

LO4-160
Specifying Guidelines
Seismic Anchorage for Free Standing, Floor Anchored Shelving
OSHPD Pre-Approval OPA-0556

NOTE: OPA-0556 is valid for the 2001 and 2007 California Building Codes (CBC) which governed new building projects in the state of California designed to the requirements of the 2001 and 2007 CBC. The components were not submitted to OSHPD for the 2010 CBC and thus have not earned pre-approval for building projects subject to the 2010 CBC. However, these seismic foot plates can be used with Metro Super Erecta, Super Adjustable Super Erecta, qwikSLOT, HD Super, and MetroMaxQ shelving units to obtain site specific approval.

Drawing Description:

- S1 (Page 1 of Pre-approval) General Notes and Index to the pages for different lengths of shelves.
- S2 (Page 2 of Pre-approval) Anchorage Details
 - Two-Bolt Anchor plate is used for stand-alone units (starter kit)
 - Four-Bolt Anchor plate is used for stand-alone units (starter kit)
 - Six-Bolt Anchor plate is used for back to back, or side to side, installations (use Four-Bolt plate tables for 6-bolt plate applications) (add-on kit)

Drawing #s S3-S10 (Pages 3-10) are for shelf lengths of 24” to 72” and are used to determine the bolt plate (sometimes referred to as the “anchor plate”) needed and the number of 3/8” bolts considering the shelf seismic load capacity, seismic zone, story ratio.

Step 1: Determine the installation story (IS) upon which the shelving is to be installed. Ground floor and all levels below grade are considered to be floor “1”. Determine the total stories above grade (TSG) in the building:

$$\text{Story Ratio} = (\text{IS}-1) / \text{TSG}$$

Example: If the installation is on the 2nd floor above grade of a 4-story building:

$$\text{Story Ratio} = (2-1) / 4 = 0.25$$

Example: If the installation is on the 1st floor below grade of a 4-story building:

$$\text{Story Ratio} = (1-1) / 4 = 0$$

Step 2: Determine the seismic zone of the installation. It will be either Zone 3, 4 or 4NF (near fault).

Step 3: Determine the shelf length and refer to the appropriate page for the loading tables (see chart below).

Length	Drawing #	Pre-Approval Page #
24	S3	3
30	S4	4
36	S5	5
42	S6	6
48	S7	7
54	S8	8
60	S9	9
72	S10	10

Note: When referring to drawing tables
 Two-Bolt Anchor Plate = ¼” bolt plates
 Four-Bolt Anchor Plate = ½” bolt plates

Note: The loading table will help you determine which bolt (anchor) plate (¼” or ½” thick) and number of clevis pins (provided with bolt plates) the installer must install, based on the desired load capacity.

Step 4: Determine the shelf capacity. The tables are based on either 30 or 50 psf (pounds per square foot). Shelf weight capacity is based on shelf width, seismic zone, story ratio, bolt (anchor) plate and whether one or two clevis pins are used to hold the post in the socket. If the story ratio that was calculated in step 1 is not shown, use the next highest figure.

Example: If the Story Ratio = 0.25 use the table for 0.4

To determine the shelf capacity, multiple the shelf length times the shelf width in inches, multiple by the rating of 30 or 50 pounds per square foot and divide by 144 pounds per square foot.

Example: A 2460 shelf at 50 psf has a load capacity of
 $24" \times 60" \times 50 \text{ psf} / 144 = 500 \text{ pounds}$

If the shelf capacity is not high enough, you may have to change from a two-bolt to a four-bolt anchor plate.

NOTE: The part numbers for the bolt plate kits are found in the Metro catalog or brochure # L04-101.

Step 5: Determine the total number of 3/8" clevis pins required from the tables.

Step 6: Determine the number of load markers required - one per shelving unit minimum.

Bolt (Anchor) Plate Assembly to Shelving Post Connection

The bolt plate assembly is designed to allow in-field leveling of the shelving and secure anchorage of the shelving to the bolt plates. This is accomplished with standard shelves and posts with leveling legs.

