

January 2021

SUB Weatherization Guide — Bidding, Communication & Installation Requirements

A guide for estimators, office staff & installers on How to Succeed at SUB's Wx Program

Purpose:

Improved Communication between Contractors & SUB

SUB wants to be very clear on what is required on insulation projects

- What information contractor shall provide on the bid
- When contractor shall contact SUB to schedule in-process inspections
- How insulation is to be installed to meet SUB requirements

Goals for SUB Weatherization Program:

- Provide quality, permanent insulation installations for SUB residential customers
- Program that is easy to use & understand for customers & contractors
- Fairness—hold all contractors to same standards
- Minimize surprises & call-backs
- Expedite incentive payments

Communicate this information with your staff

This SUB Weatherization Guide is available upon request from SUB

Questions? Contact SUB:

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What is SUB looking for?

I. Field Estimator & Office Staff Communication with SUB

- A. Bidding requirements
 - 1. Include square footage of each insulation measure
 - a. Ceiling square feet & existing R-value
 - b. Wall square feet net area (excluding doors & windows)
Indicate that bid includes walls between home & garage or between any other heated & unheated enclosed spaces
Indicate if any walls are excluded & reason
 - c. Floor square feet, floor joist depth, & R-value
 - 2. Indicate what additional work will be done
 - a. Add venting—indicate NFA to add (Net-Free Area)
 - b. Extend ducts for bath &/or kitchen fans & seal to exhaust vent
 - c. Animal-proofing
 - d. Skirting repair
 - e. Dryer ducts &/or vents
- B. Advance scheduling of in-process inspections
 - 1. Call Helen at SUB as soon as you have scheduled to do the work
 - 2. Benefits include no call-backs for contractor or for inspector
 - 3. Minimizes inconvenience of crew, customer & inspector
 - 4. Expedites incentive payment

II. Installers Communication with SUB

- A. Please call SUB when driving to a job in Springfield. It should have been already scheduled for inspection, but this is to make sure.
Phone numbers:
Helen – 541.746.0963
Kyle 541.744.3765 (*mobile 541.953.6939*)
- B. SUB inspector will make every attempt to inspect while installers are on site
 - 1. Ceiling
 - a. Call SUB again 30 minutes before crew expects to start blowing insulation
 - b. Inspector will arrive on-site to inspect prep & beginning of attic blow
 - c. If inspector does not arrive before crew starts to blow insulation *please ...*
 - i. Leave path down center allowing inspector access to furthest end
Leave center path until end & fill in last
 - 2. Wall
 - a. Call SUB again after drilling several holes
 - b. Expect inspector to arrive on-site several times throughout wall-blow
 - 3. Floor
 - a. Call SUB again about an hour before crew expects to finish all components
 - b. Inspector will arrive on-site about when crew is finishing install
- C. SUB does not expect installers to wait around for inspector to show up, however ...
 - 1. If contractor did not pre-schedule & installers did not call for in-process inspection, inspection may be delayed due to customer's schedule
 - 2. If inspection fails there will be a call-back & re-inspection

III. SUB's Installation Requirements

A. Site-built Homes Insulation

1. Ceiling

a. Insulation

- i. Insulate to a total value of R-49 when existing value is \leq R-11
- ii. Place depth rulers in attic insulation
 - (a) *At least one depth ruler for every 300 ft² of insulated area*
 - (b) *& at least one depth ruler in every little attic area*

b. Venting

- i. Vent Attics to meet 1:300 requirement
 - (a) *Use Net Free Area (NFA) values (not gross areas of vents)*
 - (b) *Split venting evenly high & low (60/40 split ok)*
 - (c) *If venting not split evenly, vent to 1:150*
- ii. Baffle vents such that insulation does not limit air flow

c. Exhaust Ducts

- i. Bath, Kitchen & other Exhaust Fans shall be ducted & sealed off to dedicate vents that vent to outside
- ii. Dedicated vents are excluded from the total attic venting calculation
- iii. Exhaust ducts must be sheet metal or HVAC flex-duct
- iv. Ducts must be mechanically fastened using sheet metal screws or clamps and be substantially airtight
- v. Kitchen exhaust ducts must be of 28-gauge galvanized steel, stainless steel, aluminum or copper
- vi. Exhaust ducts must be insulated to a minimum of R-4 if in unconditioned space
- vii. Existing rigid or flexible metal ducts may remain if they are free of holes and kinks and in good condition
- viii. Do not use plastic duct material

