DSA IR 16-13

MECHANICAL, ELECTRICAL, AND PLUMBING DISTRIBUTION SYSTEM SUPPORT AND BRACING

Disciplines: Structural

History: Revised 09/30/24 under 2022 CBC
Original issue 07/25/24 under 2022 CBC

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

PURPOSE

This Interpretation of Regulations (IR) clarifies the gravity support and lateral load bracing requirements for mechanical, electrical, and plumbing (MEP) distribution systems per the California Building Code (CBC) and referenced standards. This IR is applicable to all projects under DSA jurisdiction that include any MEP systems and will become effective for all projects submitted on or after October 1, 2024.

SCOPE

MEP distribution systems include conduit, cable trays, raceways, duct systems, piping and tubing systems. This IR does not cover fire alarm systems nor the support of fire sprinkler piping which shall be designed and installed per the National Fire Protection Association (NFPA) 13, including amendments to NFPA 13 in CBC Chapter 35.

BACKGROUND

The California Administrative Code (CAC) Section 4-317(b) requires that the design professional in general responsible charge or the professional engineer delegated responsibility for the design of the structural system design and detail the anchorage and bracing of nonstructural components, and that the details for bracing and anchorage of nonstructural components shall be shown on the drawings and appropriately cross-referenced. The American Society of Civil Engineers Standard 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE 7), Chapter 13 defines seismic design requirements for the bracing of distribution systems. Provisions in ASCE 7 contain exemptions for certain sizes and types of distribution systems, which are amended by DSA in CBC Chapter 16A. This IR clarifies the code intent, submittal procedures, and expectations for the support and bracing of MEP distribution systems.

1. GENERAL

All MEP distribution systems shall be supported for gravity loads and braced for seismic loads in all directions (lateral, longitudinal and vertical) in accordance with the CBC and this IR. Exterior mechanical ductwork or exterior MEP structures shall also be designed to resist wind loads. Support and bracing design shall comply with Section 2 below, exemptions from seismic bracing shall comply with Section 3 below, and exterior components shall comply with Section 4 below.

1.1 The structural engineer responsible for the design of the building shall verify that the building structure supporting the distribution systems has the capacity to support the reactions from all applicable design loads.

1.2 Gravity support spacing for piping shall not exceed the requirements of the California Plumbing Code (CPC) Section 313 or Tables 313.3 and 313.6. Lateral bracing support for piping shall also be in conformance with other notes and footnotes in Table 313.3 where applies.

1.3 Gravity support spacing for mechanical ductwork shall not exceed the requirements of the California Mechanical Code (CMC) Section 603.0 and The Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) *HVAC Duct Construction Standards*.

1.4 Gravity support spacing for electrical conduit shall not exceed the requirements of the California Electrical Code (CEC) Table 344.30 for Rigid Metal Conduit. Other conduit materials shall not exceed the applicable maximum support spacing requirements of other sections of the CEC as applies unless a valid Underwriters Laboratories (UL) listing is provided to justify greater spans.

1.5 All MEP components shall be designed for the seismic forces and lateral displacements in accordance with ASCE 7 Section 13.3 unless they meet the exemptions in Section 3 below. MEP components with I_p greater than 1.0 shall comply with ASCE 7, Section 13.6.2. An HCAI OSHPD *Preapproval of Manufacturer's Certification* (OPM) may be used to determine an appropriate seismic restraint spacing for a component of equivalent type, size and weight.

1.6 All MEP components must accommodate seismic relative displacements at seismic joints with flexible sections or connections as appropriate.

2. BRACING DESIGN OPTIONS

MEP distribution support and bracing presentation and detailing shall comply with either Section 2.1 or Section 2.2 below.

The first sheet of the Mechanical, Electrical, and Plumbing construction drawings shall display the note in Appendix A below indicating the design method used for each MEP distribution system and identify the location of the detailing.

2.1 Project-specific Design and Detailing

This section defines the submittal requirements when distribution system support and bracing is specifically designed and detailed by a CA licensed structural engineer or architect and all included in the project submittal documents. The hanging and bracing details shall be shown on the structural drawings. Alternately, these details may be shown on the MEP drawings when they have been adequately coordinated with the Architect in Responsible Charge or Structural Engineer of Record for the project. See Appendix C below for guidance on the types of projects for which this option is most appropriate.

A piping distribution system that includes pipes greater than or equal to 6 inches nominal diameter of any type shall be submitted with the initial construction documents using this design option. The design shall include all pipes within the system and shall be shown on a layout plan which identifies all gravity supports, bracing locations, along with all the detailing requirements in Section 2.1.1 below.

2.1.1 The following items shall be provided in the construction documents for each MEP distribution system. A layout plan may not be necessary if all the information listed below can be communicated adequately in tables or details, except as noted in Section 2.1 above for large piping systems:

- Gravity support and lateral load bracing details for all distribution system components identifying all hanger and bracing elements and anchorage to the building structure.
- Maximum hanger and brace spacings for each distribution system component at each story level.
- Calculations or other appropriate documentation to substantiate the spacing of the component supports and braces and the connections to the structure. If the support

system is similar in design to and does not exceed the design requirements of an OPM, details and design notes from the OPM may be considered acceptable being submitted as supporting documents in lieu of calculations.

- Component bracing exemption details where applies. See Section 3 below for criteria and any additional requirements when exempting the bracing.

