Mobile Home v. Site-Built Home Policies & Procedures

Some of the content included throughout this policy manual is not optimally suited to mobile homes. Sections 8 & 9 of this manual are written specifically for mobile homes. These mobile home policies and procedures are meant to provide clearer direction for the work performed in mobile homes versus the work performed in site-built homes. In an effort not to duplicate every policy provision in the TEC Manual that is applicable to both site-built and mobile homes, the following guidelines shall apply when interpreting mobile home policies and procedures:

- **For work in mobile homes only, the policy content contained within Sections 8 & 9 of this TEC Manual shall supersede any/all similar policy content contained within any other section of the manual.**
- **If there are policies outlined in any non-mobile home section of the TEC Manual and that same policy content/topic is not specifically covered in Sections 8 or 9, then the policy from the other, non-mobile home manual section shall apply to mobile homes. An example would be the requirements for oven testing. Even though the requirements related to oven testing are not specifically covered in Sections 8 or 9, they still apply in mobile homes.**

Non-Energy Saving Measures - Including Health & Safety Measures

1. All protocols regarding safety devices as outlined on Section 4, Pages 6 & 7 of this policy manual shall be met for all mobile homes (MH).
2. All plumbing vent stacks must extend to the outdoors. In roof-over situations, the vent stack cannot terminate in between the original and the new roof. The venting must be extended to the outdoors.
3. An evaluation by a qualified heating technician shall be performed whenever there are any signs of past or ongoing spillage or flame rollout issues to ensure that no spillage or flame rollout issues exist at the completion of a MH project. By conclusion of every MH project there shall be no visible signs of operational deficiencies or imminently dangerous conditions relating to any combustion appliances, including the appliance's combustion air intake, flue pipes or SRJ assemblies/roof wedges.
4. All combustion appliances shall pass all required combustion testing procedures and all appropriate spillage and draft tests performed at the worst-case scenario.
5. If the installation of CAZ pressure relief is performed by installing an open conduit between the CAZ and the outdoors, then the conduit shall be unobstructed and extend to the exterior of the building shell. The conduit cannot terminate in the crawlspace or in an attic/roof cavity. The conduit can only be routed through the floor and crawlspace area if it extends to the outside of the crawlspace skirting *(or comparable surface).* All conduit sections located within the crawlspace must be thoroughly airsealed to prevent crawlspace air from getting up into the mobile home.

Section 8: Mobile Home Policies & Procedures

Non-Energy Saving Measures Including Health & Safety Measures

6. Combustion air from the outdoors must be provided to all propane, natural gas or oil-fired combustion appliances in mobile homes. Note that combustion air intake pipes/conduits are different than the type of piping/ conduit described on the previous page that provide general CAZ pressure relief. The conduit delivering combustion air from the outdoors must connect directly to the burner or into the burner compartment of the combustion appliance. When the conduit delivering combustion air directly to the burner or into the burner compartment passes through the floor/mobile home belly it is allowable for the termination to be located within the crawlspace. It is also allowable to extend the combustion air conduit to the exterior of the mobile home skirting (or comparable), but only if the termination of the conduit is located above the typical snow accumulation level and has a mesh screen installed to deter rodents. When the conduit delivering combustion air to the burner passes through a mobile home ceiling, it shall extend to the exterior of the building shell. It cannot terminate in a mobile home attic/roof system.
7. Whenever there is a closeable door located in front of the furnace/furnace closet, the air handler must be engaged for an additional “MH furnace pressure imbalance test”. Modifications shall be performed until a passing test result is achieved. Refer to the the testing protocols outlined on the next page for more detailed information about these testing requirements.