d. Heat Producing Devices

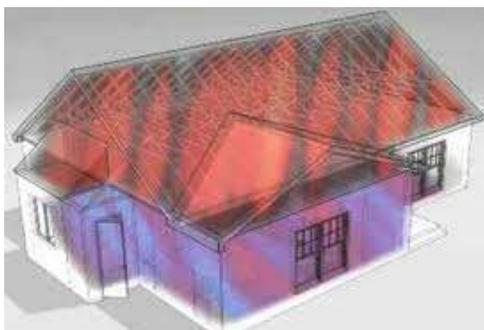
- i. Baffle Heat Producing Devices to prevent contact with insulation
 - (a) *Provide 3 inch buffer between device & insulation*
 - (b) *Use sheet-metal baffle material*
 - (c) *Extend at least 4 inch above final insulation level*
- ii. Heat Producing Devices include but not limited to
 - (a) *Recessed-can light fixtures*
 - (b) *Bath fans*
 - (c) *Doorbell transformers*
 - (d) *Stove pipes*
 - (e) *Etc.*
- iii. I.C. Rated (Insulation Contact) devices do not require baffles

- e. Access Hatches & Doors
 - i. Separating conditioned & unconditioned spaces (closet, stairway, etc.)
 - (a) *Insulate & weatherstrip*
 - (a) *R-30 minimum for hatches (horizontal)*
 - (b) *R-11 minimum for doors (vertical)*
 - (b) *Doors shall be latched or screwed shut to ensure tight closure*
 - ii. Unheated space (garage, exterior, etc.)
 - (a) *Animal-proof—let's keep the cats out of the attic*
 - (b) *If no cover exists, provide hatch or door of sheetrock, plywood, or framed screen (no cardboard or visqueen)*
 - f. Knob & Tube Wiring (see OESC 394.12 for code)
 - i. Maintain 3 inch clearance between wiring & insulation
 - ii. If in doubt consult electrician
 - g. Water Pipes in Attic – insulate to at least R-11
2. Wall Drill & Blow
- suggestion: test drill & fill a few cavities before extensively prepping & drilling; installers may find walls to be already insulated or may find that wall cannot be filled without damaging interior.
- a. Locations
 - i. Drill hole within 18 inches of top of each cavity
 - ii. Drill & fill all cavities >1 ft² area & >3 inches wide
 - (a) *Include above doors & windows*
 - (b) *Look for diagonal bracing blocks & make sure to drill & fill above and below*
 - iii. Cavities >5½ feet tall shall be drilled & blown from middle & top
 - b. Requirements & Techniques for various siding
 - i. Wood siding—drill through exterior surface
 - (a) *Drill, fill, plug, spackle & prime*
 - (b) *Wood plugs required—no Styrofoam plugs*
 - ii. Shingle/shake siding
 - (a) *Score sides with knife*
 - (b) *Pry out & wiggle down—avoid breaking off top*
 - (c) *Drill, blow, plug & nail shingle back in place*
 - iii. Vinyl siding
 - (a) *Attempt if not too brittle*
 - (b) *Unzip & pry open*
 - (c) *Drill, blow, plug & zip siding together*
 - iv. Other siding material
 - (a) *Metal, asbestos, stucco, HardiePlank, figured wood, etc*
 - (b) *May choose to not insulate*
 - (c) *Options*
 - (i) *Cover holes with decorative trim or other?*

- c. Insert-tube method
 - i. Allows just a single hole per cavity
 - ii. Insert tube to very top & bottom of cavity
- 3. Wall Open Cavities – knee walls, skylights, garage buffer wall, etc
 - a. Install new, repair existing, & replace missing batts
 - b. Support batts with twine every 18” or closer
 - c. Cover new or existing attic wall insulation with a vapor-permeable air barrier to ensure that insulation is held in full contact with the wall.
- 4. Floor
 - a. Insulation
 - i. Verify that ground-moisture barrier is present and in good condition or install a new ground-moisture barrier
 - (a) *Acceptable materials includes the following*
 - (i) *6-mil black polyethylene*
 - (ii) *UV-stabilized and opaque polyethylene*
 - (iii) *Existing black 4 mil polyethylene may remain if in good condition*
 - ii. Insulation shall be in full contact with entire underside of floor
 - (a) *Fill depth of joist*
 - (a) *R-19 in 6 inch joists (or R-21)*
 - (b) *R-25 in 8 inch joists*
 - (c) *R-30 in 10 inch joists*
 - (b) *If there is existing floor foil, it shall be sliced along each joist to eliminate gaps between insulation & floor*
 - (c) *Kraft-faced insulation is not required (if used, install face in contact with floor)*
 - iii. Support insulation with wood lath or polypropylene twine.
 - (a) *Support every ≤ 18 ” if joists spaced at 24 inches or less*
 - (b) *Support every ≤ 12 ” if joists spaced at 48 inches*
 - (c) *Support every ≤ 8 ” if joists spaced at 60 inches*
 - b. Floor Hatches & Foundation Access Doors
 - i. Interior hatch separating heated & unheated spaces (closet floor)
 - (a) *Weatherstrip & Insulate to R-25 minimum*
 - ii. Foundation Access Door
 - (a) *Latched or screwed shut to ensure Animal-proof closure*
 - (b) *Must permit future access & easy latched closure*
 - (c) *Existing cover must be in good condition and weather-resistant*