The sequence of construction is to place the assembled shelving unit in its intended position. Next mark on the floor the location of the shelving posts, or place the bolt plates under the posts, and then move the shelving unit out of the way. Utilizing a template, or the actual bolt plate, the floor anchors are located and their holes drilled. The bolt plates are then installed. The shelving unit is then moved adjacent to the bolt plates and leveled. The shelving unit is lifted and the posts are set into the pipe sleeves in the bolt plate assembly. Once the shelving unit is in place and level, horizontal holes in each pipe sleeve are used to align a 13/32" drill bit and a horizontal hole (or two, as determined from Steps 1 to 5 above) is drilled through the post. Alternatively, the pipe sleeve holes can be used to mark the post hole locations, the shelving unit removed and then drill the posts. A 3/8" diameter clevis pin (or two) is then installed. This clevis pin will resist uplift only. Lateral forces will be resisted via direct bearing of the post onto the pipe sleeve. Finally, affix the proper label designating the unit as either 30 psf or 50 psf per shelf. The load rating is determined by the tables and may be shown on your installation drawing.

Hints:

- Bottom shelf must be installed no greater than 12" from the floor. The lowest possible shelf position is recommended.
- If cleaning is an issue, it is recommended a donut bumper be specified to cover any spaces between the post and the bolt plate pipe sleeve. Specify the donut bumper to match the post type.
- Metro does not provide the concrete anchors. The correct floor anchors must be used for the specific installation conditions and meet all applicable codes.
- QwikSLOT locking clip (9985SQSL) must be used with all qwikSLOT shelving.

INTERMETRO INDUSTRIES
FREE STANDING, FLOOR ANCHORED
SUPERERECTA (SES) / SUPER ADJUSTABLE SUPER ERECTA (SASE) / QWIKSLOT / HD SUPER / METROMAX Q SHELVING
SEISMIC ANCHORAGE REQUIREMENTS

GENERAL NOTES:

- A1. THE PRE-APPROVAL IS ONLY FOR ANCHORAGE. THE ENGINEER OF RECORD FOR A SITE SPECIFIC PROJECT MUST SUBSTANTIATE THE ADEQUACY OF THE SUPPORTING STRUCTURE.
- A2. THE PRE-APPROVAL IS ONLY FOR (1) A MAXIMUM 30 PSF AND 50 PSF CAPACITY LOCATED IN SEISMIC ZONES 3, 4 AND 4 NEAR FAULT (I.E. LESS THAN 2 KM.)
- A3. WHERE INSTALLATIONS REQUIRE A MAXIMUM 30 PSF CAPACITY, A POSTING SHALL BE REQUIRED WHICH STATES "MAX. LOADING 30PSF".
- A4. SPECIAL INSPECTION REQUIREMENTS OF SECTION 1701A, 2001 CBC, APPLY TO CONCRETE ANCHOR BOLT INSTALLATION.
- A5. CONCRETE ANCHORS SHALL BE AS CALLED FOR ON THE DETAILS. ANY SUBSTITUTIONS SHALL HAVE AN EQUIVALENT ICBO RATED LOAD VALUE. THE TESTING OF ALL EXPANSION ANCHORS SHALL BE IN COMPLIANCE WITH THE FOLLOWING:
 ANCHORS (LOADED IN EITHER PULLOUT OR SHEAR) SHALL HAVE 50% OF THE BOLTS TESTED, IF THERE ARE ANY FAILURES, THE BALANCE OF THAT GROUP MUST ALSO BE TESTED.
- A. EXPANSION ANCHORS
 EXPANSION ANCHORS SHALL BE HILTI HDI, ICBO ER-2895 UNLESS OTHERWISE NOTED.
 MINIMUM CONCRETE SLAB THICKNESS SHALL BE 3 7/8"
 MINIMUM CONCRETE EDGE DISTANCE FROM CENTER OF ANCHOR SHALL BE 7 11/16".
 PROOF LOAD TEST HDI BOLT TO A MINIMUM LOAD OF 2470 LBS. TENSION-PROOF LOAD TESTS SHALL BE DONE BY AN INDEPENDENT TESTING LABORATORY.
- A6. ADDITIONAL TEST SPECIFICATIONS PER CAN 1925.B.3.5 AS FOLLOWS:
 1. ANCHOR DIAMETER REFERS TO THE THREAD SIZE FOR THE WEDGE ANCHORS
 2. APPLY PROOF TEST LOADS TO ANCHORS WITH NUT IN PLACE.
 3. TEST LOADS SHALL BE AS FOLLOWS:
- | ANCHOR | TEST LOAD | TORQUE |
|----------------|-----------|------------|
| 5/8" HILTI HDI | 2300 LBS | 80 ft. LBS |
3. REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED PROVIDED THE ANCHOR IS NOT RESTRAINED BY THE FIXTURE.
 4. TEST 50% OF THE INSTALLED ANCHORS PER CBC 1923A.3.5
 5. TESTING LAB SHALL CALIBRATE TEST EQUIPMENT INCLUDING TORQUE WRENCHES.
 6. TESTING SHOULD OCCUR 24 HOURS MINIMUM AFTER INSTALLATION
 7. IF ANY ANCHOR FAILS TESTING, ALL ANCHORS IN THE SAME CATEGORY SHALL BE TESTED
 8. THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
 HYDRAULIC RAM METHOD: THE ANCHO SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. THAT IS, THE WASHER UNDER THE NUT SHOULD NOT BECOME LOOSE.
 TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN ONE-HALF (1/2) THE TURN OF THE NUT.
 9. ALL TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE INSPECTOR OF RECORD.

