

# Significant Changes to the IHWAP Field Guide – 2021

July 1, 2021

## Section 200 – Architectural

### **NEW SECTION**

*The SWS notes minimum flame spread and smoke development requirements for insulation types for each building section. Those requirements are summarized in the table below. In addition, flame and smoke numbers for various insulation manufacturers are attached to this document. This could be a reference guide that could be given to agencies and contractors and is noted as Appendix 602 below and is attached to this document.*

#### 201 General Insulation Requirements

##### 2011 Flame Spread Index/Smoke Development Index

Insulation used in homes shall meet the Flame Spread and Smoke Development numbers shown in Table 2011-1<sup>1</sup>. Additional information may be found in Appendix 602.

	Flame Spread Index	Smoke Development Index
Batts	< 25	< 450
Blown	< 25	< 450
Foam Board	< 75	< 450
Spray Foam	< 75	< 450

### **NEW SECTION**

*The SWS notes documentation requirements for the various insulation types. These are summarized in this section.*

#### 2012 Contractor Requirements

Contractors shall meet the onsite documentation as noted below for attics, cathedral ceilings, finished attics, sidewalls, foundations, floors and rim joists. Note special requirements for rim joists when spray foam is used.

Loose Fill & Dense Pack - Post a dated receipt signed by the installer that minimally includes: Installed insulation type, coverage area, installed thickness, minimum settled thickness, installed R-value and number of bags installed.

Batts, Foam Board & Spray Foam - Post a dated receipt signed by the installer that minimally includes: Installed insulation type, coverage area, installed thickness and installed R-value.

Spray Foam in Rim Joists<sup>2</sup> - Post a dated receipt signed by the installer that minimally includes: Installed insulation type, coverage area, installed thickness, installed R-value, manufacturer product

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<sup>1</sup> Standard Work Specifications (SWS), National Renewable Energy Laboratory (NREL)

<sup>2</sup> SWS 4.0401.1g, "Insulation – Onsite Documentation"

name, manufacturer supplied material density and flame spread and smoke development index as tested per ASTM E84 or UL 723.

## **NEW SECTION**

*The SWS includes ignition and thermal barrier requirements for insulation that is dependent upon the type of insulation used and where it is installed. Those requirements are included with the building section in the Standards but a general overview is provided here.*

### **202 Ignition and Thermal Barriers**

Ignition and thermal barrier requirements for insulation are dependent upon the location in the home where the insulation is installed. Specific requirements are listed by building section and insulation type. For additional information, refer to “SPFA-126, “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry” and the Standards Work Specifications (SWS).

### **2122 Sealing Bypasses**

*Added the following for whole house fans – taken from the SWS.*

Whole House Fan: Construct a durable, rigid enclosure on all sides of the fan housing that is taller than the surrounding insulation. Install an operable cover for the fan enclosure that opens when the fan is operated and closes when the fan is turned off. Operable lid must have an airtight seal when closed. Insulate fan enclosure to a minimum of R-20. Install insulation in full contact with the enclosure. Mechanically fasten insulation to fan cover. Apply a continuous seal at all seams, cracks, joints, and edges of enclosure. Provide an airtight seal for the enclosure cover when it is closed using weatherstripping, gaskets or equivalent.

### **21242 Spray Foams**

*Modified language:*

Spray foams may be used under counters and cabinets to seal bypasses but otherwise are not permitted to be used in the living area of home. Spray foams may ~~only~~ be used in attics, unfinished basements, crawl spaces and attached or tuck-under garages.

### **213 Attic Insulation**

#### **2131 Safety**

*Modified language (boxing non-IC rated recessed lights):*

~~If there is insufficient clearance to install a box 4 inches higher than the insulation, do not cover the box and use an appropriate barrier to keep the insulation 3 inches away from the fixture.~~

If there is insufficient clearance to install the box 4 inches higher than the insulation due to the roof pitch, box shall be equal to the height of the insulation and shall be covered with 5/8 inch Type X gypsum. Attic insulation shall not cover the top of the box. The box shall not be covered with gypsum board if there will be less than 3 inch clearance between the top of the fixture and the gypsum board.<sup>3</sup>.

*Knob & tube wiring:*

- Install insulation beneath active knob-and-tube maintaining a ~~one~~three-inch air space between insulation and wiring (Figure 2131-4). Alternately, non-metallic channels or barriers, such as rigid foam board, should be installed to maintain minimum ~~one~~three-inch air space alongside of knob-and-tube wiring (Figure 2131-5).

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<sup>3</sup> SWS 3.0102.1, “Sealing Non-Insulation Contact (IC) Recessed Light”

#### **21324 Top Plates**

*Regarding insulation baffles:*

Insulation baffles are to be installed only where soffit vents are present. ~~For continuously vented soffits, one insulation baffle shall be installed for every three rafter cavities. Baffles must be long enough to extend above the level of the finished insulation. When vented eaves or soffits exist, mechanically fasten insulation baffles in every roof bay that extend above the final insulation level by at least 6 inches.~~

#### **2135 Attic Access Hatches**

*Added the following language:*

If there is no interior access to the attic and access is gained through a gable vent for purposes of insulating, and interior access must be installed for purposes of conducting a final inspection.