MH Furnace - Pressure Imbalance Test

A Required Test Whenever There is a Closeable Door in Front of a MH Furnace Closet

- **Note that this is not a worst-case testing procedure.**
- **The completion of this required pressure test is important to do whenever there is a closeable door located in front of mobile home furnace closets because most mobile home furnaces do not have a ducted return side of the distribution system. Usually the small openings built into the cover of the furnace blower compartment are the only pathways for return air to get into the MH furnace's distribution system. This test is performed to ensure that the already limited return air pathways are not obstructed.**

Test Set Up & Instruction

The house must be put into winter mode with exterior doors and windows closed during this test. Air conditioners shall be either removed from windows or the air conditioner/window area shall be sealed over with plastic and painters tape or equivalent materials. No other exhaust appliances (fans, dryers, etc.) should be running during this test. With the mobile home in winter mode, set up a digital pressure gage to operate in pressure/pressure mode. One of the hoses should be attached to a pressure tap and run into the mobile home furnace closet (CAZ). The other pressure tap on the same channel does not need a hose attached to it as long as the digital gage itself is physically located in the hallway outside of the furnace closet. Otherwise a hose must be attached to the other pressure tap on the same channel and run to the hallway outside of the furnace closet.

At this point, the setup of the building and the digital gage will enable a measurement of the pressure difference between the furnace closet (CAZ) and the hallway. Turn on the furnace air handler and close the door to the furnace closet. Record the pressure difference indicated on the gage while the air handler is running.

Action Levels

With the air handler running, the difference in pressure across the closed door cannot exceed 7 Pa to avoid excessive pressure imbalances within the mobile home and to ensure that adequate return air is able to enter the furnace's distribution system.

If the pressure difference across the door is greater than 7 Pa with the air handler running, then corrective actions shall be taken to lower the number before a weatherization project can pass the final QCI and be reported as complete. If results are within the 5 - 7 Pa range, corrective actions are not required but are strongly recommended.

Corrective Action Strategies

Some recommended actions to alleviate the excessive pressure difference between the MH furnace closet (CAZ) and the rest of the mobile home are a) to install louvered grills into the door or into a partition wall between the CAZ and another room of the mobile home, b) to undercut the door or c) to completely remove the door. If opting to completely remove the door as a way to pass this pressure test, all hinges and hardware shall be removed from the door opening and the client must be informed about the importance of not reinstalling the door after the WAP project is completed.

Mechanical Ventilation

The following policies shall be adhered to during all MH projects.

Mechanical Ventilation Standards - General

- **All protocols regarding exhaust fan venting materials and installation specifications shall be met as outlined in Section 7 of this policy manual.**
- **All protocols regarding clothes dryers venting material and installation specifications shall be met as outlined in Section 7 of this policy manual.**
- **All ventilation capacity determinations must use actual measured fan-flow readings. No ventilation capacity determinations can use fan-flow estimates or capacity ratings from product manufacturers. Actual fan-flow readings are required before and after the WAP project.**

Local Ventilation

By the conclusion of every Vermont WAP MH project, a minimum of one operational exhaust fan equivalent shall be present in the home to provide local ventilation. A one operational exhaust fan equivalent is defined as 30 cfm measured fan-flow. Any exhaust fan inside the mobile home can contribute toward the minimum local ventilation requirement of 30 total cfm. This local ventilation capacity requirement is in effect on Vermont WAP projects even when there is zero determined need for dwelling-unit ventilation based on the ASHRAE 62.2- 2016 alternative compliance path calculations.

WAP-Installed Kitchen Range Hoods or Other High-CFM-Capacity Exhaust-Only Fans in Mobile Homes

It is recommended to have a working exhaust fan in the kitchen whenever a gas oven is present in both site-built and mobile homes. However, the benefits of installation should be weighed against other factors in the household, particularly in mobile homes.

In general, when evaluating existing fan-flows and planning for enhanced mechanical ventilation solutions in any mobile home, extra care must be taken to avoid installing ventilation capacity that unintentionally creates an environment where the MH combustion appliances are no longer able to pass worst-case spillage and draft tests. In consideration of the inter-play between exhaust fans and MH combustion appliances, it is not allowable to install any exhaust-only mechanical ventilation device with a rated capacity from the device manufacturer > 80 cfm unless intentional steps are taken during the installation to ensure that the actual measured fan flow of the device is ≤ 80 cfm. This maximum, per-device, measured fan-flow must be assured for any exhaust-only devices that were installed by WAP before a MH project can pass the final QCI and be reported as complete. This applies to devices installed by WAP for local and/or dwelling-unit ventilation purposes.

