

© Cannon Design 2015
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written authorization by The Cannon Corporation.
3/1/2016 11:43:44 AM

SEISMIC CODE BLOCK FOR MECHANICAL SYSTEMS EQUIPMENT AND COMPONENT ANCHORAGE AND SWAY BRACING EARTHQUAKE LOAD RESISTANCE											
OCCUPANCY CATEGORY II						SEISMIC DESIGN CATEGORY C					
EQUIPMENT AND SYSTEM COMPONENTS		SEISMIC ANCHORAGE TO FLOORS, ROOFS, ETC.		SEISMIC SWAY BRACING		LOCATION OF THE PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS		OTHER PROVISIONS (SEE NOTES)		COMMENTS	
ITEM	IMPORTANCE FACTOR	NOT PROVIDED FOR PROJECT	PROVIDED FOR PROJECT	NOT PROVIDED FOR PROJECT	PROVIDED FOR PROJECT	ON CONSTRUCTION DOCUMENTS	SUBSEQUENT SUBMITTAL			IBC SECTION THAT EXEMPTS SEISMIC REQUIREMENTS	
HAZARDOUS EQUIPMENT AND SYSTEM COMPONENTS											
NATURAL GAS PIPING (EXTERIOR) - DUCTILE PIPING <= 2"	1.5	X		X					6,24	ASCE 7-05 SECTION 13.6.8.2.B	
NATURAL GAS PIPING (EXTERIOR) <= 2 PSI - DUCTILE AND NON-DUCTILE PIPING (ALL SIZES)	1.5	X		X					5	N/A	
NATURAL GAS PIPING (INTERIOR) - DUCTILE PIPING <= 2"	1.5	X		X					6,14,24	ASCE 7-05 SECTION 13.6.8.2.B	
NATURAL GAS PIPING (INTERIOR) - DUCTILE PIPING > 2" OR NON-DUCTILE PIPING (ALL SIZES)	1.5	X			X		X		14		
KITCHEN GREASE EXHAUST FAN - ROOF MOUNTED	1.5		X	X			X		11		
LABORATORY EXHAUST FAN - ROOF MOUNTED	1.5		X	X			X		11		
LABORATORY EXHAUST DUCTWORK	1.5	X			X		X				
OTHER GENERAL EQUIPMENT AND SYSTEM COMPONENTS											
ROOF MOUNTED EQUIPMENT/ COMPONENTS											
FAN	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
CONDENSERS/ CONDENSING UNITS	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
FLOOR MOUNTED EQUIPMENT/ COMPONENTS											
AIR HANDLING UNIT (AHU, VAV, MAU, HRU) - BASE MOUNTED	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
BOILER	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
HEAT EXCHANGER	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
PUMP - BASE-MOUNTED	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
EXPANSION TANK	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
AIR SEPARATOR	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
FINNED TUBE RADIATION	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
EQUIPMENT/ COMPONENTS SUSPENDED FROM STRUCTURE											
BOILER FLUE	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
UNIT HEATER	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
AIR SEPARATOR	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
EXPANSION TANK	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
FAN COIL UNIT	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
FINNED TUBE RADIATION	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
PUMP - INLINE	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
PIPING	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
WALL MOUNTED EQUIPMENT/ COMPONENTS											
FAN COIL UNITS	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
UNIT HEATER	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
FINNED TUBE RADIATION	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
SIDEWALL FAN	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
LOUVERS AND PLENUMS	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
VARIABLE FREQUENCY DRIVE (VFD)	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
CONTROL PANELS	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
INLINE EQUIPMENT/ COMPONENTS											
FAN	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
AIR TERMINAL UNIT	1.0	X		X					23	ASCE 7-05 SECTION 13.1.4.3	
CEILING-MOUNTED EQUIPMENT/ COMPONENTS											
AIR DEVICES < 20 LBS.	1.0	X		X					23		
AIR DEVICES >= 20 LBS. < 56 LBS.	1.0	X		X					23		
AIR DEVICES > 56 LBS.	1.0	X		X					23		
EXHAUST FAN < 20 LBS.	1.0	X		X					23		
HVAC DUCTWORK	1.0	X		X						ASCE 7-05 SECTION 13.1.4.3	

MECHANICAL SYSTEMS NOTES:

5. INLINE EQUIPMENT WEIGHING MORE THAN 20 LBS. MUST HAVE SEISMIC RESTRAINT EVEN IF DUCTWORK DOES NOT REQUIRE SEISMIC RESTRAINTS.
6. DUCTILE PIPING: STEEL AND COPPER PIPING AND TUBING JOINED BY WELDING, OR BRAZING/SOLDERING OR BY BOLTED STEEL FLANGES.
11. COMPONENT/ELEMENTS SHALL BE ANCHORED TO EQUIPMENT CURB/RAIL AND THE CURB ANCHORED TO THE STRUCTURAL ELEMENTS OF THE ROOF IN SUCH A MANNER TO RESIST AND TRANSFER THE EARTHQUAKE LOADS INTO THE STRUCTURAL ELEMENTS OF THE ROOF.
14. ATTACHMENTS EMBEDDED IN CONCRETE SHALL BE SUITABLE FOR CYCLIC LOADS.
23. MEP COMPONENTS/ELEMENTS IN SEISMIC DESIGN CATEGORY C, WHEN THE IP=1.0 FOR THE COMPONENT/ELEMENT.
24. DUCTILE PIPING 2" OR LESS WHEN PROVISIONS ARE MADE TO PROTECT THE PIPING FROM IMPACT OR TO AVOID THE IMPACT OF LARGER PIPING OR OTHER MECHANICAL EQUIPMENT.

COMPONENTS WITH AN IMPORTANCE FACTOR = 1.5 SHALL BE PROVIDED WITH A SEISMIC CERTIFICATE OF COMPLIANCE.
REFER TO SPECIFICATION SECTIONS 230500, 232400, 260500 AND 262400.

THE SEAL(S) AND SIGNATURE(S) APPLY ONLY TO THE DOCUMENT TO WHICH THEY ARE AFFIXED, AND EXPRESSLY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT.

SEISMIC CODE BLOCK FOR ELECTRICAL SYSTEMS EQUIPMENT AND COMPONENT ANCHORAGE AND SWAY BRACING EARTHQUAKE LOAD RESISTANCE											
OCCUPANCY CATEGORY II							SEISMIC DESIGN CATEGORY C				
LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	COMPONENT IMPORTANCE FACTOR = 1.0	COMPONENT IMPORTANCE FACTOR = 1.5	SEISMIC ANCHORAGE TO FLOORS, ROOFS, ETC		SEISMIC SWAY BRACING		LOCATION OF THE PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			OTHER PROVISIONS (SEE NOTES)	IBC SECTION THAT EXEMPTS SEISMIC REQUIREMENTS
			PROVIDED	NOT PROVIDED	PROVIDED	NOT PROVIDED	ON CONSTRUCTION DOCUMENTS	SUBSEQUENT SUBMITTAL			
							DRAWING NO. OR SPECIFICATION SECTION	SHOP DRAWING	SEPARATE PERMIT AND PLANS		
BACK-UP POWER											
GENERATORS GREATER THAN 400 LBS	X		X			X		X		5	
GENERATORS FOR LIFE SAFETY EQUIPMENT		X	X			X		X		5	
GENERATOR DAY TANK	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
GENERATOR DAY TANK FOR LIFE SAFETY EQUIPMENT		X	X			X		X		5	
LIGHTING											
LIGHTING, RECESSED FIXTURE	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
LIGHTING RECESSED FIXTURE FOR LIFE SAFETY		X	X			X		X		5	
LIGHTING PENDANT STYLE FOR NON-LIFE SAFETY W/ NO OBSTRUCTIONS WITHIN 45 DEGREES	X			X		X				1,2,4,6	ASCE 7-05 SECTION 13.1.4.3
LIGHTING PENDANT STYLE FOR LIFE SAFETY W/ NO OBSTRUCTIONS WITHIN 45 DEGREES		X		X	X			X		2	
LIGHTING PENDANT STYLE FOR NON-LIFE SAFETY W/ OBSTRUCTIONS WITHIN 45 DEGREES	X			X	X			X		2	
LIGHTING PENDANT STYLE FOR LIFE SAFETY W/ OBSTRUCTIONS WITHIN 45 DEGREES		X		X	X			X		2	
LIGHTING, SURFACE MOUNTED	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
LIGHTING SURFACE MOUNTED FOR LIFE SAFETY		X	X			X		X		5	
MISC. LIFE SAFETY SYSTEMS											
CONTROL PANEL FOR LIFE SAFETY EQUIPMENT		X	X			X		X		5	
FIRE ALARM PANEL		X	X			X		X		5	
LIFE SAFETY EMERGENCY SYSTEM DEVICES AND COMPONENTS, FLOOR OR WALL MOUNTED		X	X			X		X		5	
MISC. POWER DISTRIBUTION											
CONTROL PANEL	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
ELECTRICAL PANELBOARD, FLOOR OR WALL MOUNTED	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
ELECTRICAL PANELBOARD, FLOOR OR WALL MOUNTED, FOR LIFE SAFETY EQUIPMENT		X	X			X		X		5	
SWITCHGEAR, FLOOR MOUNTED	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
SWITCHGEAR, FLOOR MOUNTED, FOR LIFE SAFETY SYSTEMS		X	X			X		X		5	
TRANSFER SWITCH, AUTOMATIC, FOR NON-LIFE SAFETY, WALL MOUNTED	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
TRANSFER SWITCH, AUTOMATIC, FOR LIFE SAFETY, WALL MOUNTED		X	X			X		X		5	
UNIT SUBSTATIONS, FLOOR MOUNTED	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
HOUSEKEEPING PADS	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.4
HOUSEKEEPING PADS		X	X			X		X		5	
MOTOR CONTROLLERS											
VARIABLE FREQUENCY DRIVE, WALL MOUNTED	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
VARIABLE FREQUENCY DRIVE, WALL MOUNTED, FOR LIFE SAFETY SYSTEM		X	X			X		X		5	
MOTOR CONTROL DEVICES FOR NON-LIFE SAFETY SYSTEM	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
MOTOR CONTROL DEVICES FOR LIFE SAFETY SYSTEM		X	X			X		X		5	
RACEWAY											
CONDUIT ANY SIZE, ANY MATERIAL FOR NON-LIFE SAFETY EQUIPMENT	X			X		X				1.4	ASCE 7-05 SECTION 13.1.4.3
CONDUIT ANY SIZE, ANY MATERIAL FOR LIFE SAFETY EQUIPMENT		X	X			X		X		5	
SURFACE MOUNTED RACEWAY FOR NON-LIFE SAFETY (WIRE MOLD)	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
TRANSFORMERS											
TRANSFORMER, FLOOR MOUNTED, FOR NON-LIFE SAFETY SYSTEMS	X			X		X				1.5	ASCE 7-05 SECTION 13.1.4.3
TRANSFORMER, FLOOR MOUNTED, FOR LIFE SAFETY SYSTEMS		X	X			X		X		5	
OTHER ITEMS, OCCUPANCY CATEGORY IV											
ALL ITEMS UNDER OCCUPANCY CATEGORY IV		X	X		X			X			NO EXEMPTION FOR ITEMS IN OCCUPANCY CATEGORY IV