#### **21364 Knee Walls**

*This is sample language used for ignition and thermal barriers:*

*Open Cavity – Spray Foam*

Install closed-cell spray foam to back side of knee wall finish. Insulation shall be a minimum 3 inches thick (R18). An air barrier over the insulation is not required. ~~However, insulation shall be covered with a fire-rated material if required by local code.~~

Separate spray foam from living space with a thermal barrier material (e.g., 1/2" gypsum wallboard) as specified by applicable building code. Generally, the interior knee wall finish of drywall or plaster will satisfy this requirement.

If knee wall cavity is used only for the service of utilities, spray foam will be separated from the knee wall cavity using a suitable ignition barrier covering or coating according to manufacturer's specifications.

If knee wall cavity is used for storage or occupancy, spray foam will be separated from the attic space using a thermal barrier material (e.g., 1/2" gypsum wallboard) as specified by applicable building code and manufacturer specifications.

#### **2137 Attic Venting**

*Deleted sections 21372 through 21377 which describe attic vent types.*

#### **215 Crawl Space Insulation**

*Clarified difference between mobile homes and manufactured housing for insulating crawl spaces.*

The thermal boundary of a crawl space in site built homes can either be the foundation walls or the floor above the crawl space.

The floor is always the thermal boundary in mobile homes. The thermal boundary in manufactured homes can either be the foundation walls or the floor. The distinction is that mobile homes are not on a permanent foundation. Manufactured homes, though built in a factory, are placed on permanent foundations such as concrete block or poured concrete. In this respect, they are very similar to site built homes.

*Added the following language from the SWS.*

- Install a durable (minimum of 10-year service life), easily seen sign, sized a minimum of 8.5"x 11" at each access to the space. Sign shall minimally include the following items:
  - Warning to prohibit storage of hazardous and flammable materials.
  - Caution not to damage the ground vapor retarder, air barrier, insulation, and mechanical components specific to the space.
  - Immediate repairs are needed in the case of damage.

*Maintained language that fibrous insulation is not permitted for crawl space foundation wall insulation although the SWS section 4.0402.1, "Closed Crawl space – Non-Foam Insulation" allows it as long as the insulation has flame and smoke numbers less than 25/450 and the insulation is non-absorbent. This would include most batt insulation types except for kraft faced batts which have no ratings.*

## **NEW SECTION**

*Added this section to clarify difference between "air sealing" and "insulating" foundation walls.*

### **2163 Spray Foam Insulation**

- One inch of spray foam may be used as an air sealing measure if the foundation material is brick, block or stone. This measure is not acceptable for poured concrete foundations.
- Minimum two inch spray foam may be used for insulating foundation walls. Foam shall be applied to a thickness that will obtain a minimum R14.

### **2184 Window Replacement**

*Note change in funding sources as an air sealing measure.*

**Windows may only be replaced if SIR is greater than or equal to 1.0 or has been approved as an air sealing measure. If approved as an air sealing measure, only HHS or state funds may be used – DOE dollars cannot be used to fund window replacement as an air sealing measure.**

### **2192 Door Replacement**

*Note change in funding sources as an air sealing measure.*

**Doors may only be replaced if SIR is greater than or equal to 1.0 or has been approved as an air sealing measure. If approved as an air sealing measure, only HHS or state funds may be used – DOE dollars cannot be used to fund door replacement as an air sealing measure.**

## Appendix 602

Insulation Manufacturer	Insulation Type	Flame Spread	Smoke Development
Owens Corning	Unfaced batt	<25	<50
	PSK or FSK faced batt	<25	<50
	Foil faced batt	75	150
	Kraft faced batt	NOT RATED	NOT RATED
	Foamular (XPS)	Equal or less than 25	<450
Johns Mansville	Comfort therm batt	<25	<50
	Unfaced batt	<25	<50
	PSK or FSK Batt	<25	<50
	Foil face batt	<75	<150
	Kraft faced batt	NOT RATED	NOT RATED
	Mineral wool batt	<25	<50
	Polyiso continuous foam sheeting	Rated by thickness	<450
	Sprayfoam (open or closed cell)	Equal or less than 25	<450
CertainTeed	Unfaced batt	<25	<50
	FSK batt -25	<25	<50
	Kraft faced batt	NOT RATED	NOT RATED
	Certa Spray closed cell foam	30	475
	Basement blanket	<25	<50
	Metal building blanket	<25	<50
Knauf	Unfaced batt	<25	<50
	Foil face batt	NOT RATED	NOT RATED
	Kraft faced batt	NOT RATED	NOT RATED
	FSK-25 batt	<25	<50
	Basement blanket	<25	<50
Rockwool	Mineral wool batts	<25	<50
American Rockwool	Mineral wool batts	<25	<50
DuPont	XPS	<25	<450
	EPS	<25	<450
	Polyiso	<25	<450
	Froth Pak 2-part foam	25	165
DAP	Touch n Seal 2-part foam 2" thickn	15	350
	3" thickness	10	50
Tiger Foam	2-part foam 2" thickness	<25	<450
Lapolla	2-part foam	<25	<450
Nexseal 2.0	2-part foam 4" max	<25	<450
Dow	Thermax	25	225