

Quick Reference Guide

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

Preparation	<ol style="list-style-type: none">1. Mark all stud CENTERS on the floor with red crayon2. Mark location of all HVAC ducts (warm and cold air), duct dampers and plumbing pipes with red crayon. Use RECTANGLES for ducts, CIRCLES for dampers and plumbing pipes3. Verify all wall and ceiling electrical boxes are marked on the floor (electricians should have done this already). If not, use red crayon rectangle on floor beneath the wall box locations and circle below the ceiling box locations.4. Verify wall studs behind counter are in the same plane. Check at 41" above floor. Shim if gap. If ¼" gap or more, shim to zero at 20" below and 10" above the 41" starting point5. 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 10.5.36. Clean debris from wall cavities7. Remove temporary 2x4 brace under range plenum.
Air Sealing	<ol style="list-style-type: none">8. Fill the following gaps with spray foam (if >¼") or 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 housee. 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 along sill pang. Sill box penetrations, e.g., dryer vents, HVAC & plumbing pipes, gas lineh. Subfloor penetrations, e.g., tub drain (cover opening with OSB, seal gaps with spray foam), vent pipe, water supply lines and drainsi. 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)9. Secure in-floor heat ducts with two soffit nails (one on each end) after adjusting duct to be flush with sub-floor10. Apply 6" Weathermate Straight Flashing tape around floor ducts to seal gaps between sub-flooring and ducts.11. Seal joint between cold air return boots and ducts (from basement) with Weathermate Straight flashing tape. If not accessible, seal inside of boot (from main floor) with 3" wide x 4" – 6" overlapping pieces of Weathermate Straight Flashing tape12. Install foamboard behind PVC pipe located in exterior wall stud bays. Seal joints and perimeter
Install Wall Insulation	<ol style="list-style-type: none">13. Push a plastic bag into bath fan ducts for future baths. Fill inside bag and sill box area with batt insulation. See Fig. 12-1 and 12-214. Fill exterior wall cavities < 3" wide with foam board. Fill any gaps with caulk or construction tape.15. Loosely install unfaced R-19 batt insulation into exterior wall cavities:<ol style="list-style-type: none">a. Split batt to fit around wiresb. In cavities that are < standard width or height, cut batt ¾" wider/longer than measured openingc. Fill ENTIRE cavities ensuring there are NO GAPS near upper plates, corners and around wires and pipes and electrical boxesd. Do NOT compress batt; be sure to "fluff" out (using a pencil or nail) to be flush with interior edge of stude. Do NOT cover doorbell, chime and thermostat wires or bathroom vanity light fixture wiref. Cut insulation to fit around blockingg. Cut insulation to fit snugly around electrical boxes; place cut-out behind the boxh. Install batt insulation over rigid foam in sill boxes, 11.5" x 19" in long wall boxes, 11.5" x 32" in short wall boxes16. Do NOT insulate ceiling areas

Quality Points

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- All electrical boxes are sealed (except attic light)
- All foam board edges and gaps are sealed
- All holes in top/bottom plates are filled
- All holes are filled in exterior and interior wall studs on both main floor and basement levels
- 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
- 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
- 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 with spray foam or caulk
- 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 1" rigid foam