

NOTICE TO REGISTERED DESIGN PROFESSIONALS

Examples of Completed Seismic Code Blocks

A "Seismic Code Block" which has been signed and sealed by a Missouri Registered Engineer as required by St. Louis County Rules and Regulations for Seismic Anchorage and Sway Bracing of Mechanical Components is to be included in all Mechanical/Plumbing/Electrical Construction Documents. A Copy of these Rules may be obtained on St. Louis county website: www.stlo uisco.com/pubworks.

The Seismic Code Block format is shown on Attachment "A" & "B". These tables are required to be located on first sheet of the MEP set of drawings signed and sealed by Missouri Registered Engineer.

Each listed item in the Code Block shall be addressed in every column of the table:

- List all specified equipment and components
- Check appropriate column to identify what will be provided.
- If "not provided" is checked, use "Comments" column to list the appropriate Exception from Tables 500 & 600 of Attachment "C".
- Identify location of seismic details and calculations for the listed items, choosing one of the columns, " Drawing No." or " Shop Drawings".

Use Attachment "C" as a guide for Seismic Code Block preparation. Attachment "C" contains a number of tables summarizing the provisions of IBC-2003 and ASCE-7.

Refer to attached examples that show how to fill out "Seismic Code Block and notes that could accompany these documents.

EXAMPLE
 [PROVIDE SEISMIC CODE BLOCK ON 1ST SHEET OF MECHANICAL & PLUMBING PLANS]
 Attachment "A" of St. Louis County Rules and Regulations

**MECHANICAL EQUIPMENT COMPONENTS
 EARTHQUAKE LOAD RESISTANCE**

Seismic Use Group (I)

Seismic Design Category (D)

[To identify Use Group and Design Category refer to Attachment "C", Tables ## 100, 300, 400]

LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC.		SWAY BRACING		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			COMMENTS
	<i>Not Provided For Project</i>	<i>Provided For Project</i>	<i>Not Provided For Project</i>	<i>Provided For Project</i>	ON CONST. DOCUMENTS	SUBSEQUENT SUBMITTAL <i>(See Note a below)</i>		
					Drawing No. or Spec. Section	Shop Drawings	Separate Permit & Plans	
FIRE PROTECTION, DETECTION & ALARM EQUIPMENT & SYSTEM COMPONENTS; <i>Ip=1.5 (To identify Ip refer to Attachment "C", Table 200)</i> Fire Sprinkler Piping	X		X				X	
HAZARDOUS EQUIPMENT & SYSTEM COMPONENTS; <i>Ip=1.5 (To identify Ip refer to Attachment "C", Table 200)</i> Gas piping 1" or less (interior & exterior)	X		X					7, 6
Gas piping > 1" or non-ductile (interior)	X			X	M-			
Exterior gas piping >1"	X		X					9
Kitchen Grease Hood		X		X		X		by kitchen contractor
Kitchen Exhaust Fan		X		X		X		
Hazardous Medical Gas piping	X			X	M-			
OTHER EQUIPMENT & SYSTEM COMPONENTS NEEDED FOR CONTINUED OPERATION OF SEISMIC USE GROUP III FACILITIES OR WHOSE FAILURE COULD IMPAIR THEIR CONTINUED OPERATION								<i>N/A, no Group III in the project</i>
OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS <i>Ip=1.0</i> Roof Top: <i>RTU, EF, MUA, CU > 400 lbs</i> <i>RTU, EF, MUA, CU < 400 lbs</i>	X	X	X			X		12 1
Floor Mounted: <i>AHU, Boiler, Chiller > 400 lbs</i> <i>Furnace, FCU, etc. ≤ 400 lbs</i>	X	X	X X		M-	X		12, 13
Equipment suspended from the structure: <i>EF, FCU, VAV, FTU >20lbs</i> <i>EF. Air terminal Units <20 lbs</i>	X	X	X	X	M-			3

LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC.		SWAY BRACING		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			COMMENTS
	<i>Not Provided For Project</i>	<i>Provided For Project</i>	<i>Not Provided For Project</i>	<i>Provided For Project</i>	ON CONST. DOCUMENTS	SUBSEQUENT SUBMITTAL <i>(See Note a below)</i>		
					Drawing No. or Spec. Section	Shop Drawings	Separate Permit & Plans	
<i>Wall mounted equipment: FCU, UV, UH, etc.</i>	X		X					14
<i>Fire dampers, Louvers</i>	X		X					10, 14
<i>Ductwork</i>	X		X					5
<i>Piping ≤ 3"</i>	X		X					8, 7
<i>Piping > 3" or non-ductile</i>	X			X	M-			
<i>Air devices</i>	X		X					10, 14
<i>Note: It is the basic intent of this Code Block to declare & sway bracing is being provided on the project. If so, to declare whether or not the details are shown on the plans or will be shown on a subsequent submission. If seismic restraint is not required by code this can be stated in comments.</i>								
<i>Note a. Show drawings should be submitted to the County a minimum of 2 weeks prior to planned installation to allow for plan review and distribution to Inspector. Additional time may be needed if such submissions are deficient.</i>								

NOTES:

1. Table 500, Exception 4 - 3 ft. min. flex connection between components shall be provided.
2. Table 500, Exception 4 - 4 ft. or less above floor level.
3. Table 500, Exception 5 (3 ft. min. flex connection between components shall be provided.)
4. Table 500, Exception 5 – less than 5 lb/ft. (copper piping – 2 ½” or less, schedule 40 & 80 cpvc – 3” or less). 3 ft, flex connections for suspended equipment.
- 5a. Table 600, Exception for Ductwork “a” (or “b”). Refer to installation detail on dwg #M-.
- 5b. Table 600, Exception 2 for piping suspended from hangers 12” or less. Refer to installation detail on dwg #M-.
6. Table 600, Exception 3a – Ductile piping 1” or less (Design Cat. “D”).
7. Ductile piping: Steel, copper piping and tubing joined by welding, brazing/soldering or flanges. Refer to Table 700.c.
8. Table 600, Exception 3c – Ductile piping 3” or less (Design Cat. “D”).
9. Table 600, Exception 3e for exterior gas piping on roof, 2 psi or less: seismic shut-off valve or flex connectors within 5 ft. of beginning of the run, at connections to equipment and at 42 ft. or less intervals.
10. Components shall be positively attached with mechanical fasteners.
11. Seismic calculations are attached to set of drawings.
12. Contractor shall provide shop drawings to the engineer of record for review and approval prior to submittal to the plan reviewer.
13. Typical seismic anchorage (or sway bracing) is provided on the dwgs for reference only. Shop drawings are required.
14. Refer to installation detail #, dwg M-.

EXAMPLE
 [SEISMIC CODE BLOCK ON 1ST SHEET OF ELECTRICAL PLANS]
 Attachment "B" of St. Louis County Rules and Regulations

**ELECTRICAL SYSTEM COMPONENTS
 EARTHQUAKE LOAD RESISTANCE**

[To identify use group/design category see attachment "C" Tables 100, 300, 400]

Seismic Use Group (1)

Seismic Design Category (D)

LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC.		SWAY BRACING		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			COMMENTS
	<i>Not Provided For Project</i>	<i>Provided For Project</i>	<i>Not Provided For Project</i>	<i>Provided For Project</i>	ON CONST. DOCUMENTS	SUBSEQUENT SUBMITTAL (See note a below)		
					Drawing NO. or Spec. Section	Shop Drawings	Separate Permit & Plans	
FIRE PROTECTION, DETECTION & ALARM Fire Alarm Panel Fire Alarm Wiring		X X		X X	M-			Note 12
EMERGENCY OR STANDBY EQUIP. AND SYSTEM COMPONENTS: Emergency Generator Automatic Transfer Switch Emergency Distribution Panel Conduit and Wiring	X X X X		X X X X					N/A, No Emergency or standby equipment in the project.
OTHER EQUIPMENT & SYSTEM COMPONENTS NEEDED FOR CONTINUED OPERATION OF SEISMIC USE GROUP III FACILITIES OR WHOSE FAILURE COULD IMPAIR THEIR CONTINUED OPERATION Hazardous Areas Eqpt/Wiring Patient Care Areas Eqpt/Wiring	X X		X X					N/A, No Group III in the project
OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS Main Switchgear Transformers Distribution Panels Lighting Fixtures Conduit & Wiring		X X X		X X X			X X X	Note 10 Note 10 Note 10 Note 1 Notes 6, 7

Note: It is the basic intent of this Code Block to declare & sway bracing is being provided on the project. If so, to declare whether or not the details are shown on the plans or will be shown on a subsequent submission. If seismic restraint is not required by code this can be stated in comments.
Note a. Show drawings should be submitted to the County a minimum of 2 weeks prior to planned installation to allow for plan review and distribution to Inspector.
 Additional time may be needed if such submissions are deficient.