2.2 Design Using HCAI OSHPD Preapproval of Manufacturer's Certification (OPM)

This section defines the submittal requirements when the project professional uses pre-approved OPM design and details for the distribution system support and bracing. See Appendix C below for guidance on the types of projects for which this design option is most appropriate.

A deferred submittal may be acceptable to DSA for projects of significant complexity when the client chooses to subcontract with an MEP contractor after the main contract has been awarded. See Section 2.2.6 below for deferred submittal requirements.

2.2.1 OPMs approved under the 2013, 2016, 2019, or 2022 CBC are acceptable if proprietary fasteners and bracing exemptions are updated as required to comply with the current edition of the CBC. Any code-update revisions to OPM details shall be clearly identified.

2.2.2 All of the items within the *General Notes, Notes to the Designer,* or *Instructions to the SEOR* in the OPM documents shall be satisfied, including calculations as required.

2.2.3 Components of two or more OPM bracing systems shall not be mixed on any one MEP system. Only one OPM bracing system may be used for each MEP system.

2.2.4 The submittal documents for each MEP distribution system design shall be stamped and signed by a CA licensed Structural Engineer when submitted with the initial construction documents. See Section 2.2.6 below for stamping and signing requirements of deferred submittals.

2.2.5 The following items shall be provided within the construction documents for any project using an OPM for the design. Details shall be uniquely identified and adequately cross-referenced to a plan.

- Include a layout plan for each MEP system.
- Include gravity support details for each component to the building structure.
- Include all the lateral support and bracing details from the OPM for each component and the details for the connections of these hangers and braces to the building structure.
- Identify all the options within the OPM details that are applicable to the project. When bracing charts are used, clearly indicate the seismic parameters as needed to identify that the correct values and associated details have been referenced and provided for the project. Note: In the OPM, brace angles and seismic parameters are often shown as options in details and bracing charts.

2.2.6 Deferred Submittal

Deferred submittals for MEP distribution system support and bracing may be accepted on a project-specific basis only for projects which use Section 2.2 (OPM design) for seismic bracing and only for complex designs as described in Section 2.2 above and in Appendix C below. The deferred submittal concept shall have DSA concurrence per Section 2.2.6.1 below prior to the project submittal and shall be in accordance with all the requirements listed below.

Deferred submittals for piping systems will not be accepted for any project that includes piping greater than 6 inches nominal diameter. The support of these MEP systems shall be completely designed and detailed per Section 2.1.1 above unless otherwise agreed to in the pre-application meeting per Section 2.2.6.1 below.

2.2.6.1 A pre-application meeting shall be scheduled by the design team at an early stage of the project development to obtain DSA acceptance of the deferred submittal concept. This meeting shall be attended by the professional in responsible charge of the project, a representative of the school district, and a DSA Supervising Structural Engineer. The following items and expectations will be discussed in regard to the procedure:

- Project Applicability: The size and complexity of the project will be verified as appropriate for deferred submittal.
- Presentation of the Building Structural Design: The structural design drawings for the building structure in the initial project submittal shall include the design loads that have been incorporated in the structural design for gravity support and lateral load bracing of the MEP distribution components. These loads shall be clearly indicated on the structural plans or details and include the maximum distributed and point loads that are expected and can be supported by the different structural members.
- Presentation of the Deferred Approval: Deferred submittals may be prepared by different contractors for different MEP distribution systems, but they shall be submitted at the same time as part of the same package.
- Scheduling of the Deferred Submittal: The deferred submittal shall be submitted well in advance of the installation to allow adequate time for DSA review and design team to prepare responses to DSA comments. It is recommended that the design professional contact the DSA lead plan reviewer a minimum of six weeks in advance of submittal to all allow for scheduling.

2.2.6.2 Except as modified below, items in Sections 2.2.1 through 2.2.5 above are applicable to a deferred submittal and shall also comply with the following:

- CA licensed civil engineer or structural engineer shall stamp and sign the design documents.
- The deferred submittal shall be reviewed and accepted by the CA licensed professional (architect or structural engineer) who is responsible for the structural design of the building that supports the distribution systems prior to submitting to DSA. A statement of general conformance shall be provided with the submittal that is signed by the structural engineer of record per *IR A-18: Use of Construction Documents Prepared by Other Design Professionals.*

3. BRACING EXEMPTIONS

The following section provides guidance on determining when seismic bracing may be omitted. These exemptions do not apply to wind load bracing that may be required for exterior MEP components per Section 4 below. Items in this section which are DSA amendments to ASCE 7 are denoted in ***bold italicized font.***

Where bracing exemptions are utilized on a project, provide details to demonstrate compliance with the code requirement for the exemption. Example details are provided in Appendix B below and will be considered acceptable for inclusion in construction documents. Details shall comply with the following:

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3.1 Flexible connections to accommodate relative seismic displacements between braced and unbraced system and components and shall comply with either Section 3.1.1 or 3.1.2 below:

3.1.1 12-inch Rule

Show the 12 inch maximum distance from the component or trapeze support point to the structure, along with rod sizes and maximum weights that meet the code requirements for the exemption.

3.1.2 Avoid Impact Rule

For exemptions which are based on preventing impact or limiting damage from impact, clearly delineate the minimum horizontal separation between braced and unbraced components or illustrate any other alternate means to prevent impact with adjacent components or structure or to prevent damage per Section 3.5 below.