Summary of Anchorage Tables
 Intermetro Super Erecta Wire Shelving

TABLE	DWG	Shelf Length	Shelf Width	Shelf Loading	Anchor Plate Type
1A	S3.0	24"	14" to 36"	30 psf	two bolt plate
1B		"	"	"	four bolt plate
1C		"	"	50 psf	two bolt plate
1D		"	"	"	four bolt plate
2A	S4.0	30"	"	30 psf	two bolt plate
2B		"	"	"	four bolt plate
2C		"	"	50 psf	two bolt plate
2D		"	"	"	four bolt plate
3A	S5.0	36"	"	30 psf	two bolt plate
3B		"	"	"	four bolt plate
3C		"	"	50 psf	two bolt plate
3D		"	"	"	four bolt plate
4A	S6.0	42"	"	30 psf	two bolt plate
4B		"	"	"	four bolt plate
4C		"	"	50 psf	two bolt plate
4D		"	"	"	four bolt plate
5A	S7.0	48"	"	30 psf	two bolt plate
5B		"	"	"	four bolt plate
5C		"	"	50 psf	two bolt plate
5D		"	"	"	four bolt plate
6A	S8.0	54"	"	30 psf	two bolt plate
6B		"	"	"	four bolt plate
6C		"	"	50 psf	two bolt plate
6D		"	"	"	four bolt plate
7A	S9.0	60"	"	30 psf	two bolt plate
7B		"	"	"	four bolt plate
7C		"	"	50 psf	two bolt plate
7D		"	"	"	four bolt plate
8A	S10.0	72"	"	30 psf	two bolt plate
8B		"	"	"	four bolt plate
8C		"	"	50 psf	two bolt plate
8D		"	"	"	four bolt plate

- A7. DESIGN CRITERIA
 SEISMIC DESIGN:
 LATERAL FORCE ON ELEMENT OF STRUCTURE
 $F_p = ap Ca Ip [(1 + 3 h_x/hr) W_p] / R_p$
 $F_p = 0.7 Ca Ip W_p$ (MINIMUM)
 $F_p = 4.0 Ca Ip W_p$ (MAXIMUM)
 $Ip = 1.5$ FOR ESSENTIAL FACILITIES
 WHERE: $ap = 2.5$
 $R_p = 1.5$ FOR SHALLOW ANCHORS
 $Ca =$ VARIES FOR PROXIMITY TO NEAREST SEISMIC SOURCE
 $Ca = 0.36$ FOR SEISMIC ZONE 3, $Ca = 0.44$, FOR SEISMIC ZONE 4, AND
 $Ca = 0.66$ FOR SEISMIC ZONE 4 NEAR FAULT

