

Georgia Residential Air Sealing HANDBOOK

2015 IECC® + 2020 Georgia
State Supplements & Amendments

How to Use the Field Guide

This guide is intended to help explain the residential portion of the 2020 Georgia Energy Code and does not necessarily include all aspects and details. It is intended to serve as a tool and support document for understanding the Georgia Energy Code but does not replace or supercede the official Georgia State Supplement and Amendments, which can be accessed at www.dca.ga.gov/node/5689. Each entry in this guide includes references to relevant sections of the 2015 IECC and/or Georgia amendments.

Need Help?

Additional Online Resources:

<https://www.southface.org/resources/>

Southface Institute Energy Code Helpline:

energycodes@southface.org

404-604-3598

Credits

Principal authors:

Mike Barcik, Southface Senior Technical Principal

Paul Bazen, Southface Technical Project Manager

Graphic design and illustration:

Greg Brough, Southface Senior Technical Principal

Editor: Mike L. Ford, Southface Senior Project Manager

This publication was developed by Southface Institute in partnership with the Georgia Environmental Finance Authority (GEFA) and Southeast Energy Efficiency Alliance (SEEA). It is intended to serve as a tool and support document for understanding the Georgia Energy Code but does not replace or supercede the official Georgia State Supplement and Amendments, which can be accessed at www.dca.ga.gov/node/5689.

This publication is free to download, print, and distribute. This publication may not be sold or repurposed for any commercial purposes (e.g., as a resource in paid trainings or inclusion in a for-sale publication) without express written consent from Southface Institute.

Contents

IC-Rated Recessed Lighting Fixtures (Sealing)4

Air-Seal and Insulate Tubs and Showers5

Air-Seal Window/Door Openings.....7

Air-Seal Assemblies Separating Garage.....8

Air-Seal Bottom and Top Plates9

Air-Seal Seams in Exterior Air Barrier..... 11

Air-Seal Utility Penetrations..... 12

Air-Seal Dropped Soffit Ceilings and Chases..... 13

Air-Seal Rim/Band Joist Junctions..... 15

A Note About Air Sealing

Air sealing is an essential but often overlooked aspect of home performance. Improper air sealing is usually to blame for a failed blower door test. Getting it right will save money by reducing the need for call-backs to identify and fix air-sealing issues in the building envelope. It will also make for a much more comfortable, efficient home.

Builders and subcontractors can rely on this guide and other resources in the Southface Residential Air-Sealing Resource Kit to help identify key air-sealing points. Additional resources in this kit include:

- *Georgia State Supplements and Amendments, Appendix RA*
- *Georgia Energy Code Walkthrough Inspection Video*

IC-RATED RECESSED LIGHTING FIXTURES (SEALING)

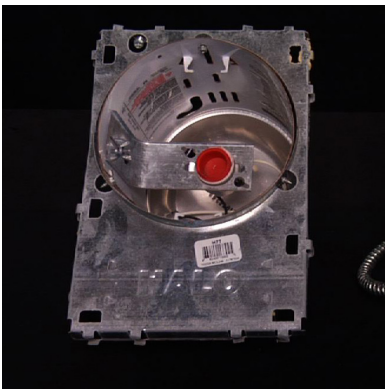
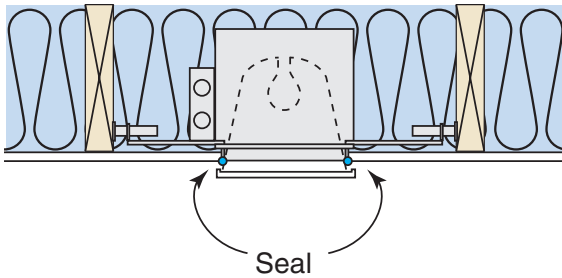
Code Section

402.4.1.1, 402.4.5

Description

- Recessed lighting fixtures inside the building thermal envelope must be sealed to limit air leakage between conditioned and unconditioned space.
- Fixtures must be IC-rated and labeled with an air leakage rate ≤ 2.0 CFM.
- Recessed fixtures must have a gasket or caulk between the housing and the interior finish.