3.2 Electrical Distribution Systems (CBC Section 1617A.1.24)

Bracing may be omitted for individually supported electrical conduit when it meets the following regardless of other parameters listed below:

- Conduit is less than 2.5 inches trade size.

For all other bracing exemptions of conduit detailed below in 3.2.1 and 3.2.2, cable trays and raceways including trapeze assemblies, the following shall be provided:

- Flexible connections or other assemblies are provided between the electrical distribution component and associated components to accommodate relative displacement.
- Electrical distribution component is positively attached to the structure.

3.2.1 Individual Conduit, Cable tray, and Raceway

Bracing may be omitted for individually supported conduit, raceways and cable trays when all of the following are met in addition to the items listed in Section 3.2 above for flexible connections and positive attachment:

- The conduit, cable tray, or raceway is supported by ⅜ inch or ½ inch diameter rods.
- Each hanger in the run does not exceed 12 inches in length from the conduit/tray support point to the structure attachment point.
- The maximum weight supported by any single rod is 50 pounds.

3.2.2 Trapeze Assemblies

Bracing may be omitted for electrical components on trapeze systems when all of the following conditions are met in addition to items listed in Section 3.2 above for flexible connections and positive attachment:

- The trapeze is hung from ⅜ inch **or** ½ inch diameter rods.
- Rod hangers are 12 inches or less in length from the component support point to the structure attachment point.
- Total weight to any single trapeze is ***100 pounds or less***.

3.3 Mechanical Distribution Systems (CBC Section 1617A.1.25)

Ducts designed to carry toxic gases, flammable gases, or used for smoke control are not eligible for any of the exemptions in this section and shall be fully braced per CBC 1617A.1.25.

For bracing exemptions of other duct systems, all of the following shall be provided to qualify for Sections 3.3.1 and 3.3.2 below:

- Flexible connections or other assemblies are provided between the duct system and associated components to accommodate relative displacements.
- The duct support system is positively attached to the structure.

3.3.1 Single Ducts

3.3.1.1 Bracing of single-hung ducts may be omitted when all the following conditions are met in addition to the items listed in Section 3.3 above for flexible connections and positive attachment:

- Vertical support for the duct is provided by ⅜ inch or ½ inch diameter rods.
- Each rod in the run does not exceed 12 inches in length from the duct support point to the structure attachment point.
- The total weight to any single rod is 50 pounds or less.

3.3.1.2 Bracing of single-hung ducts may also be omitted when all of the following conditions are met in addition to the items listed in Section 3.2 above for flexible connections and positive attachment:

- The duct has a cross-sectional area less than 6.0 square feet.
- The duct weighs 20 pounds per foot or less.
- Provisions are made to avoid impact with other mechanical components or structural elements or to protect the ducts in the event of such impact per Section 3.5 below.

3.3.2 Ducts Supported by Trapeze Assemblies

Bracing of duct trapeze assemblies may be omitted when all of the following conditions are met in addition to the items listed in Section 3.3 above for flexible connections and positive attachment:

- Vertical support for trapeze is provided by ⅜ inch or ½ inch diameter rods.
- Rod hangers do not exceed 12 inches in length from the duct support point to the structure attachment point.
- The total weight to any single trapeze is 100 pounds or less and ***less than 10 pounds per foot.***

3.3.3 Duct Systems with In-Line Components

Bracing may be omitted for components such as diffusers, dampers, terminal units, and louvers with operating weights of 75 pounds or less, provided they are positively attached with mechanical fasteners to the rigid duct on both sides. Components weighing more than 75 pounds shall be supported and laterally braced independently of the duct system. Flexible connections are required between braced equipment and unbraced ductwork. Where equipment is independently braced and flexible connections are provided, design for seismic forces is required where equipment exceeds 20 pounds when hung, and 400 pounds when supported from below as required per CBC Section 1617A.1.18, Item 10.

3.3.4 Piping and Conduit Attached to In-Line Equipment

Bracing for piping and conduit attached to in-line may be omitted provided the piping and conduits have adequate flexibility to accommodate seismic relative displacements.

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3.4 Piping and Tubing Distribution Systems (CBC Section 1617A.1.26)

To qualify for any of the exemptions listed below, the following is required:

- Flexible connections, expansion loops, or other assemblies are provided to accommodate the relative displacement between the component and the piping.

  When the piping is rigidly attached to the same floor or wall that provides vertical and lateral support for the equipment or to a fixture, flexible connections may be omitted per CBC 1617A.1.26.

- The piping system is positively attached to the structure.

3.4.1 Individually Supported Piping Distribution System Components

3.4.1.1 Bracing for individually supported piping systems may be omitted when all of the following conditions are met, in addition to the items listed in Section 3.4 above for flexible connections and positive attachment:

- R_p is greater than or equal to 4.5 (excludes pipes of glass, cast iron, and non-ductile plastics).
- Pipe diameter does not exceed 3 inches when Ip = 1.0, and does not exceed 1 inch when Ip >1.0.
- Vertical support is provided by ⅜ inch or ½ inch diameter rod hangers.
- Rod hangers do not exceed 12 inches in length from the pipe support point to the connection point on the supporting structure.
- The total weight supported by any rod hanger is 50 pounds or less.

3.4.1.2 Bracing for individually supported piping systems may also be omitted when all of the following conditions are met in addition to the items listed in Section 3.4 above for flexible connections and positive attachments:

- Vertical support is provided by rod hangers.
- Nominal pipe size does not exceed than 3” for I_p = 1.0, or exceed 1” for I_p = 1.5.
- Provisions are made to avoid impact with other structural and non-structural components or to protect the piping in the event of such impact. See Section 3.5 below.