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Fixed Equipment Anchorage

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OPA-0556

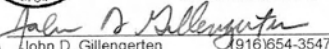
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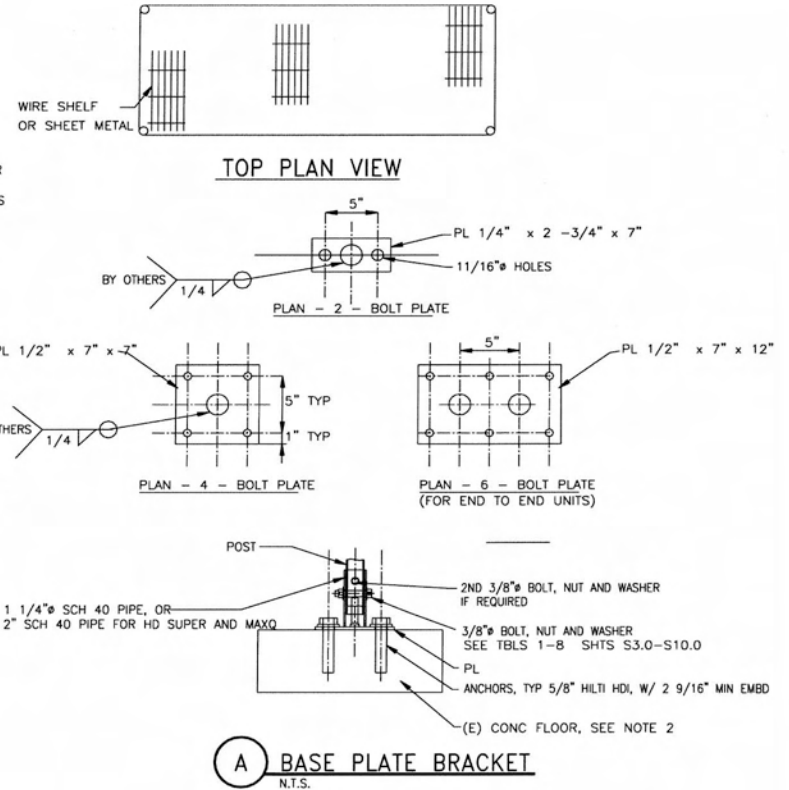
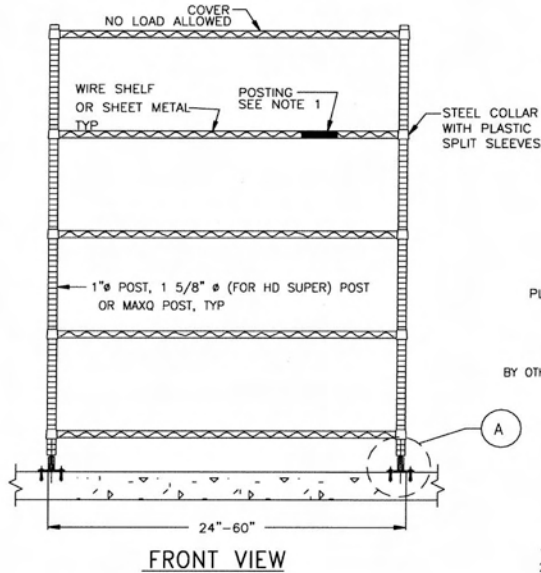
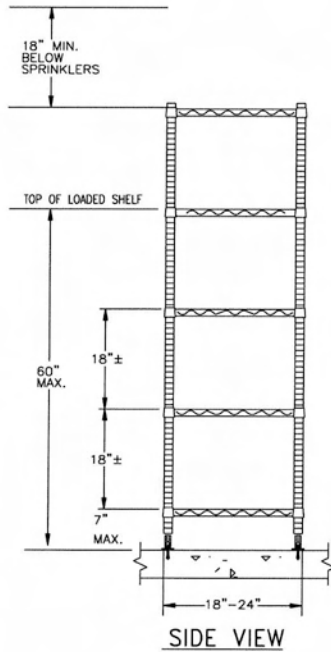

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APPROVALS	DATE			
DWN [JS]		TITLE: SEISMIC ANCHORAGE		
CHK [CAC]	[8/31/04]	FREE STANDING, FLOOR ANCHORED SES / SASE / QWIKSLOT / HD SUPER / MAX Q		
PD [WJS]		GENERAL NOTES		
MFG []		SIZE B	SH 1 OF 10	DWG. NO. S1.0
METRO DWG NO : 23209		SCALE: N.T.S	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE	

NOTICE
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SINGLE UNIT CONDITION



- NOTES:
- WHERE 30 PSF SHELF LOADING UTILIZED (USING TABLES XA OR XB) POSTING OF MAXIMUM SHLEF LOADING REQUIRED
 - CONCRETE THICKNESS MUST BE 3 9/16" TO ACCOMMODATE 5/8" HILTI HDI ANCHOR

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APPROVALS	DATE	TITLE: SEISMIC ANCHORAGE FREE STANDING, FLOOR ANCHORED SES / SASE / QWIKSLOT / HD SUPER / MAX Q	
DWN [JS]		ANCHORAGE DETAILS	
CHK [CAC]	[8/31/04]	SIZE B	SH 2 OF 10
PD [WJS]		DWG. NO.	S2.0
MFG []		SCALE:	N.T.S.
METRO DWG NO.:	23209	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE	
			REV.