Recessed Lighting Fixture Diagram



INCORRECT: Standard fixture



CORRECT: IC-rated and air-tight

AIR-SEAL AND INSULATE TUBS AND SHOWERS

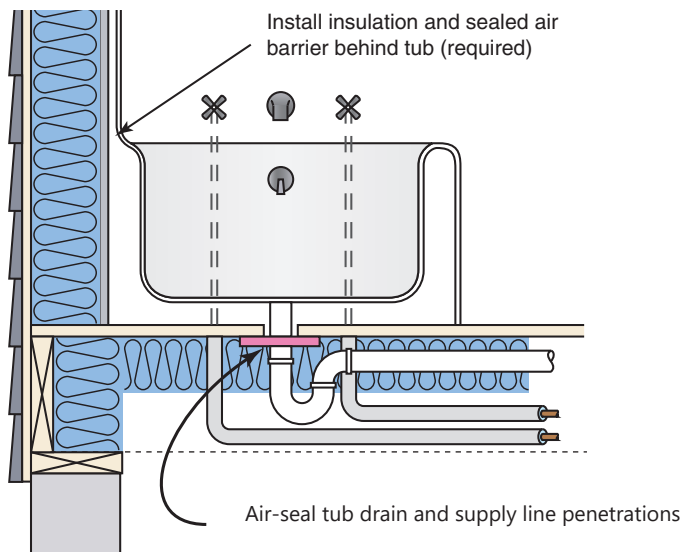
Code Section

402.1.2, 402.4.1, 402.4.1.1

Description

- Insulation and a sealed air barrier must be installed between showers/tubs on an insulated (usually exterior) wall.
- All plumbing penetrations must be appropriately air-sealed.

Tub Air-Sealing and Insulation Diagram



Air-Sealing Tubs and Showers



CORRECT: Air barrier and insulation behind tub



INCORRECT: Drain penetration open

AIR-SEAL WINDOW/DOOR OPENINGS

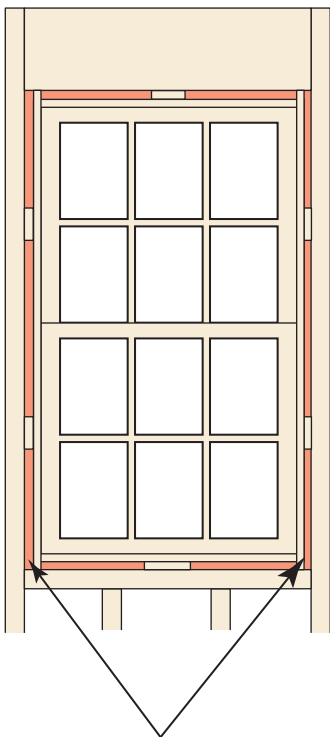
Code Section

402.4.1, 402.4.1.1

Description

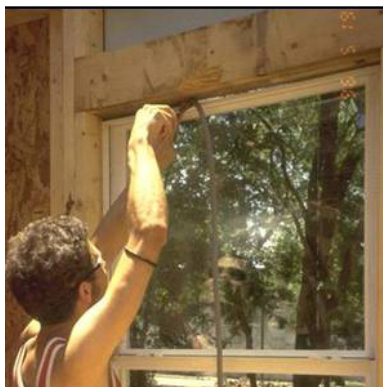
Gaps between window/door jambs and framing must be sealed (e.g., with low expanding foam or backer rod). This includes skylights and attic access doors.

Air-Sealing Windows



Use backer rod or low expanding spray foam (appropriate for windows) to fill gaps between window/door and rough opening