3.4.2 Piping Distribution System supported by Trapeze Assemblies

Bracing for piping supported on trapeze assemblies may be omitted when all the following conditions are met in addition to the items in Section 3.4 above:

- The R_p is greater than or equal to 4.5 (excludes pipes of glass, cast iron, and non-ductile plastics).
- Vertical support is provided by ⅜ inch or ½ inch diameter rod hangers.
- Hanger rods do not exceed 12” in length from the pipe support point to the connection point on the supporting structure.
- No single nominal pipe size exceeds 3 inches for I_p = 1.0 and exceeds 2” for I_p = 1.5.
- Total weight supported by a single trapeze is ***100 pounds or less***.

3.4.3 Pneumatic Tube Systems

Bracing for individual pneumatic tubes may be omitted when all of the following conditions are met in addition to the items listed in Section 3.4 above:

- Vertical support is provided by ⅜ inch or ½ inch diameter rod hangers.
- Hanger rods do not exceed 12 inches in length from the pipe support point to the connection point on the supporting structure.
- Total weight supported by a single rod is 50 pounds or less.

Bracing for pneumatic tubes supported on Trapeze Assemblies may be omitted when all of the following conditions are met in addition to the items listed in Section 3.4 above:

- Vertical support is provided by ⅜ inch rod hangers.
- Hanger rods do not exceed 12 inches in length from the pipe support point to the connection point on the supporting structure.
- Total weight supported by any single trapeze is 100 pounds or less.

3.5 Provisions to Avoid Impact

For exemptions in Sections 3.3 and 3.4 above which describe provisions to avoid impact with other structural and nonstructural components, this may be achieved by providing one of the following:

- The separation shall be based on calculations in accordance with loading requirements of ASCE 7 Chapter 13 that determine the maximum deflection of the component between points of lateral restraint. Separations between adjacent unbraced components that are within a swing path of each other shall be equal to or greater than the square root of the sum of the squares (SRSS) of the calculated deflections of each component.
- Without calculations, the separation distance between the unbraced component and braced elements or components shall be based on a minimum horizontal distance of 12 inches. When adjacent components are also unbraced, this separation shall be increased to a minimum of 18 inches.
- Smaller separations may be accepted for components with an $I_p = 1.0$ where impact with adjacent components would not cause any contents to be released that would negatively impact the occupants, the building integrity, or the functionality of the component. Examples of such components may include air vents and air ducts.

4. EXTERIOR AND ROOFTOP DISTRIBUTION SYSTEMS

4.1 Requirements for all Exterior MEP Distribution Systems

All mechanical, electrical, and plumbing distribution systems components that are exposed to exterior conditions shall be designed in accordance with all the requirements of Sections 1 to 3 above. In addition, exterior mechanical ductwork shall be anchored to resist lateral wind forces and wind uplift as applies. There are no exemptions for wind force bracing and anchorage requirements.

4.2 MEP Distribution System Components on Top of the Roof

4.2.1 Pipes Supported on Roof Sleepers or Roof Blocks

This section applies to pipes on roof slopes less than or equal to 1 inch in 12 inches (5 degrees). For steeper roof slopes, additional attachments may be required to restrain the movement of the components.

4.2.1.1 Where sleepers or roof blocks are used to vertically support pipes on the roof, the pipe shall be attached to the supporting element (sleeper or block), but the supporting element need not be mechanically attached to the roof structure except where any of the following conditions occur:

- A seismic restraint is required per Section 4.2.1.4.2 or 4.2.1.5.2 below.
- The vertical reaction exceeds 300 pounds.
- The height above the roof surface to the center of mass of the component and support is greater than 12 inches or half the length of the supporting block width, whichever is smaller.

4.2.1.2 Where seismic or wind restraints are required, they shall be mechanically attached (screwed, bolted, welded, etc.) to the roof structural members, such as concrete slab, metal deck, joists, beams, or blocking.

4.2.1.3 Where seismic restraints are not required, the provision to avoid impact may be accomplished by providing a flexible coupling between the end of the pipe and the connection to the equipment it is serving, or by installing seismic restraint at the end of the pipe just prior to the point of connection to the equipment it is serving. Where the routing of such piping causes a change in vertical direction, such as to penetrate the roofing membrane or rise up a wall or parapet, the pipe shall have seismic restraints to the roof structure just prior to the change in direction.

4.2.1.4 Piping Systems with $I_p > 1.0$ (hazardous substances)

4.2.1.4.1 If the nominal pipe size is less than or equal to 1 inch and $R_p \geq 4.5$ (ductile materials), no seismic restraint is required, and the pipe is not required to be designed for seismic forces. Provisions shall be made to avoid impact with other structural and nonstructural components.

4.2.1.4.2 If the nominal pipe size is greater than 1 inch, or any size pipe with $R_p < 4.5$ (non-ductile materials) per ASCE 7 Table 13.6-1, lateral restraint is required. The lateral restraint spacing shall be based on the calculated allowable span of the pipe, subjected to combined vertical and horizontal loading on the pipe and the capacity of the seismic restraints. In lieu of providing pipe stress calculations, the restraint spacing may be determined from an OPM for an equivalently sized suspended pipe (and not more than 40 feet max on-center transverse, and 80 feet max on-center longitudinal).

4.2.1.5 Piping Systems with $I_p = 1.0$

4.2.1.5.1 If the nominal pipe size is less than or equal to 3 inches and $R_p \geq 4.5$, seismic restraint is not required, and the pipe is not required to be designed for seismic forces. However, provisions shall be made to restrain lateral movement to avoid impact with other structural and nonstructural components and to accommodate differential displacements.

4.2.1.5.2 If the nominal pipe size is greater than 3 inches or any size pipe with $R_p < 4.5$, seismic restraint is required and the spacing shall be calculated based on the capacity of the restraints to resist the tributary F_p loads. The pipe capacity need not be checked.

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4.2.2 Mechanical Ductwork on the Rooftop

4.2.2.1 Duct systems supports and duct rack elements shall comply with requirements of Section 4.1 above, including wind load design.

4.2.2.2 Calculations per ASCE 7 Chapter 13 for seismic and Chapter 30 for wind on Components and Cladding shall substantiate the spacing and the element design of the vertical components and bracing of the duct systems and the anchorage to the roof structure.

4.3 Distribution System Components Supported by Independent Site Structures

4.3.1 All exterior independent support structures or racks and foundations for MEP distribution system components shall be designed per ASCE 7 Chapter 15. Alternatively, it shall be designed per ASCE 7 Chapter 13 if the system is attached to and supported by a separate site structure.

REFERENCES:

2022 California Code of Regulations (CCR) Title 24
- Part 1: California Administrative Code (CAC), Sections 4-301, 4-317(b)
- Part 2: California Building Code (CBC), Sections 1617A.1.18, 1617A.1.24, 1617A.1.25, 1617A.1.26.
- Part 3: California Electrical Code (CEC)
- Part 4: California Mechanical Code (CMC)
- Part 5: California Plumbing Code (CPC)

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APPENDIX A: TYPICAL MEP DISTRIBUTION SYSTEM NOTE

MEP Distribution System Bracing Note for Piping, Ductwork, and Electrical Conduit:

Piping, ductwork, and electrical distribution systems shall be braced to comply with the forces and displacements prescribed in ASCE 7 Section 13.3 as defined in ASCE 7 Sections 13.6.5, 13.6.6, 13.6.7, and 13.6.8; and 2022 CBC, Sections 1617A.1.24, 1617A.1.25 and 1617A.1.26.

The method of showing bracing and attachments to the structure for the identified distribution systems are as noted below. The MEP design professional engineer responsible for content on these sheets has verified that the design methods identified below are in accordance with DSA IR 16-13.

Mechanical Piping (MP), Mechanical Ducts (MD), Plumbing Piping (PP), Electrical Distribution Systems (E):

MP ☐ MD ☐ PP ☐ E ☐ Option 1: Project-Specific Design.

MP ☐ MD ☐ PP ☐ E ☐ Option 2: Design Based on OSHPD OPM, Within Project Submittal

MP ☐ MD ☐ PP ☐ E ☐ Option 3: Design Based on OSHPD OPM, Deferred Submittal

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DESIGN PROFESSIONAL USER NOTE (do not copy this 'user note' to the plans):

MEP Design Professionals: Identify which options apply for your project. If Option 1 is chosen, provide project-specific details coordinated with a structural engineer and presented on the drawings in accordance with IR 16-13 Section 2.1. For Option 2, verify that an OPM package has been prepared in accordance with IR 16-13 Section 2.2 and is included within the original project submittal. For Option 3, verify that all of the requirements for the Deferred Submittal have been satisfied prior to the plan submittal in accordance with IR 16-13 Section 2.2.6.

For all options, verify that the SEOR has verified the adequacy of the structure to support all hanger and brace loads.

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APPENDIX B: Exemption Details

Sheet Index		
Number	**Title**	**Revision Date**
B-1.0	Prevent Impact Rule - Single Hung MEP Distribution System Component	7/10/2024
B-2.0	12” Rule – Single Hung MEP Distribution System Component	7/10/2024
B-3.0	12” Rule – Trapeze Hung MEP Distribution system Component	7/10/2024