Table 1
Through-bolt Requirement for Acceptable Anchorage Configurations
24 inch Long Shelving
at Various Story Locations

Table 1A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
24	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
30	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
36	3/8" dia	3/8" dia	3/8" dia	NG	NG	NG
Zone 4						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	NG	NG	NG	NG
24	3/8" dia	3/8" dia	NG	NG	NG	NG
30	3/8" dia	NG	NG	NG	NG	NG
36	3/8" dia	3/8" dia	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia	3/8" dia	NG	NG	NG	NG
18	3/8" dia	3/8" dia	NG	NG	NG	NG
21	3/8" dia	NG	NG	NG	NG	NG
24	3/8" dia	NG	NG	NG	NG	NG
30	3/8" dia	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 1B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
24	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
30	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
36	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
Zone 4						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
24	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
30	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
36	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
Zone 4NF						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
24	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
30	3/8" dia	3/8" dia	NG	NG	NG	NG
36	3/8" dia	two - 3/8" dia	NG	NG	NG	NG

Table 1C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	NG	NG	NG
24	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
30	3/8" dia	3/8" dia	NG	NG	NG	NG
36	3/8" dia	3/8" dia	NG	NG	NG	NG
Zone 4						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	NG	NG	NG	NG
24	3/8" dia	3/8" dia	NG	NG	NG	NG
30	3/8" dia	NG	NG	NG	NG	NG
36	3/8" dia	3/8" dia	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia	3/8" dia	NG	NG	NG	NG
18	3/8" dia	3/8" dia	NG	NG	NG	NG
21	3/8" dia	NG	NG	NG	NG	NG
24	3/8" dia	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 1D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
24	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
30	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
36	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
Zone 4						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
24	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
30	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
36	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
Zone 4NF						
14	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
18	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
21	3/8" dia	3/8" dia	3/8" dia	two - 3/8" dia	two - 3/8" dia	two - 3/8" dia
24	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia	3/8" dia
30	3/8" dia	3/8" dia	NG	NG	NG	NG
36	3/8" dia	3/8" dia	NG	NG	NG	NG

ANCHORS LOADED IN EITHER TENSION OR SHEAR SHALL HAVE 90% OF THE BOLTS NESTED.

Legend:

NG
 No Good, i.e. an unacceptable configuration

3/8" dia
 One 3/8" diameter through-bolt connection required

two - 3/8" dia
 Two 3/8" diameter through-bolt connection required

Notes:

1. Story Ratio formula is (IS-1)/TSG, or (Installation story - 1)/(Total Stories above grade)

where:
 IS: Installation story - i.e. the story upon which the shelving is to be located
 TSG: Total Stories above Grade

- If story ratio is not shown, use the next highest figure.
 - Ground floor plus all levels below grade are deemed to be on floor "1", i.e. Story Ratio = 0.0.
 - In no case shall the InterMetro shelf rating be exceeded.

Fixed Equipment Anchorage

Office of Statewide Health Planning and Development

OPA-0556

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DO NOT SCALE DRAWINGS	
APPROVALS	DATE
DWN [JS]	
CHK [CAC]	[08/31/04]
PD [WJS]	
MFG []	
METRO DWG NO. 23209	

InterMETRO		InterMetro Industries Corp. North Washington Street Wiles-Barre, PA 18705	
TITLE: SEISMIC ANCHORAGE - FREESTANDING, FLOOR ANCHORED SES / SASE / QWIKSLOT / HD SUPER / MAX Q			
Table 1			
Through Bolt Req't for 24" Long Shelving			
SIZE B	SH 3 OF 10	DWG. NO. S3.0	REV.
SCALE: N.T.S	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE		

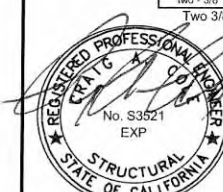


Table 2
Through-bolt Requirement for Acceptable Anchorage Configurations
30 inch Long Shelving
at Various Story Locations

Table 2A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG				
	0	0.2	0.4	0.6	1.0
Zone 3					
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
24	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
30	3/8" dia.	3/8" dia.	NG	NG	NG
36	3/8" dia.	3/8" dia.	NG	NG	NG
Zone 4					
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
24	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG
30	3/8" dia.	3/8" dia.	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG
Zone 4NF					
14	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG
18	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG
21	3/8" dia.	3/8" dia.	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG

Table 2C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG				
	0	0.2	0.4	0.6	1.0
Zone 3					
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG
Zone 4					
14	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG
18	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG
21	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG
Zone 4NF					
14	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG
30	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG

Table 2B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG				
	0	0.2	0.4	0.6	1.0
Zone 3					
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4					
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4NF					
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG

Table 2D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG				
	0	0.2	0.4	0.6	1.0
Zone 3					
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4					
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG
Zone 4NF					
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	NG	NG	NG
24	3/8" dia.	two - 3/8" dia.	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG
36	two - 3/8" dia.	NG	NG	NG	NG

Legend:

NG

No Good, i.e. an unacceptable configuration

3/8" dia.