If no cover exists build pressure-treated-wood framed screen

- c. Pipe insulation—options
 - i. Pipes within floor-joist cavity
 - (a) *Split floor insulation with at least R-11 equivalent below pipe*
 - (b) *Support adequately*
 - ii. Pipes below floor-joist cavity
 - (a) *Wrap with R-11 fiberglass*
 - (a) *Use full thickness R-11 batt—do not split*
 - (b) *Wrap with twine, corrosion resistant wire, or plastic compression ties (No tape)*
 - (b) *Foam pipe wrap*
 - (a) *Inside diameter of the pre-formed insulation must match the outside diameter of the water pipes.*
 - (b) *No gaps along length of seams or at joints between pieces*
 - (c) *Miter the corners of pre-formed insulation for tight fit*
 - iii. Pipes on the ground
 - (a) *Best option: use foam pipe wrap*
 - (b) *2nd option: put plastic sheet under pipe & wrap pipe with R-11*
 - (c) *Worst option: cover pipe with 12 inch wide R-11 batt*
Note: fiberglass should not be in direct contact with ground
- d. Vents in floor crawlspace
 - i. *Animal-proof entire crawlspace perimeter*
 - ii. *Vent crawlspace to 1:300 NFA (Net Free Area)*
- e. Ground cover moisture barrier
 - i. *Use 6 mil black polyethylene (visqueen, plastic)*
 - ii. *Cover all ground surface*
 - iii. *Overlap joints & a few inches up foundation & pier pads*
- f. Floors with closed cavities (e.g. rooms over garages with drywall ceiling)
 - i. *Drill & blow each cavity full*
 - ii. *Plug & spackle*



- B. Manufactured Homes—Do not insulate floor if there are water or sewer leaks!
1. Belly-blow floor insulation
 - a. Insert hose into each cavity, both directions
 - b. Fill cavities so insulation is in contact with entire underside of floor
 - c. Patch holes—if you can easily pull off patch it's not going to last long
 - i. Use metal tape patch –or– adhesive spray & patch
 - ii. Staple each patch at least 4 places
 - (a) *Outward Clinch Staple sheet, fabric & paper materials*
 - (b) *Use Straight Stapler ONLY when stapling into solid material*
 2. Repairs—when belly is not intact
 - a. Ducts (not including crossover or flex ducts)
 - i. Include exposed ducts in floor insulation
 - ii. Insulate exposed ducts with batts \geq R-11
 - b. Tear-out & Batt
 - i. Minimum of R-22 or the max. R-value achievable with no air space between the insulation and the subfloor
 - ii. Support with lathe or string every 18 inch or closer
 - iii. *Not required to cover batts with new belly material*
 - c. Blow
 - i. Repair belly: material shall have \geq 10 perm rating
 - ii. Attach new belly securely to wood joists
 - iii. Support new belly to prevent excessive sag
 - d. Ensure that entire repair is secure & permanent
 3. Pipe insulation
 - a. Pipes below belly—2 options:
 - i. *Wrap with R-11 fiberglass*
 - (a) *Use full thickness batt—do not split*
 - (b) *Wrap with string or electrical tape*
 - ii. *Foam pipe wrap*
 - (a) *Inside diameter of the pre-formed insulation must match the outside diameter of the water pipes.*
 - (b) *No gaps along length of seams or at joints between pieces*
 - b. Pipes on the ground
 - i. *Best option: use foam pipe wrap*
 - ii. 2nd option: put plastic sheet under pipe & wrap pipe with R-110
 - iii. Worst option: cover pipe with 12 inch wide R-11 batt
Note: fiberglass should not be in direct contact with ground
 4. Skirting
 - a. Animal-proof entire crawlspace perimeter—no holes or gaps \geq 1 inch
 - b. Vent crawlspace to 1:300 NFA (Net Free Area)
Do not use plastic or PVC vents—they become brittle & break
 - c. Secure access with latches or screws
 5. Ground cover moisture barrier
 - a. Use 6 mil black polyethylene
 - b. Cover all ground surface
 - c. Overlap joints & a few inches up skirting & supports

6. Dryer duct & vent
 - a. Install or repair clothes dryer duct
 - b. Extend all exhaust ducts to the outside of skirting or crawlspace.
 - c. Seal ducts and termination fittings
 - d. New dryer ducts must be rigid metal, securely connected with metal clamps and UL-rated foil tape, permanently supported, and sized according to manufacturer's specifications. To prevent blockage with lint, don't connect new dryer vent ducts with screws.