Dwelling-Unit Ventilation

The dwelling-unit ventilation requirements as outlined in Section 7 of this policy manual are applicable in all MH projects.

Documentation Requirements

The documentation requirements as outlined in Section 7 of this policy manual are applicable in all MH projects.

Mobile Home Ducts

Evaluation & Performance Testing Requirements|

- **Visual inspection of the mobile home duct boots and risers is required.**
- **Pressure-pan testing is required at each supply register.**
- **In addition to evaluating each duct boot and riser, the furnace base to trunk connection shall be accessed, evaluated and sealed on every mobile home project. Visual verification that this duct system transition is free of air leaks is required. The visual verification must be performed with the aid of smoke pencils while the furnace air handler is running.**

MH Pressure-Pan Testing | Test Set Up & Instruction

With the blower door running and the interior of the mobile home at -50 Pa with reference to the outside, a pressure-pan test shall be completed on every supply register in the mobile home.

Pressure-pan testing is required a) during the energy audit, b) by the installation crew (after improvements have been completed) and c) at the final QCI. The pressure-pan test results from the energy audit and the final QCI must be entered into the HES job file.

MH Pressure-Pan Testing | Action Levels

By conclusion of a mobile home project the test result at each register shall be ≤ 1.5 Pa or a written statement explaining why achieving the required test result would not be practical and cost-effective for the individual project must be provided in the HES job file.

MH Ducts Corrective Action Strategies | Sealing/Repairing Boots & Risers

Metal, mesh tape, and mastic are the only allowable materials for performing the repairs to mobile home duct boots and risers. With an exception for mesh tape used in tandem with duct mastic, use of tapes is not allowable for duct sealing purposes. If existing tapes are present, duct-tape, foil-tape, etc., the existing tape must be removed from the ducts before attempting to do any duct repairs/duct sealing work.

MH Pressure-Pan Testing | Documentation Requirements

There are 2 versions of the pressure-pan test results that must be entered into the HES job file.

1. A version documenting the results of each pressure-pan test at the energy audit.
2. A version documenting the results of each pressure-pan test at the final QCI.

Mobile Home Ducts

Evaluation & Improvement Requirements| Crossover Ducts

- **If there are crossover ducts, the following order of operations/decision matrix shall be followed:**
  1. Evaluate the condition of the crossover ducts during every energy audit
     - ✓ Evaluate for any damage or airleakage and to ensure adequate R-value
  2. A repair is required if there are any damaged sections.
  3. Replace the crossover duct instead of repairing it whenever duct replacement will enable a more durable and long-lasting installation without adding substantial costs above what the estimated repair costs would have been.
  4. Whenever a section of ductwork is replaced it must be with rigid duct materials rather than flexible duct materials.
- **All crossover ducts shall be insulated to R - 8 minimum by the conclusion of a mobile home project**.
- **It is strongly encouraged, but not required practice, to install foam board between the ground and any cross-over ducts when there is low-to-no ground clearance underneath the duct.**

All policies outlined above for crossover ducts are also applicable to any air conditioning ducts located below the mobile home belly material.

Mobile Home Heating Appliances

MH Furnaces | New & Replacement Installations

Whenever a mobile home furnace is being installed during a weatherization project AND the heating system utilizes propane or natural gas, the WAP installed appliance shall be both:

1. A Category IV Appliance| ***designed for production of condensate and positive draft pressure***
2. A Sealed Combustion Appliance

Written permission from OEO must be attained prior to the installation of any other category or type of MH furnace/central heating system when the fuel source is propane or natural gas.