One 3/8" diameter through bolt connection required

Fixed Equipment Anchorage

two 3/8" diameter through bolt connection required

Two 3/8" diameter through bolt connection required

Notes:

1. Story Ratio formula is (IS-1)/TSG, or (Installation story - 1)/(Total Stories above grade)

where:

IS: Installation story - i.e. the story upon which the shelving is to be located

TSG: Total Stories above Grade

- If story ratio is not shown, use the next highest figure.

- Ground floor plus all levels below grade are deemed to be on floor "1", i.e. Story Ratio = 0.0.

- In case shall the InterMETRO shelf rating be exceeded.



OPA-0556
 on
 Thursday, October 21, 2004

**** Valid for 3 Years Maximum ****

John D. Gillengerten
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DO NOT SCALE DRAWINGS	
APPROVALS	DATE
DWN [JS]	
CHK [CAC]	[08/31/04]
PD [WJS]	
MFG []	
METRO DWG NO.: 23209	

InterMETRO		InterMetro Industries Corp. North Washington Street Wiles-Barre, PA 18705
TITLE: SEISMIC ANCHORAGE - FREESTANDING, FLOOR ANCHORED SES / SASE / QWIKSLOT / HD SUPER / MAX Q		
Table 2		
Through Bolt Req't for 30" Long Shelving		
SIZE B	SH 4 OF 10	DWG. NO. S4.0
SCALE: N.T.S		REV.
CAD GENERATED DRAWING DO NOT MANUALLY UPDATE		

Table 3
Through-bolt Requirement for Acceptable Anchorage Configurations
36 inch Long Shelving
at Various Story Locations

Table 3A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
24	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG	NG
30	3/8" dia.	3/8" dia.	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 3C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG	NG
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 3B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4NF						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.

Table 3D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	NG	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG
36	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG
Zone 4NF						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG

Legend:

NG
 No Good, i.e. an unacceptable configuration

3/8" dia.
 One 3/8" diameter through bolt connection required

two - 3/8" dia.
APPROVED
Fixed Equipment Anchorage

Two 3/8" diameter through bolt connections required
 Office of Statewide Health Planning and Development

Notes:

- Story Ratio formula is (IS-1)/TSG, or (Installation story - 1)/(Total Stories above grade) where:
 IS: Installation story - i.e. the story upon which the shelving is to be located
 TSG: Total Stories above Grade
 - If story ratio is not shown, use the next highest figure.
 - Ground floor plus all levels below grade are deemed to be on floor "1", i.e. Story Ratio = 0.0.
- In no case shall the InterMetro shelf rating be exceeded.

OPA-0556

on

Thursday, October 21, 2004

**** Valid for 3 Years Maximum ****

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DO NOT SCALE DRAWINGS

APPROVALS	DATE
DWN [JS]	
CHK [CAC]	[08/31/04]
PD [WJS]	
MFG []	
METRO DWG NO.:	23209

InterMETRO		InterMetro Industries Corp. North Washington Street Wiles-Barre, PA 18705
TITLE: SEISMIC ANCHORAGE - FREESTANDING, FLOOR ANCHORED SES / SASE / QWIKSLOT / HD SUPER / MAX Q		
Table 3 Through Bolt Req't for 36" Long Shelving		
SIZE B	SH 5 OF 10	DWG. NO. S5.0
SCALE: N.T.S	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE	



Table 4
Through-bolt Requirement for Acceptable Anchorage Configurations
42 inch Long Shelving
at Various Story Locations

Table 4A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	two - 3/8" dia.	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 4C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 4B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4NF						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.

Table 4D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
Zone 4NF						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.

Legend:

- NG
- No Good, i.e. an unacceptable configuration
- 3/8" dia.
- One 3/8" diameter through bolt connection required
- two - 3/8" dia.
- Two 3/8" diameter through bolt connections required

APPROVED

Fixed Equipment Anchorage

Office of Structural Engineering and Development

OPA-0556

on

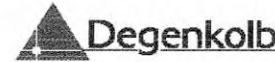
Thursday, October 21, 2004

**** Valid for 3 Years Maximum ****

John D. Gillengerten
 John D. Gillengerten 916/654-3547

Notes:

1. Story Ratio formula is $(IS-1)/TSG$, or (Installation story - 1)/(Total Stories above grade) where:
 - IS: Installation story - i.e. the story upon which the shelving is to be located
 - TSG: Total Stories above Grade
 - If story ratio is not shown, use the next highest figure.
 - Ground floor plus all levels below grade are deemed to be on floor "1", i.e. Story Ratio = 0.0.
2. In no case shall the InterMetro shelf rating be exceeded.