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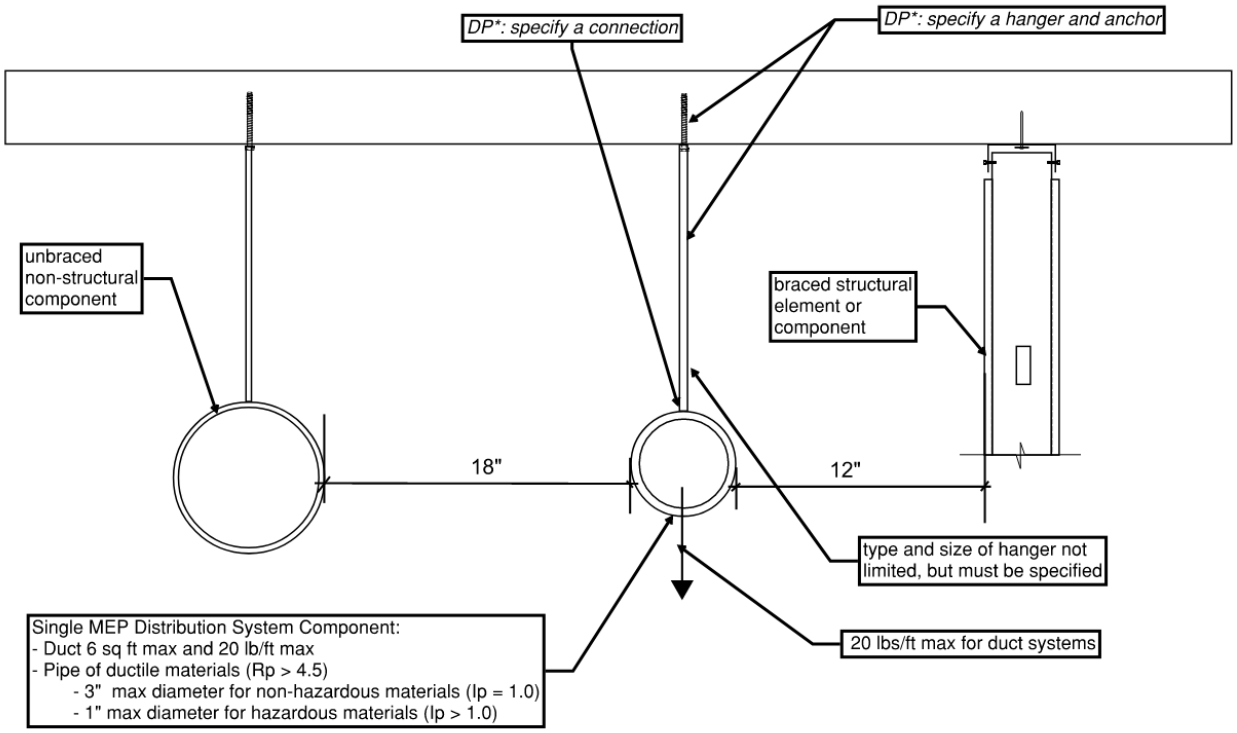
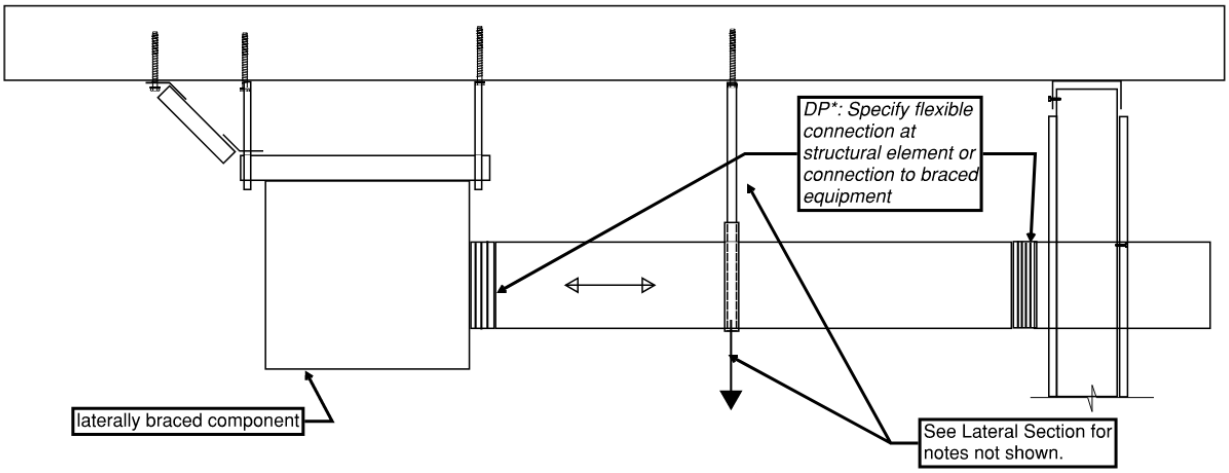


Lateral Section of Component



Longitudinal Elevation of Component

* Design Professional (DP) shall specify the denoted items on the detail.

Note: this detail is not applicable to single-hung conduit < 2.5" trade size, which does not require any seismic bracing per CBC 1617A.1.26

Detail Title:	Rev: 7/10/2024	Detail No.
PREVENT IMPACT DETAIL - SINGLE HUNG MEP DISTRIBUTION COMPONENT		B-1.0

