



Success with 2009 IECC:  
*Tech Tips for Builders*

# HVAC INSTALLATION



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# TECH TIPS: HVAC INSTALLATION

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1. Seal all duct work to drywall and/or subfloor and all HVAC penetrations in the building envelope with foam, caulk or mastic.

## X INSULATION

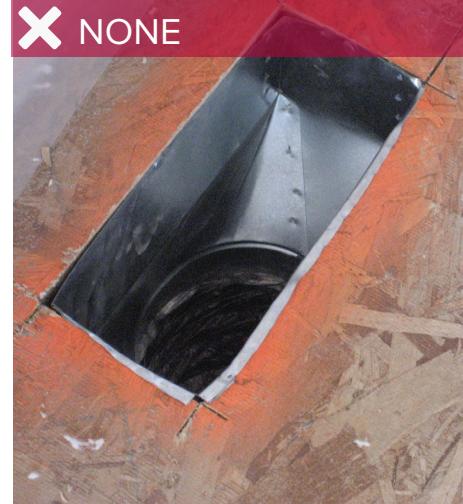


## ✓ SEAL

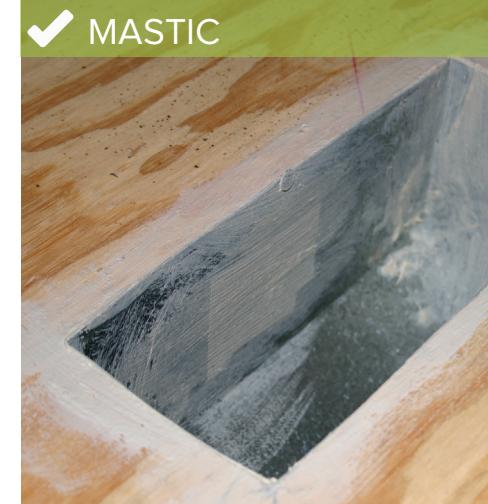


1. Seal all duct work to drywall and/or subfloor and all HVAC penetrations in the building envelope with foam, caulk or mastic.

## X NONE



## ✓ MASTIC

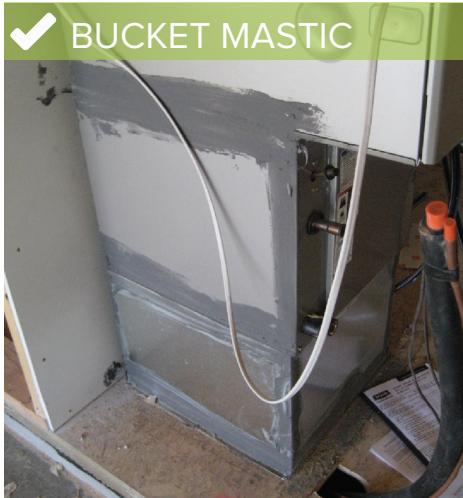


2. Seal all HVAC components at all joints, seams and corners.

## X LOOSE SEAL



## ✓ BUCKET MASTIC



3. Mechanically fasten all metal duct work with screws. Attach the inner liner of flexible ducts with nylon/plastic straps and tighten with a manufacturer-approved tool.

## X WRONG TAPE



## ✓ PLASTIC STRAP





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4. Insulate all supply ductwork in unconditioned space to R-8. Insulate all return duct work to R-6. If exterior insulation, mechanically fasten duct insulation with straps and seal all joints and seams of vapor retarder.

## ✗ UNINSULATED BOOT



## ✓ INSULATED BOOT



6. Support flexible duct (including spot ventilation) at least every 4 feet and do not bend greater than 90°.

## ✗ NO SUPPORT



## ✓ SUPPORT



5. Do not compress insulated flexible ducts more than the thickness of the insulation.

## ✗ COMPRESSION



## ✓ NO COMPRESSION



6. Support flexible duct (including spot ventilation) at least every 4 feet and do not bend greater than 90°.

## ✗ GREATER THAN 90°



## ✓ LESS THAN 90°





# TECH TIPS: HVAC INSTALLATION

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7. Install outside air ventilation intakes at least 10 feet from any exhaust vent or stack.

## ✗ WRONG LOCATION



## ✓ RIGHT LOCATION



9. Terminate exhaust ventilation duct work to the outside and install a screen over the termination.

## ✗ WRONG TERMINATION



## ✓ RIGHT TERMINATION



8. Coordinate bath fan exhaust duct direction with Electrical Contractor.

## ✗ WRONG DIRECTION



## ✓ RIGHT DIRECTION



10. For heat pumps, install a heat strip outdoor temperature lockout that prevents supplemental heat operation and set it to the balance point.