Primary v. Secondary Heating Appliances | Determination of Primary System

The energy auditor has discretion in determining the primary fuel source and which appliance is to be deemed the primary heating system for each mobile home project.
Determining the primary heating fuel and appliance is not limited exclusively to historical energy consumption records. **When making this determination the auditor must talk with the client to ensure all of the following variables are considered**:

1. If there is more than one heating appliance, how often are they run at the same time or are they only used one at a time?
2. Which heating appliance would the client prefer to use if they had to make a choice between the multiple heating system options currently in the home? Why?
3. If a fuel assistance benefit is received, what fuel source is the benefit associated with?
4. What condition are each of the heating appliances in?
5. What is the projected cost to get each heating appliance operating in a safe and reliable manner?

Mobile Home Heating Appliances

Primary v. Secondary Heating Appliances | Determination of Primary System

WAP Purchasing Fuel for a Client Because the Client is out of Fuel During the Project

Fuel can be provided by the WAP if there is no fuel onsite and fuel is needed to get a heating appliance operational so it can be evaluated/tested.

- **During the Energy Audit | This is important to ensure good decisions can be made when developing the workscope for heating systems.**
- **During the QCI | This is important to help ensure the home is being left in a safe condition at the conclusion of the project and that any work performed on the heating system was effective.**

An example where the WAP may need to purchase fuel for a client to help determine the primary heating system is when a household is burning wood while the auditor is working through a project evaluation, the fuel tank for the MH furnace is empty and an informed decision is needed about whether to put a more significant investment into the wood stove or the mobile home furnace.

Primary v. Secondary Heating Appliances| Investment Allowances

It is allowable to invest more weatherization funding into the primary heating system than into those deemed as secondary heating appliances. Improvement expenses shall be capped at $500.00 for secondary heating appliances unless written permission to exceed this amount is granted by OEO. This written permission must be requested using the "Atypical Project Approval Form" and all approvals must be uploaded to the HES job file.

Wood Stoves | Disconnection & Removal

OEO does not encourage the practice of automatically having weatherization clients disconnect and remove all pre-existing wood stoves from mobile homes for the sole reason that the stove does not have a mobile home approval rating from the manufacturer. However, the disconnection/removal of a wood stove and the capping of the opening into a chimney or flue is allowable on a case by case basis if the appliance condition and setup are imminently dangerous and weatherization work cannot proceed safely until the safety hazard is removed.

Wood Stoves | Installation Improvements for Existing Stoves

It is allowable to perform modifications that make the continued operation of the existing wood stove safer using WAP funding. Some examples include:

1. Install non-flammable material on building surfaces underneath or beside the stove itself for heat shielding purposes.
2. Install non-flammable material between the flue pipe and building surfaces for heat shielding purposes.
3. Improve the venting materials or vent configuration.

Wood Stoves | New Installations

Whenever a new/replacement wood stove is installed during a WAP project it must be a mobile home approved stove. This requirement is applicable to stoves installed using WAP funding and to stoves installed by owners in rented mobile home situations.

Mobile Home Water Heaters

Mobile Home Rating Requirements | Existing Water heaters

- **Existing water heaters should not be automatically disconnected and replaced for the sole reason that the water heater does not have a mobile home approval rating from the manufacturer.**
- **Replacing the existing water heater with WAP funding is acceptable if the performance requirements outlined in the table below are not met, or if they cannot be met cost-effectively by making repairs.**

Mobile Home Rating Requirements | New/Replacement Water heaters

- **Whenever a water heater is installed during a weatherization project, the new appliance shall be mobile home approved. This mobile home rating requirement is applicable to all water heaters installed during the WAP project, including those installed by owners in rented mobile home situations.**