Window air-sealing



Air-sealing with backer rod



Air-sealing with spray foam

AIR-SEAL ASSEMBLIES SEPARATING GARAGE

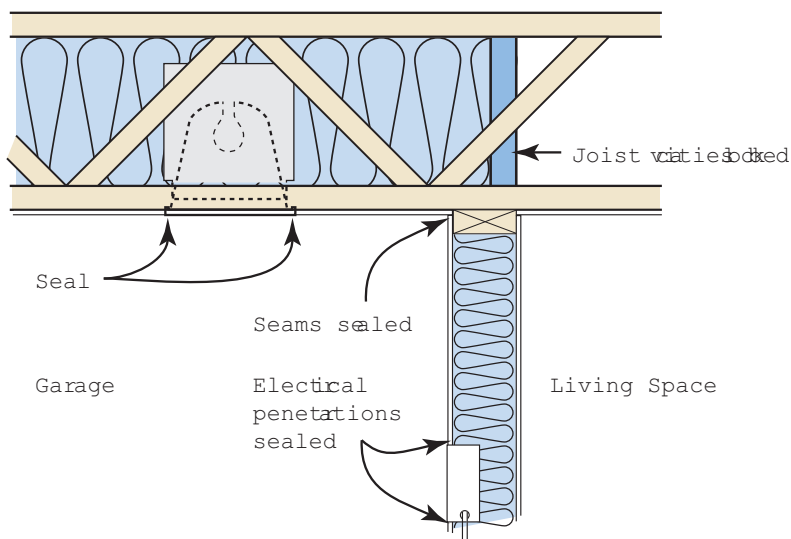
Code Section

402.4.1, 402.4.1.1

Description

Walls and ceilings separating the garage from conditioned space must be air-sealed as well as insulated. For example, all floor joists and penetrations above an attached garage must be blocked and sealed.

Air-Sealing Assembly for Garage



INCORRECT: Air bypass behind stairs



CORRECT: Joist cavities blocked

AIR-SEAL BOTTOM AND TOP PLATES

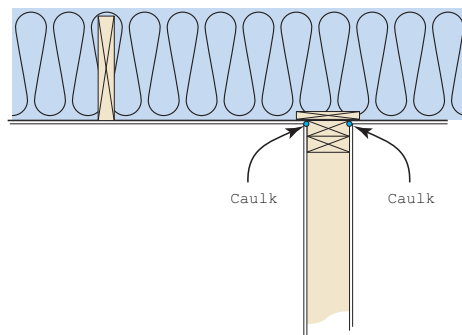
Code Section

402.4.1, 402.4.1.1

Description

- Bottom plates of walls separating conditioned and unconditioned spaces must be sealed to subfloor or foundation using caulk, adhesive, or gasket material.
- All joints, seams, and penetrations must be sealed. For example, plumbing and electrical penetrations through plates must be caulked or foamed.
- Top plate must be sealed to drywall at all interfaces between unconditioned attic and wall. Sealant may be applied from attic side to joints between drywall and top plate.

Air-Sealing Top/Bottom Plate

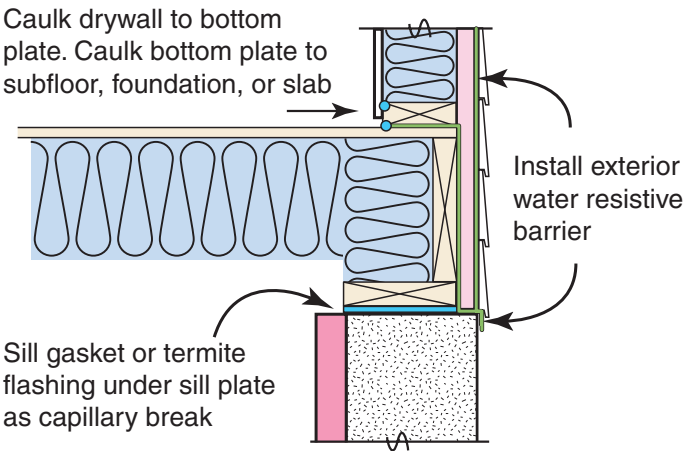
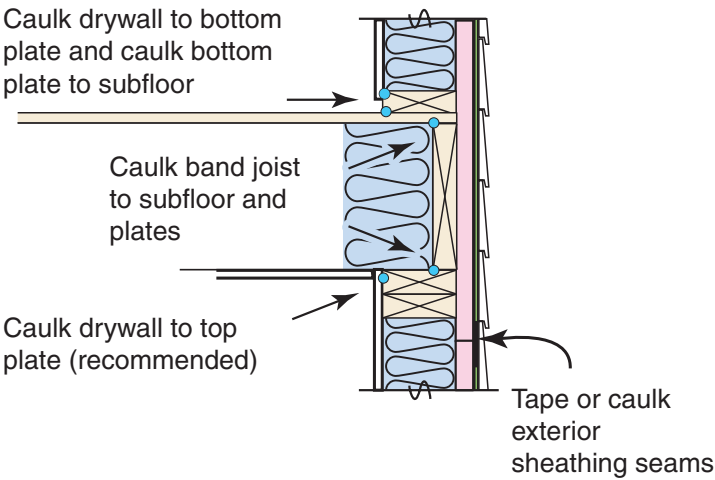