## ✗ DISCONNECTED



## ✓ RIGHT INSTALLATION





# CRITICAL DETAIL: DUCT SEALING BOOTS

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It is recommended to seal all joints in the air distribution system with bucket duct mastic and fabric mesh.

The tester will be measuring the total duct leakage and the duct leakage to the outside at CFM at 25 Pa (with reference to the outside).

✓ MASTIC BOOT



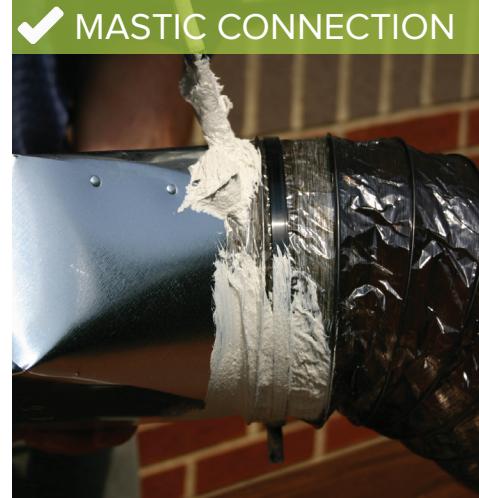
✓ INSTALL LINER



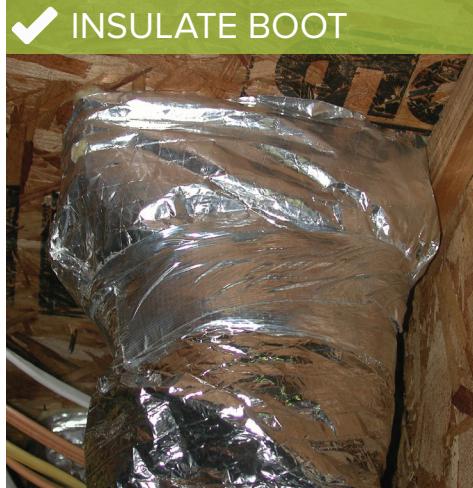
✓ INSTALL ZIP TIE



✓ MASTIC CONNECTION



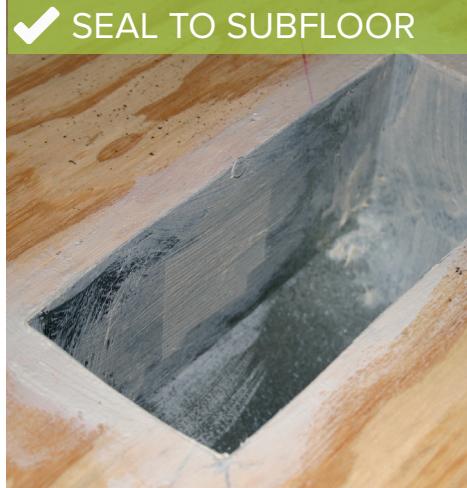
✓ INSULATE BOOT



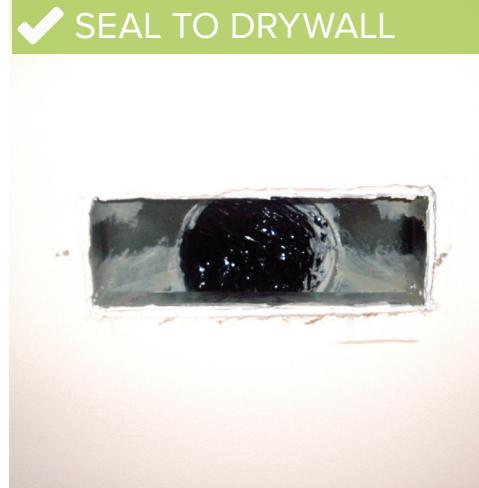
✓ SEAL SEAMS



✓ SEAL TO SUBFLOOR



✓ SEAL TO DRYWALL





# CRITICAL DETAIL: DUCT SEALING PLENUMS

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It is recommended to seal all joints in the air distribution system with bucket duct mastic and fabric mesh.

✓ MASTIC PLENUM



✓ MASTIC COLLAR



The tester will be measuring the total duct leakage and the duct leakage to the outside at CFM at 25 Pa (with reference to the outside).

✓ INSTALL ZIP TIE



✓ MASTIC CONNECTION



✓ INSULATE COLLAR



✓ SEAL SEAMS



✓ MASTIC AIR HANDLER



✓ USE BUCKET MASTIC