ELECTRICAL SYSTEMS NOTES:

1. REFERENCE ASCE OR COUNTY GUIDELINE SECTION THAT EXEMPTS THE SEISMIC REQUIREMENT.
2. IF EQUIPMENT IS SUSPENDED, ANCHORAGE TO FLOOR, ROOF, ETC. IS NOT APPLICABLE.
4. TO BE EXEMPT FROM THE SEISMIC RESTRAINT REQUIREMENTS, FLEXIBLE CONNECTIONS MUST BE PROVIDED BETWEEN COMPONENTS AND ASSOCIATED PIPING AND CONDUIT. FLEXIBLE CONNECTIONS ARE NOT REQUIRED FOR CONNECTIONS TO APPLIANCES OR ELECTRICAL FIXTURES THAT ARE MOUNTED TO WALLS OR FLOORS.
5. IF EQUIPMENT IS FLOOR, ROOF OR WALL MOUNTED, SWAY BRACING IS NOT APPLICABLE. ANCHORAGE TO RESIST SEISMIC LOADS ONLY IS ADDRESSED HEREIN. ANCHORAGE MAY BE NEEDED TO RESIST WIND, GRAVITY, AND VIBRATIONAL LOADS REGARDLESS OF SEISMIC REQUIREMENTS.
6. PENDULUM/PENDANT STYLE LIGHT FIXTURES DO NOT REQUIRE SWAY BRACING AS LONG AS THEY CAN SWING TO AN ANGLE OF 45 DEGREES FROM VERTICAL AND NOT COLLIDE WITH OTHER OBJECTS.



Webster University
Interdisciplinary Science Building

CANNONDESIGN

1100 Clark Avenue
St. Louis, Missouri 63102
T: 314.241.6250
F: 314.241.2570

William Tao & Associates, Inc.
ME/PFP Engineer
7955 Manchester Road, Suite 125
St. Louis, MO 63143
314-884-7600

David Mason & Associates, Inc.
Structural & Civil Engineer
800 South Vandeventer Avenue
St. Louis, MO 63110
314.534.1053

Faith Group
Technology
3101 S. Hanley Rd., Suite 100
St. Louis, MO 63143
314.591.2225

Kuhlmann Leavitt, Inc.
Environmental Graphics & Signage
7400 Pershing Ave.
St. Louis, MO 63130
314.725.6616

KWA Architects
Architecture
8721 Litzinger Road
St. Louis, MO 63124
314.962.2560

Spellman Brady & Company
Interior Designer
8251 Maryland Avenue, Suite 300
St. Louis, MO 63105
314.862.0070

SWT Design
Landscape Architect
7722 Big Bend Blvd
St. Louis, MO 63119
314.644.5700

Webb Engineering Services, Inc.
Plumbing & Fire Protection
1400 S. 3rd Street, Suite 201
St. Louis, MO 63104
314.588.0600

ISSUED FOR CONSTRUCTION (BP2) 01 MAR 2016
No. Description Date

Drawing Title:

MECHANICAL AND ELECTRICAL SEISMIC CODE BLOCK

Project No.: 04561.01 Checked by:

ME0001