Bottom plate sealed to subfloor with caulk or gasket



Ceiling drywall sealed to top plate from attic side

Air-Sealing Top/Bottom Plate



AIR-SEAL SEAMS IN EXTERIOR AIR BARRIER

Code Section

402.4, 402.4.1, 402.4.1.1

Description

- All joints, seams, and penetrations must be sealed. For example, gaps in exterior sheathing must be sealed with appropriate sealant. If house wrap is used as the air barrier, all edges, seams, and penetrations must be taped/sealed.

Sealing Sheathing or House Wrap



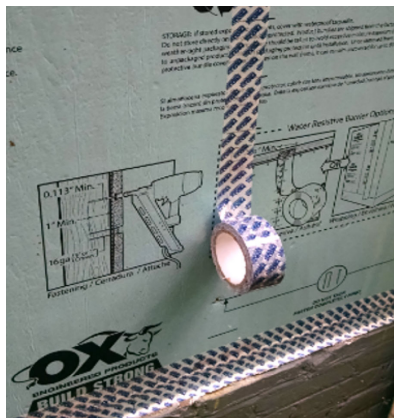
CORRECT: Tape seams in house wrap



CORRECT: Sealing exterior sheathing



Sheathing seams properly sealed



AIR-SEAL UTILITY PENETRATIONS

Code Section

402.4.1, 402.4.1.1

Description

- All utility penetrations in areas separating conditioned/unconditioned space must be air-sealed. This includes sealing all penetrations from plumbing, wiring, ductwork, exhaust fans, light fixtures, and electrical boxes through top and bottom plates, exterior sheathing, band and rim joists, insulated walls, insulated ceilings, and insulated subfloors.

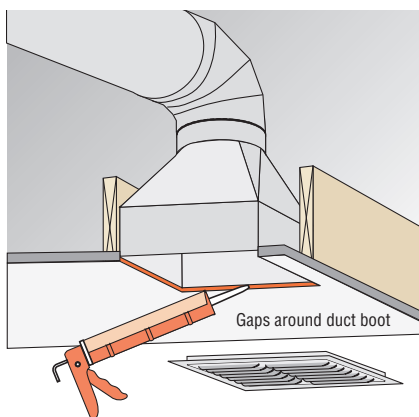
Air-Sealing Penetrations Details



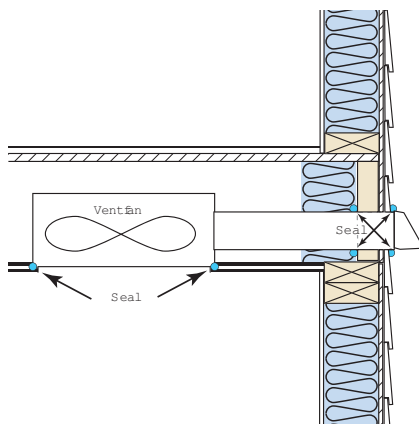
INCORRECT: Unsealed sheathing penetration



