

## DUCTS - CONSTRUCTION

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### CODE

**FAIL**



R-H-DC3

### Duct Construction Standards

All air-distribution system ducts and plenums shall be installed, sealed and insulated to meet the requirements of the CMC Sections 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition.

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)1

### UL Ratings

Flexible ducts for field-fabricated duct systems shall comply with UL 181.

All pressure-sensitive tapes, mastics, aerosol sealants, or other closure systems used for installing field fabricated duct systems shall meet the applicable requirements of UL 181, UL 181A, and UL 181B.

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)3A

### “Old Fashioned Duct Tape” Prohibited

Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes (“old fashioned duct tape”) unless such tape is used in combination with mastic and drawbands .

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)3D

R-H-DC1: PLACEHOLDER, Need replacement image

R-H-DC2: PLACEHOLDER, Need replacement image

R-H-DC3: © Sierra Building Science, Inc.

## DUCTS - CONSTRUCTION



### Mechanically Fasten Duct

Connections of metal ducts and the inner core of flexible ducts shall be mechanically fastened. Use sheet metal screws for rigid duct seams and compression straps for flex duct.

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)1



### Seal with Mastic

Apply mastic to all connections and joints to air seal duct work. Mastic is the consistency of peanut butter and can be applied with a paintbrush or with a putty knife. It should be layered about the thickness of a nickel, and should be applied over mesh. Avoid using tape beneath mastic.



### Seal Duct Boot to Subfloor with Mastic

Duct boots can be completely sealed with mesh and mastic. Sealing is required around register boots if air could escape to unconditioned space. Foil tapes, butyl backed tapes or caulks can also be used.



### Reinforce Gaps and Seams with Mesh

Joints and seams shall be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A or UL 181B. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used.

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)1

## DUCTS - CONSTRUCTION



### Un-ducted Building Cavities Not Allowed

Building cavities, support platforms for air handlers, and plenums constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air.

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)1



### Duct Testing

When space conditioning systems utilize forced air duct systems to supply conditioned air to an occupiable space, the ducts shall be sealed, as confirmed through field verification and diagnostic testing (by HERS Rater).

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)11

**NOTE:** This mandatory requirement is new for the 2013 code.

Previously, duct testing was a prescriptive requirement and could be traded off by using the performance approach.



### Backdraft Dampers

All fan systems, regardless of volumetric capacity, that exchange air between the building conditioned space and the outside of the building shall be provided with backdraft or automatic dampers to prevent unintended air leakage through the fan system when the fan system is not operating. This includes bathroom exhaust fans, kitchen hoods, and dryer vents.

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)7

## DUCTS – CONSTRUCTION

**Notes:**

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## DUCTS - INSULATION



### Unconditioned Spaces

Portions of supply-air and return-air ducts and plenums of a space heating or cooling system shall either be insulated to a minimum installed level of R-6.0 (or any higher level required by CF-1R) or be enclosed entirely in directly conditioned space as confirmed through field verification and diagnostic testing (by a HERS Rater).

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)1



### Details

First seal and then insulate the entire duct boot. Make sure that connections at takeoffs from main supply or return trunk lines are sealed, then insulated.



### Exterior Walls, Floor Above Garage, Cantilevers

In these building cavities, locate the duct as close as possible to conditioned space. Insulate the duct and fill space between duct and exterior air barrier with insulation.



### R-value Labeled on Flex Duct

Insulated flexible duct products installed in homes shall include labels, in maximum intervals of 3 feet, showing the thermal performance R-value for the duct insulation itself.

**Code Reference:** 2013 Title 24, Part 6 Standards §150.0(m)6

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R-H-DI3: PLACEHOLDER

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## DUCTS – INSULATION

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