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DO NOT SCALE DRAWINGS	
APPROVALS	DATE
DWN [JS]	
CHK [CAC]	[08/31/04]
PD [WJS]	
MFG []	
METRO DWG NO:	23209

		InterMetro Industries Corp. North Washington Street Willes-Barre, PA 18705
TITLE: SEISMIC ANCHORAGE - FREESTANDING, FLOOR ANCHORED SES / SASE / QWIKSLOT / HD SUPER / MAX Q		
Table 4 Through Bolt Req't for 42" Long Shelving		
SIZE B	SH 6 OF 10	DWG. NO. S6.0
SCALE: N.T.S		CAD GENERATED DRAWING DO NOT MANUALLY UPDATE

Table 5
Through-bolt Requirement for Acceptable Anchorage Configurations
48 inch Long Shelving
at Various Story Locations

Table 5A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	NG	NG	NG
21	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	two - 3/8" dia.	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 5C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 5B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
Zone 4						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
Zone 4NF						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
24	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG

Table 5D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Legend:

NG
 No Good, i.e. an unacceptable configuration

3/8" dia.
 One 3/8" diameter through bolt connection required

two - 3/8" dia.
 Two 3/8" diameter through bolt connections required

Notes:

1. Story Ratio formula is (IS-1)/TSG, or (Installation story - 1)/(Total Stories above grade) where:
 IS: Installation story - i.e. the story upon which the shelving is to be located
 TSG: Total Stories above Grade
 - If story ratio is not shown, use the next highest figure.
 - Ground floor plus all levels below grade are deemed to be on floor "1", i.e. Story Ratio = 0.0
 - In no case shall the InterMetro shelf rating be exceeded.

APPROVED
Fixed Equipment Anchorage



OPA-0556
 on
 Thursday, October 21, 2004
 **** Valid for 3 Years Maximum ****

John D. Gillengerten
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APPROVALS	DATE
DWN [JS]	
CHK [CAC]	[08/31/04]
PD [WJS]	
MFG []	
METRO DWG NO.: 23209	



InterMetro Industries Corp.
 North Washington Street
 Wiles-Barre, PA 18705

TITLE: SEISMIC ANCHORAGE - FREESTANDING, FLOOR ANCHORED
 SES / SASE / QWIKSLOT / HD SUPER / MAX Q

Table 5
Through Bolt Req't for 48" Long Shelving

SIZE B	SH 7 OF 10	DWG. NO.	S7.0	REV.
SCALE:	N.T.S.	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE		

Table 6
Through-bolt Requirement for Acceptable Anchorage Configurations
54 inch Long Shelving
at Various Story Locations

Table 6A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	3/8" dia.	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	3/8" dia.	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 6C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	NG	NG	NG	NG	NG	NG
18	NG	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 6B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
36	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG	NG
36	two - 3/8" dia.	NG	NG	NG	NG	NG

Table 6D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
24	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
24	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG	NG
36	two - 3/8" dia.	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
21	two - 3/8" dia.	NG	NG	NG	NG	NG
24	two - 3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Legend:

- NG No Good, i.e. an unacceptable configuration
- 3/8" dia. One 3/8" diameter through bolt connection required.
- two - 3/8" dia. Two 3/8" diameter through bolt connections required.

Notes:

1. Story Ratio formula is (IS-1)/TSG, or (Installation story - 1)/(Total Stories above grade) where:
 IS: Installation story - i.e. the story upon which the shelving is to be located
 TSG: Total Stories above Grade
 - If story ratio is not shown, use the next highest figure.
 - Ground floor plus all levels below grade are deemed to be on floor "1", i.e. Story Ratio = 0.0.
2. In no case shall the InterMetro shelf rating be exceeded.

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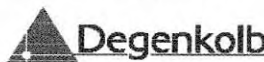


John D. Gillengerten
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OPA-0556

Thursday, October 21, 2004

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MFG []	
METRO DWG NO.: 23209	

		InterMetro Industries Corp. North Washington Street Wiles-Barre, PA 18705
TITLE: SEISMIC ANCHORAGE - FREESTANDING, FLOOR ANCHORED SES / SASE / QWIKSL0T / HD SUPER / MAX Q		
Table 6		
Through Bolt Req't for 54" Long Shelving		
SIZE B	SH 8 OF 10	DWG. NO. S8.0
SCALE: N.T.S.	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE	