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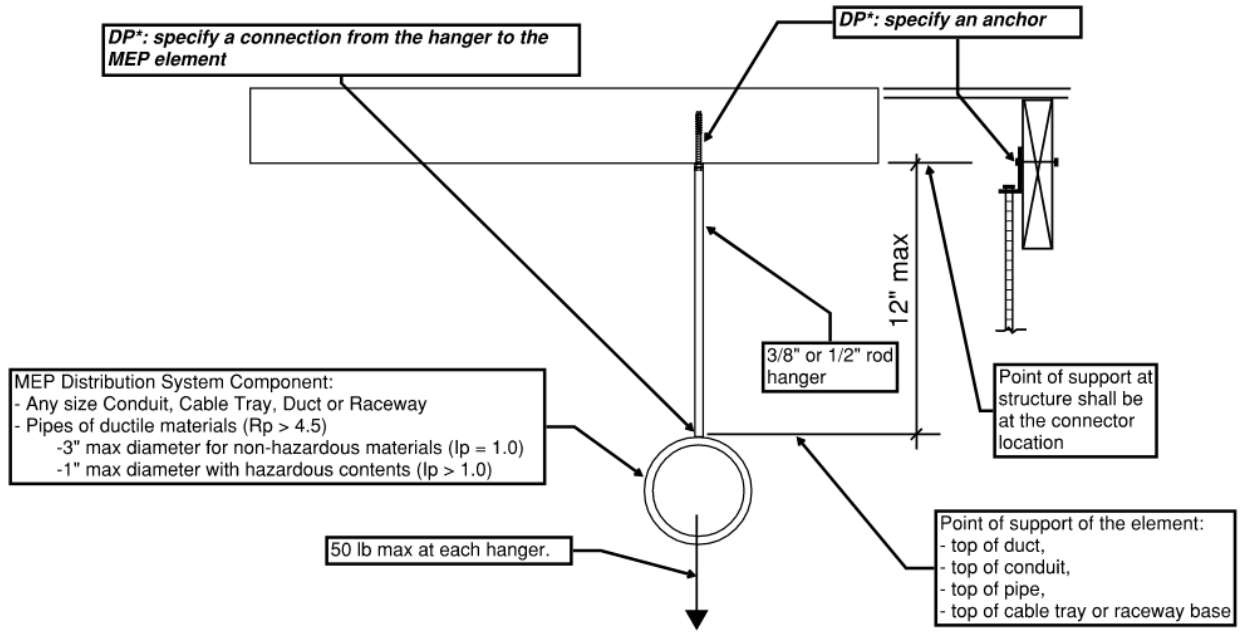
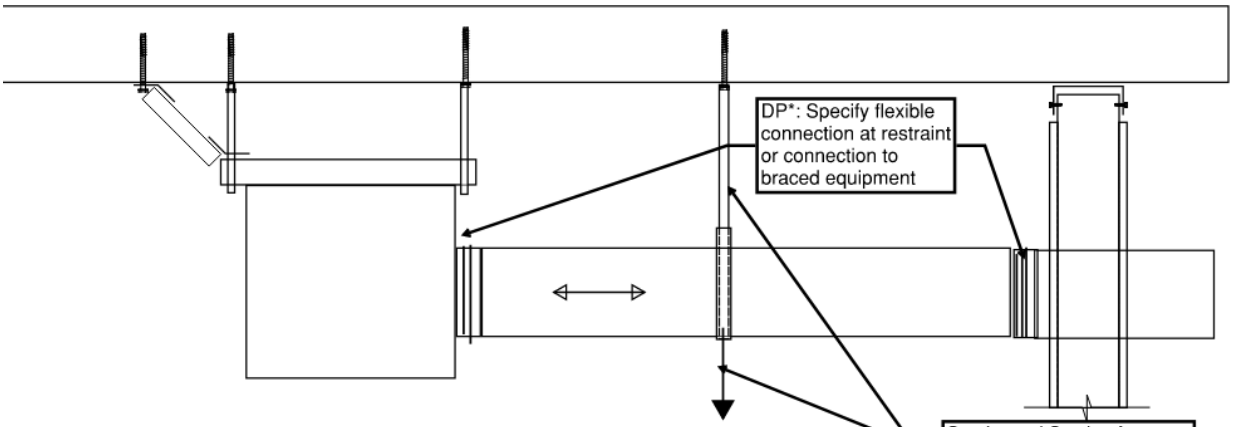


Lateral Section of Component



Longitudinal Elevation of Component

* Design Professional (DP) shall specify the denoted items on the detail.

Note: this detail is not applicable to single-hung conduit < 2.5" trade size, which does not require any seismic bracing per CBC 1617A.1.26

Detail Title:	Rev: 7/10/2024	Detail No.
12" RULE DETAIL - SINGLE HUNG MEP DISTRIBUTION COMPONENT		B-2.0

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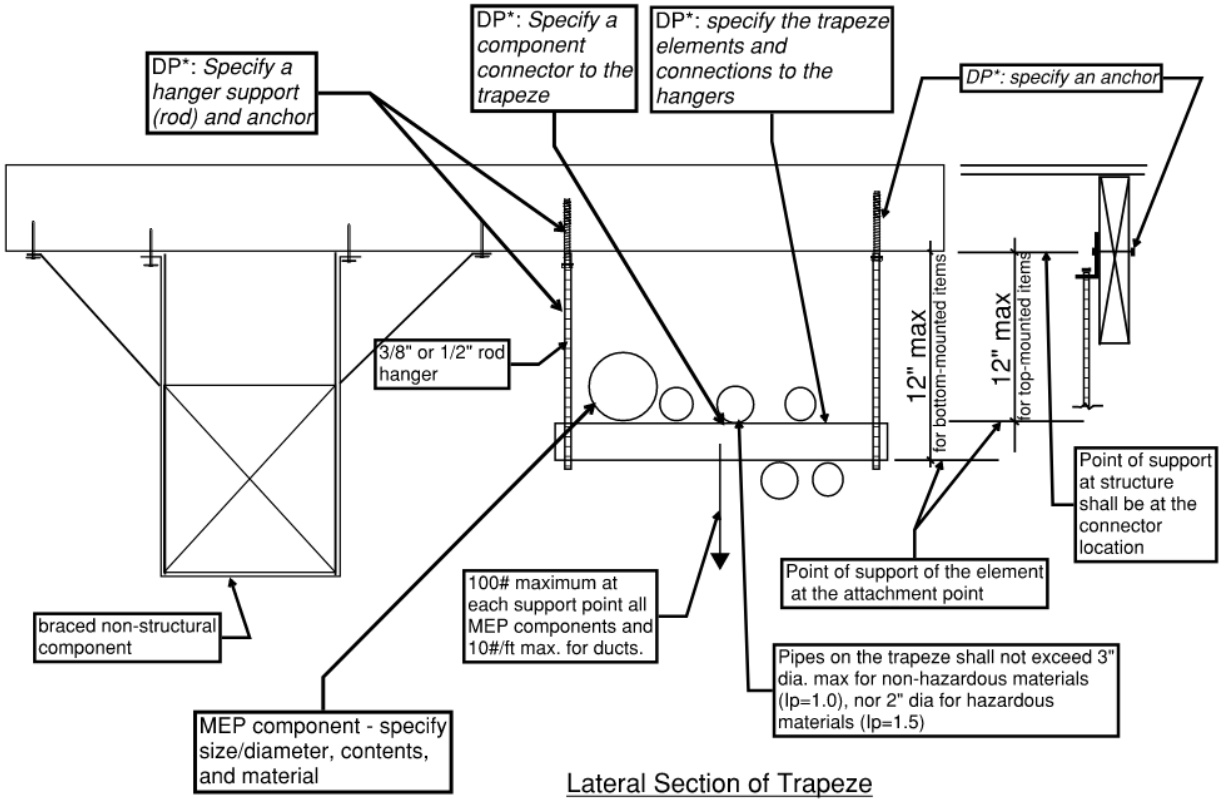
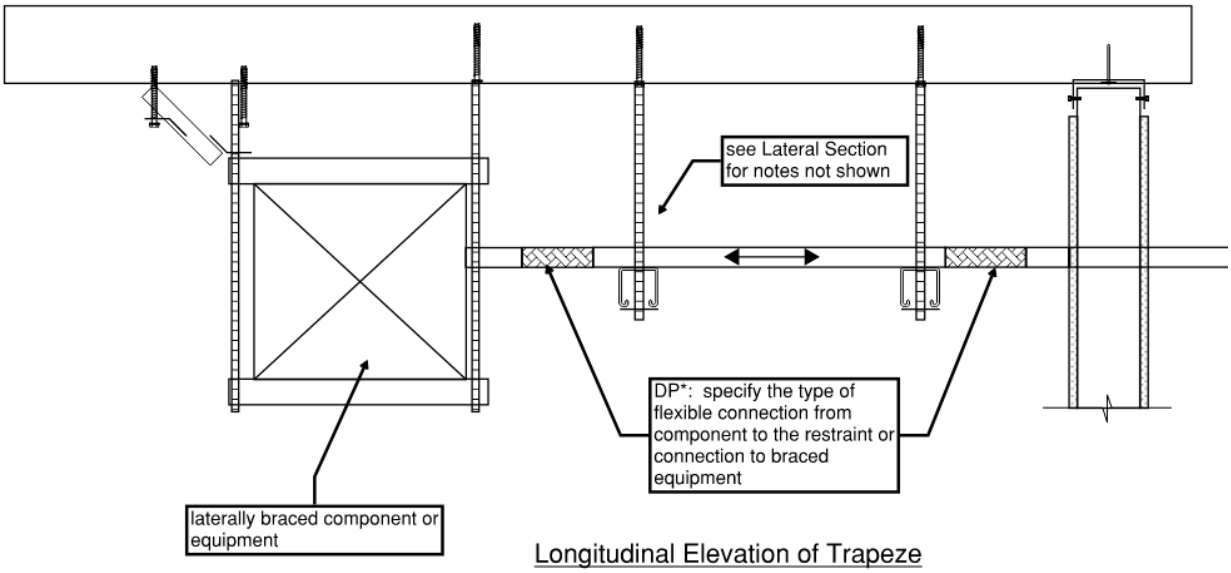


Lateral Section of Trapeze



Longitudinal Elevation of Trapeze

* Design Professional (DP) shall specify the denoted items on the detail.

Detail Title:	Rev: 7/10/2024	Detail No.
12" RULE DETAIL - TRAPEZE HUNG MEP DISTRIBUTION COMPONENT		B-3.0

MECHANICAL, ELECTRICAL, AND PLUMBING DISTRIBUTION SYSTEM SUPPORT AND BRACING

APPENDIX C: DESIGN METHOD SELECTION GUIDANCE

Project-specific Design and Detailing

The following guidance is provided for project type and sizes when using Section 2.1 above for the distribution system support and bracing design:

The project-specific design and detailing option is recommended for smaller projects where the MEP distribution systems are simple. Examples would include construction of small classroom buildings or alterations to existing school buildings where the MEP system scope is minor or less complex. This method may also be used for larger buildings with more complex MEP distributions systems but is not recommended unless a mechanical contractor has been retained prior to the plan approval to model and coordinate the MEP distribution systems. When larger projects do not have this type of coordination prior to submitting the MEP designs, this design method often results in redesign during construction.

Design Using HCAI OSHPD Preapproval of Manufacturer's Certification (OPM)

The following guidance is provided for project type and size when using Section 2.2 above for the distribution system support and bracing design:

The OPM design option is recommended for larger buildings with more complex MEP distribution systems in multistory classroom buildings, or buildings that contain spaces used for multipurpose, performing arts, science, shops, or kitchens. This method may be appropriate as a submittal with the construction documents when an MEP contractor has been retained to model and coordinate the MEP distribution systems prior to plan approval. A deferred submittal may be acceptable to DSA for projects of significant complexity when the client chooses to subcontract with a MEP contractor after the main contract has been awarded.