Notes:

1. Light fixtures less than 20 lbs powered with flexible cable less than 3', fixture to be mechanically attached to ceiling grid.
2. Light fixtures installed in existing ceiling grid.
3. Pendant type fixtures do not require sway bracing when it swings at an angle of 45° from vertical.
4. Table 500, Exception 4, $I_p = 1$, weight less than 400 lbs.
5. Table 500, Exception 5, $I_p = 1$, weight less than 20 lbs.
6. Table 500, Exception 5, $I_p = 1$, weight 5 lbs/ft or less.
7. Flexible connection required between equipment and components if installation other than mounted to walls and floors.
8. Table 500 – Conduits (IMC) ½" or less, EMT or aluminum 2" or less.
9. Seismic calculations and details are attached to set of drawings.
10. Contractor shall provide shop drawings to the engineer of record for review and approval prior to submittal to the plan reviewer.
11. Typical seismic details are provided on dwgs for reference only. Shop drawings are required.
12. Refer to installation detail #, dwg. M-.

EXAMPLE
 [SEISMIC CODE BLOCK ON 1ST SHEET OF PLUMBING PLANS]
 ATTACHMENT "A" OF ST. LOUIS COUNTY RULES & REGULATIONS

**ANCHORAGE & SWAY BRACING PLUMBING SYSTEM COMPONENTS
 EARTHQUAKE LOAD RESISTANCE**

Seismic Use Group (I)

Seismic Design Category (D)

[To identify Use Group and Design Category refer to Attachment "c", Tables #100, 300 & 400]

LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC.		SWAY BRACING		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			COMMENTS
	<i>Not Provided For Project</i>	<i>Provided For Project</i>	<i>Not Provided For Project</i>	<i>Provided For Project</i>	ON CONST. DOCUMENTS	SUBSEQUENT SUBMITTAL		
					? Drawing No. or Spec. Section	? Shop Drawings	Separate Permit & Plans	
Waste Piping	X		X					Note ? a
Vent Piping	X		X					Note ? a
Water Piping	X		X					Note ? c
Storm Piping		X		X		X		Note ?
Water Heater (more than 400 lbs)		X		X	P-1			
Water Heater (less than 400 lbs)	X		X					Note ?

Note: *It is the basic intent of this Code Block to declare & sway bracing is being provided on the project. If so, to declare whether or not the details are shown on the plans or will be shown on a subsequent submission. If seismic restraint is not required by code this can be stated in comments.*

Note a. *Show drawings should be submitted to the County a minimum of 2 weeks prior to planned installation to allow for plan review and distribution to Inspector. Additional time may be needed if such submissions are deficient.*

NOTES:

- ? Table 500, Exception 4, $I_p = 1.0$, component does not weigh more than 400 lbs and flexible connections are provided.
- ? Table 500, Exceptions:
 - a. The following sanitary drain, waste and vent pipe:
Schedule 40 PVC, 6" or less in diameter; Schedule 80 PVC, 4" or less in diameter; service weight & no hub cast iron, 2" or less in diameter.
 - b. The following storm drain pipe:
Schedule 40 & 80 PVC, 3" or less in diameter; service weight and no hub cast iron, not applicable.
 - c. The following water pipe:
Type L&M copper, 2 1/2" or less in diameter; Schedule 40 & 80 CPVC, 3" or less in diameter.
 - d. Flexible connections are not required for connections to appliances or plumbing fixtures that are mounted to walls or floors.
- ? Contractor shall provide shop drawings to the engineer of record for review and approval prior to and submittal to the plan reviewer.
- ? Seismic details are attached to set of drawings.
- ? Typical seismic anchorage (or sway bracing) is provided on the dwgs for reference only. Shop drawings are required.