Table 7
Through-bolt Requirement for Acceptable Anchorage Configurations
60 inch Long Shelving
at Various Story Locations

Table 7A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.	3/8" dia.
18	3/8" dia.	3/8" dia.	3/8" dia.	NG	NG	NG
21	3/8" dia.	3/8" dia.	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 7C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	NG	NG	NG	NG	NG	NG
18	NG	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 7B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
30	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
36	two - 3/8" dia.	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG
24	two - 3/8" dia.	NG	NG	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG	NG
36	two - 3/8" dia.	NG	NG	NG	NG	NG

Table 7D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ : (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
24	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
24	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
21	two - 3/8" dia.	NG	NG	NG	NG	NG
24	two - 3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Legend:

NG
 No Good, i.e. an unacceptable configuration

3/8" dia.
 One 3/8" diameter through bolt connection required

two - 3/8" dia.
 Two 3/8" diameter through bolt connections required

Notes:

1. Story Ratio formula is (IS-1)/TSG, or (Installation story - 1)/(Total Stories above grade)

where:

IS: Installation story - i.e. the story upon which the shelving is to be located

TSG: Total Stories above Grade

- If story ratio is not shown, use the next highest figure.

- Ground floor plus all levels below grade are deemed to be on floor "1", i.e. Story Ratio = 0.0.

In no case shall the InterMetro shelf rating be exceeded.

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Fixed Equipment Anchorage

OPA-0556

on

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John D. Gillengerten
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METRO DWG NO.: 23209	

InterMETRO		InterMetro Industries Corp. North Washington Street Wiles-Barre, PA 18705
TITLE: SEISMIC ANCHORAGE - FREESTANDING, FLOOR ANCHORED SES / SASE / QWIKSLOT / HD SUPER / MAX Q		
Table 7 Through Bolt Req't for 60" Long Shelving		
SIZE B	SH 9 OF 10	DWG. NO. S9.0
SCALE: N.T.S	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE	

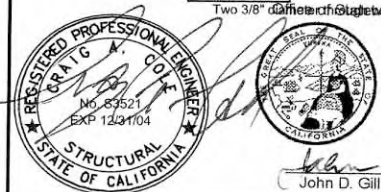


Table 8
Through-bolt Requirement for Acceptable Anchorage Configurations
72 inch Long Shelving
at Various Story Locations

Table 8A
30 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	3/8" dia.	NG	NG	NG	NG
21	3/8" dia.	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
21	two - 3/8" dia.	NG	NG	NG	NG	NG
24	two - 3/8" dia.	NG	NG	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 8C
50 psf shelf Loading²
TWO BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	NG	NG	NG	NG	NG
18	3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	NG	NG	NG	NG	NG	NG
18	NG	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	NG	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 8B
30 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
30	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
36	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
Zone 4						
14	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
24	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG	NG
36	two - 3/8" dia.	NG	NG	NG	NG	NG
Zone 4NF						
14	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
18	3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
21	two - 3/8" dia.	NG	NG	NG	NG	NG
24	two - 3/8" dia.	NG	NG	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Table 8D
50 psf shelf Loading²
FOUR BOLT ANCHOR PLATE

Shelf Width	Story Ratio ¹ (IS-1)/TSG					
	0	0.2	0.4	0.6	0.8	1.0
Zone 3						
14	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
18	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.	two - 3/8" dia.
21	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
24	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
30	two - 3/8" dia.	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4						
14	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
18	two - 3/8" dia.	two - 3/8" dia.	NG	NG	NG	NG
21	two - 3/8" dia.	NG	NG	NG	NG	NG
24	two - 3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG
Zone 4NF						
14	two - 3/8" dia.	NG	NG	NG	NG	NG
18	two - 3/8" dia.	NG	NG	NG	NG	NG
21	NG	NG	NG	NG	NG	NG
24	two - 3/8" dia.	NG	NG	NG	NG	NG
30	NG	NG	NG	NG	NG	NG
36	NG	NG	NG	NG	NG	NG

Legend:

NG: No Good, i.e. an unacceptable configuration

3/8" dia. One 3/8" diameter through bolt connection required

two - 3/8" dia. Two 3/8" diameter through bolt connection required

Notes:

1. Story Ratio formula is (IS-1)/TSG, or (Installation story - 1)/(Total Stories above grade)

where:

IS: Installation story - i.e. the story upon which the shelving is to be located

TSG: Total Stories above Grade

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Table 8 Through Bolt Req't for 72" Long Shelving		
SIZE B	SH 10 of 10	DWG. NO. S10.0
SCALE: N.T.S.	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE	