCIES SHALL BE REPORTED TO THE RESPONSIBLE ENGINEER PRIOR TO CONSTRUCTION.
3. NEW CONSTRUCTION SHALL BE COORDINATED WITH EXISTING SITE CONDITIONS.
4. THE PROJECT SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND PROTECT CONCEALED CONDUITS, PLUMBING, OR OTHER UTILITIES.
5. WHERE DIMENSIONS SHOWN ON SHEETS ST-F1033-3 AND ST-F1033-4 ARE SPECIFIED AS MIN OR MAX, SUBCONTRACTOR SHALL MAKE NECESSARY FIELD MEASUREMENTS AND PROVIDE REQUIRED DIMENSIONS.
6. SHEET NUMBERING AND CALL-OUT REFERENCING WILL NEED TO BE UPDATED TO FOLLOW LANL STANDARDS AND INTEGRATE INTO DRAWING PACKAGES.

LIMITATIONS:

ALL WALL TYPES

1. EQUIPMENT MUST BE MOUNTED INDOORS.

STEEL STUDS

1. MIN. REQUIRED WALL STUD SPACING IS 12".

WOOD STUDS

1. MIN. REQUIRED WALL STUD SPACING IS 12".
2. MIN. SPECIFIC GRAVITY OF WOOD STUDS IS 0.42 (SPRUCE, PINE, FIR).
3. WOOD IS IN DRY CONDITIONS AT A TEMPERATURE LESS THAN 100°.

CONCRETE WALL

1. MIN. REQUIRED COMPRESSIVE STRENGTH OF CONCRETE IS 3500 PSI.
2. MIN. REQUIRED DISTANCE FROM ANCHOR TO EDGE OF WALL IS 12".

MASONRY WALL

1. MIN. REQUIRED COMPRESSIVE STRENGTH OF MASONRY IS 1500 PSI.
2. MIN. REQUIRED COMPRESSIVE STRENGTH OF GROUT IS 2000 PSI.
3. CMU MUST BE FILLED WITH GROUT.
4. MIN. REQUIRED DISTANCE FROM ANCHOR TO EDGE OR TOP OF WALL IS 4".
5. MIN. REQUIRED DISTANCE FROM ANCHOR TO MORTAR HEAD JOINT IS 1.25".
6. MASONRY MUST NOT BE CRACKED WHEN USING SCREW ANCHORS.

MATERIAL CRITERIA:

1. SELF-DRILLING METAL SCREWS
 - A. USE HILTI SELF-DRILLING SCREWS OR APPROVED EQUAL.
 - B. SELF-DRILLING SCREWS SHALL ADHERE TO LANL MASTER SPEC FOR METAL FABRICATIONS (SECTION 05 5000).
 - C. SELF-DRILLING METAL SCREWS SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES AND ICC REPORT (ESR 2196).
 - D. STANDARD INSTALLATION REQUIRES ANCHORING DIRECTLY INTO THE EXISTING WALL STUD.
 - E. DRYWALL SCREWS ARE NOT PERMITTED.
2. WOOD SCREWS
 - A. USE SIMPSON SDS WOOD SCREWS AND LAG SCREWS OR APPROVED EQUAL.
 - B. WOOD SCREWS SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES AND NDS.
 - C. STANDARD INSTALLATION REQUIRES ANCHORING DIRECTLY INTO THE EXISTING WALL STUD.
 - D. DRYWALL SCREWS ARE NOT PERMITTED.
3. POST-INSTALLED CONCRETE ANCHORS
 - A. USE HILTI KWIK BOLT TZ CARBON AND STAINLESS STEEL ANCHORS OR APPROVED EQUAL.
 - B. POST-INSTALLED ANCHORS SHALL ADHERE TO LANL MASTER SPEC FOR POST-INSTALLED ANCHORS - NORMAL CONFIDENCE (SECTION 03 1534).
 - C. POST-INSTALLED ANCHORS SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES AND ICC REPORT (ESR-1917).
4. POST-INSTALLED MASONRY THRU-BOLTS
 - A. USE ASTM A307 GRADE A THRU-BOLTS OF GALVANIZED FINISH WITH WASHERS AND HEAVY HEX NUTS OF GALVANIZED FINISH.
 - B. THRU-BOLTS SHALL ADHERE TO LANL MASTER SPEC FOR REINFORCED UNIT MASONRY (SECTION 04 2220).
 - C. THRU-BOLTS SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES AND ASTM A307.
5. POST-INSTALLED MASONRY ANCHORS (USAGE IS PENDING STD-342-100 APPROVALS)
 - A. USE HILTI KWIK HUS-EZ (KH-EZ) CARBON STEEL SCREW ANCHORS FOR USE IN MASONRY OR APPROVED EQUAL.
 - B. POST-INSTALLED ANCHORS SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES AND ICC REPORT (ESR-3056).
 - C. ADHESIVE ANCHORS ARE NOT PERMITTED.
6. STRUT SYSTEM
 - A. USE COOPER B-LINE STRUT, NUTS, AND BOLTS OR APPROVED EQUAL.
 - B. STRUT SYSTEM SHALL ADHERE TO LANL MASTER SPEC FOR COLD-FORMED METAL FRAMING (SECTION 05 4000).
 - C. STRUT SYSTEM SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES.


DESIGN CRITERIA:

1. APPLICABLE CODES AND STANDARDS:
 - 1.1. INTERNATIONAL BUILDING CODE 2009 (IBC)
 - 1.2. AMERICAN SOCIETY OF CIVIL ENGINEERS - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES 2005 (ASCE 7)
 - 1.3. AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL 14TH EDITION (AISC)
 - 1.4. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION 2005 (NDS)
 - 1.5. AMERICAN CONCRETE INSTITUTE - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE 2005 (ACI 318)
 - 1.6. AMERICAN CONCRETE INSTITUTE - BUILDING CODE REQUIREMENTS FOR STRUCTURAL MASONRY 2008 (ACI 530)
 - 1.7. LANL ENGINEERING STANDARDS MANUAL STD-342-100
2. MANAGEMENT LEVEL: ML-4. FOR ML-1, ML-2, AND ML-3, ADDITIONAL REQUIREMENTS MAY BE REQUIRED.
3. STRUCTURE PERFORMANCE CATEGORY: PC-1 OR PC-2
4. CALCULATIONS:
 - 4.1. WALL MOUNTED ENCLOSURES STANDARD CAL-12-00-0000-0015-S-R-0
5. DESIGN LOADS:
 - 5.1. DEAD LOADS: SELF WEIGHT OF EQUIPMENT (UP TO 250 LBS)
 - 5.2. SEISMIC DESIGN BASED ON LANL ESM CHAPTER 5 SECTION II REV 6. SEISMIC DESIGN PARAMETERS:

$$S = 0.75g$$

$$I = 1.5$$

$$R = 1.5$$

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
ENGINEERING STANDARDS PROGRAM									
ENGINEERING STANDARDS MANUAL								DRAWN K. SOUZA	
WALL-MOUNTED EQUIPMENT NOTES								DESIGN K. SOUZA	
BLDG XXXX								CHECKED A. MOSIMANN	
SUBMITTED								DATE 06-04-14	
DISCIPLINE POC: JONI L. WEAMER								STANDARDS MANAGER: TOBIN ORUCH	
APPROVED FOR RELEASE								SHEET S-0001	
 PO Box 1663 Los Alamos, New Mexico 87545								1 OF 4	
CLASSIFICATION: UNCLASSIFIED					REVIEWER: ED SEAWALT			DATE: 06-02-14	
PROJECT ID CHAPTER 5					DRAWING NO ST-F1033-1			REV 0	