

Chapter 12 – Air Sealing (caulk, spray foam, tape), Insulating

Preparation	<ol style="list-style-type: none"> 1. Mark all stud CENTERS on the floor 2. Mark location of all HVAC ducts (warm and cold air), duct dampers and plumbing pipes 3. Verify all wall and ceiling electrical boxes are marked on the floor (electricians should have done this already). 4. Verify wall studs behind counter are in the same plane.at 41" above floor. 5. Verify blocking has been installed for sheetrock at all wall corners, top of walls and perimeter of stair landing and closet over stairway platforms. See "Blocking for Sheetrock", Section 10.5.3 6. Clean debris from wall cavities. Vacuum subfloors along exterior wall baseplates, exterior doors, and floor vents 7. Remove temporary 2x4 brace under range plenum. 8. Verify jack studs of sliding doors are straight and plumb to within 1/16" 9. Verify exterior wall stud faces adjacent sliding doors are straight, plumb and in the same plane. Verify basement exterior wall foamboard is in place and secured tight to the exterior wall
Air Sealing	<ol style="list-style-type: none"> 10. Fill the following gaps/holes with spray foam (if >¼") or air sealing caulk (if < ¼"): <ol style="list-style-type: none"> a. Ceiling and wall electrical boxes (all levels except attic) b. Exterior & interior wall studs (main & basement levels) c. Top/bottom wall plates, interior AND exterior walls (BOTH levels) d. Exterior wall sheathing or foamboard visible from inside the house e. Range plenum area (use spray foam) f. Rough opening gaps between window (fill partially) & door frames (fill fully) (Trim or remove excess ONLY AFTER COMPLETELY DRY). Also caulk bottom of windows g. Inside seam between exterior wall corners h. Subfloor penetrations, e.g., tub drain (cover opening with OSB, seal gaps with spray foam), vent pipe, water supply lines and drains i. Exterior doors along floor and inside edge of threshold to outside of jambs (thin bead of caulk) j. Foamboard spacers over headers (caulk or foam). Tape if foamboard is flush with framing k. Gaps between the top of foundation wall foamboard and wall upper plate l. Sill box penetrations, e.g., dryer vents, HVAC & plumbing pipes, gas line etc 11. Seal the inside seam between upper and top plates of exterior walls and inside seams of exterior doors and window components with air sealing tape 12. . 13. Secure in-floor heat ducts with two soffit nails (14. Apply a 6" width of HVAC tape around floor ducts to seal gaps between sub-flooring and ducts. 15. Seal joint between cold air return boots and ducts (from basement) with HVAC tape. 16. Install foamboard behind PVC pipe located in exterior wall stud bays.
Install Wall Insulation	<ol style="list-style-type: none"> 17. Insulate future bath fan vent ducts. 18. Fill exterior wall cavities < 3" wide with foam board. Fill gaps with caulk or air sealing tape. 19. Install foamboard behind exterior wall blocking and in front of overhead electrical blocking 20. Insulate behind electrical boxes with scrap foamboard 21. Install foamboard above window and door headers. Seal perimeter with air sealing caulk or tape 22. Loosely install unfaced R-19 batt insulation into exterior wall cavities 23. Reserve two 26" long fiberglass insulation pieces for house scuttle <ol style="list-style-type: none"> a. 24. Do NOT insulate ceiling areas

Quality Points

- Jack studs of sliding closet door openings are straight and plumb.
- Wall stud faces adjacent sliding closet doors are straight, plumb and in the same plane, and stud faces behind kitchen countertop are in the same plane
- All electrical boxes are sealed (except attic light) and foamboard placed behind boxes
- All exterior basement walls have been insulated with foamboard; foamboard is secured tight to walls
- All foam board edges filling narrow stud bays are sealed
- The gap between windowsills and bottom of windows is sealed
- All holes in **interior and exterior** top/bottom plates are filled
- Seams between exterior wall upper/top plates, exterior wall corners, and exterior door/window components are sealed
- Seams between exterior wall base plates and sub-floor are sealed
- All holes in **exterior and interior** wall studs on both main floor and basement levels are filled
- All exterior penetrations are sealed from the inside, e.g., foamboard, OSB, sill box foam, range plenum, dryer vent
- All sub-floor penetrations are sealed, e.g., tub drain, vent stack, water lines, drain lines
- Floor vents are nailed and secured with HVAC tape
- Gaps between the rough opening and framing of EXTERIOR doors are fully filled with spray foam or caulk
- Gaps between window rough opening and window framing are partially filled with spray foam or caulk. Window bottoms are caulked along sill pan (or flashing tape if used instead)
- Gap on inside edge of exterior door thresholds (along the floor) is caulked to outside of door jambs
- Window and door header areas are filled with foam board and sealed
- Exterior walls are filled with insulation, with no visible gaps around perimeter.
- Insulation is fluffed out and flush with interior edge of studs (no stud areas covered)
- Vanity, doorbell and thermostat wires are not covered with insulation
- Future bath fan vent duct in basement is lined with plastic and duct and sill box are filled with insulation
- Sill boxes are filled with rigid foam and caulked around the perimeter and batt insulation is installed over foam
- Insulation for house scuttle is reserved under basement stairway