CORRECT: Air-sealed utility penetrations



Duct boot penetration sealing



Band joist penetration sealing

AIR-SEAL DROPPED SOFFIT CEILINGS AND CHASES

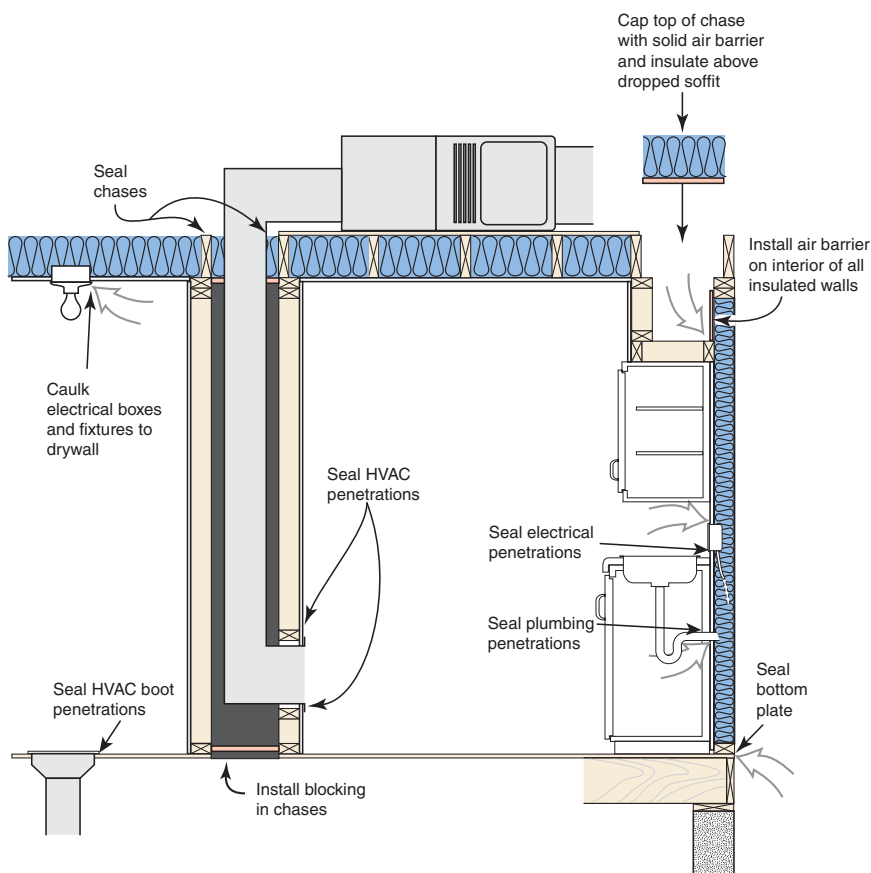
Code Section

402.4.1, 402.4.1.1

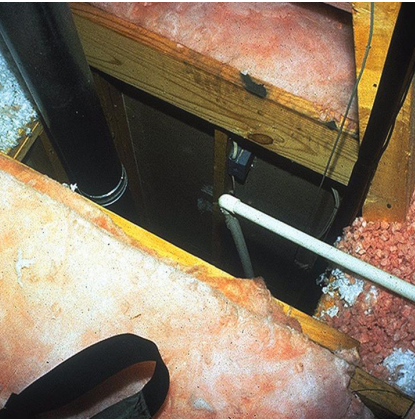
Description

- Framed spaces connecting conditioned and unconditioned areas above and below a chase (e.g., attics, unconditioned basements, vented crawl spaces) must be air-sealed (e.g., with sheet material and proper sealant). These areas include chases for plumbing, ductwork, chimneys, and flues.
- Dropped ceilings or soffits between conditioned areas and the attic must also be air-sealed.

Proper Air-Sealing for Chases



Air-Seal Dropped Ceilings and Chases



INCORRECT: Unsealed chase



CORRECT: Well-sealed chase



INCORRECT: Improperly capped chase



CORRECT: Capped chase properly sealed

AIR-SEAL RIM/BAND JOIST JUNCTIONS

Code Section

402.4.1, 402.4.1.1

Description

- All penetrations (e.g., from holes drilled for HVAC lines, plumbing lines, bathroom fans, exhaust fans, and electrical lines) through the rim/band joist between conditioned and unconditioned spaces must be sealed.
- Seal all seams in rim/band joist sheathing separating conditioned and unconditioned spaces between conditioned floors.
- Rim/band joist should be sealed to top plate, subfloor, and at butt joints (or at exterior sheathing).

Sealing Joist Penetrations

