

This Guideline establishes when seismic bracing engineering calculations are required to be submitted to the jurisdiction having authority for review. It is the applicant's responsibility to ensure the minimum requirements specified by ASCE 7-05 Chapter 13 are met. Check with the local jurisdiction for additional requirements.




















Legend	
	Engineering not required to be submitted for review
	Engineering required to be submitted for Field Review
	Engineering required to be submitted for Plan Review
	Component Weight

Table 1
 Seismic Design Requirements for Nonstructural components with an Importance Factor (I_p)¹ greater than 1.0

Component required for life-safety purposes after an earthquake, including fire protection sprinkler systems ²	
Component contains hazardous materials	
Component is attached to an Occupancy Category IV ³ facility and is required for continued operation or where its failure impairs the operation of the facility	










1. The Importance Factor (I_p) as defined in ASCE 7-05 Section 13.1.3.
2. Seismic bracing for the fire protection sprinkler system designed per 2007 NFPA13 as referenced in 2009 IBC Section 1613.6.3.
3. See ASCE 7-05 Table 1.1 for determination of Occupancy Category.

Table 2
 Seismic Design Requirements for Nonstructural Components with Importance Factor (I_p) equal to 1.0³

				
Mounted 4'-0" or less above support ²				FLEXIBLE CONNECTIONS ¹
Mounted more than 4'-0" above support ²				
All other nonstructural components				

1. Mechanical, Electrical and Plumbing components with flexible connections to ductwork, conduit, and piping.
2. 4'-0" dimension measured from the floor or roof deck to the mounting point location.
3. Design shall include the bracing system, points of attachment, and the capacity of the building element or structure to support the component
4. Excludes water heaters and storage tanks with less than 60 gallon capacity provided prescriptive seismic restraints as required by UPC Section 508.2 are installed.

Table 3
 Seismic Design Requirements for Distribution Systems (ductwork, plumbing, conduit, etc.) with Importance Factor (I_p) equal to 1.0

			
Plumbing Piping (drain, waste and vent)	UPC ²		
Mechanical Ductwork	SMACNA ¹		
Gas and Hydronic Piping	SMACNA ¹		

1. SMACNA Restraint Manual "Guidelines for Mechanical Systems", 2nd edition February 1998
2. 2009 Uniform Plumbing Code, Table 3-2

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This Guideline establishes when engineering calculations and design are required to be submitted for review for the gravity design (the vertical loads) of nonstructural elements and supporting elements. It is the applicant's responsibility to ensure the minimum requirements specified by the IBC and ASCE 07-5 are met. Check with the local jurisdiction for additional requirements.




















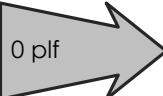











Legend	
	Engineering not required to be submitted for review
	Engineering required to be submitted for Field Review
	Engineering required to be submitted for Plan Review
	Component Weight

Table 1
 Gravity Design Requirements for Nonstructural Components

			
Mounted 4'-0" or less above floor or roof level ^{1,2}			
Mounted more than 4'-0" above floor or roof level ^{1,2}			
Mounted from a wall or suspended from structure ²			
Installation requires revision to building structure ³			

1. 4'-0" dimension measured from the floor or roof deck to the mounting point location.
2. Design shall include the gravity support system, points of attachment, and the capacity of the building element or structure to support the component
3. Replacement components not exceeding 5% of original unit weight with no framing revisions do not require submission of engineering for review.

Table 2
 Gravity Design Requirements for Distribution Systems
 (ductwork, plumbing, conduit, etc.)

				
Plumbing Piping (drain, waste and vent)	UPC ^{2,3}			
Mechanical Ductwork	SMACNA ¹			
Gas and Hydronic Piping	SMACNA ¹			

1. SMACNA Restraint Manual "Guidelines for Mechanical Systems", 2nd edition February 1998
2. 2009 Uniform Plumbing Code, Table 3-2
3. Gravity support for the fire protection sprinkler system designed per 2007 NFPA13.