Evaluation, Testing & Performance Requirements|		
If an existing water heater has (a) no visible defects indicative of unsafe appliance operation, (b) no signs of spillage or flame rollout, (c) the flue pipe appears in good condition, (d) there is a provision of combustion air from the outdoors and (e) the results of combustion testing are acceptable, proceed to the following evaluation and testing steps:		
Scenario 1	*or*	**Scenario 2**
The water heater location allows for spillage and draft tests to be performed at worst-case.		**The water heater location** is isolated from the living space and accessed by an exterior panel.
Required Actions: Perform spillage and draft tests at worst-case and attain passing results		***Required Actions:*** 1. Complete a full combustion test, and then either; 2. *Option A:* Visually verify complete separation between the living space and water heater closet with blower door assisted smoke testing, or; *Option B:* Install a spill switch to provide an additional safety margin for error if the appliance was ever to back draft.

- Regardless of whether or not the existing water heater has a mobile home approval rating from the manufacturer, if all conditions outlined in this performance requirements table are satisfied then no water heater repairs/replacement are required by VT WAP.
- However, if all conditions outlined above are not satisfied, then at minimum, repairs to the existing water heater are required.
- Replacement of the water heater with WAP funding is acceptable if the performance requirements outlined above are not met or cannot be satisfied cost-effectively by making repairs.

Mobile Home Airsealing

MH Prioritized Airsealing Overview | Order of Operations

The steps below outline the required approach to mobile home airsealing work:

1-a. **Complete all required mobile home airsealing measures** outlined on pages 9-10 in this section of the policy manual.

-and-

1-b. **Complete all required mobile home insulation measures** outlined on pages 11-13 in this section of the policy manual.

2. **At this step in the mobile home weatherization project, performing diagnostic testing is required prior to doing any additional airsealing work:**
   - ✓ Perform worst-case spillage and draft tests for all combustion appliances.
   - ✓ Perform a blower door test.

3. **Determine Further Actions Based on the Results of the Required Diagnostic Tests from Step 2**
   If all combustion appliances in the mobile home easily pass spillage and draft tests at the worst-case scenario AND if the building is still above 10 ACH50 at this point of a MH project, then additional weatherization measures that provide airsealing benefits are recommended to be performed until one of the three things outlined below happens.
   a) Reductions of 100 CFM50 per technician hour worked are no longer achievable
   b) The home reaches a 10ACH50 threshold
   c) The combustion appliances in the home become unlikely to pass spillage and draft tests at the worst-case scenario if additional airsealing work continues

Below is a list of recommended areas in mobile homes to do additional airsealing work—unless/until one of the three things listed above as 3a, 3b & 3c happens:

- ✓ The merger point running along the top center of a double wide mobile home
- ✓ Surfaces backing an attic space when there are split level ceilings in a mobile home
- ✓ The joint between the top of a mobile home exterior wall and the mobile home ceiling
- ✓ Window and door weather-stripping/sweeps
- ✓ Installation of tyzalls or interior storms
- ✓ Installation of window clips or fasteners
- ✓ Generalized airsealing around windows and doors
- ✓ Generalized airsealing at window and door rough openings or trim
- ✓ Generalized airsealing at the joint of the floor to bottom of an exterior wall
- ✓ Generalized airsealing of wall paneling/sheathing
- ✓ Generalized airsealing at/around wall outlets

Mobile Home Airsealing

Note that none of the policies outlined in Section 6 of the TEC Manual are applicable to mobile homes and those policies shall not be followed during mobile home projects.

MH Prioritized Airsealing Overview | Required Measures

Top of Building

All holes, penetrations and voids in the mobile home ceiling shall be airsealed as needed to enable blown-in roof insulation to be installed without unnecessarily getting into the home.

Bottom of Building

Sealing the Belly Material: All holes, penetrations and voids in mobile home belly materials shall be sealed tightly in a durable manner.

Sealing the Floor, Floor Sheathing & Penetrations Underneath Cabinets: All holes and penetrations through the mobile home floor sheathing—that can be accessed from above—shall be sealed tightly to keep blown insulation from getting into the home during installation.

Note that it is not recommended to cut into/through the belly materials to airseal the floor sheathing from below UNLESS major deficiencies are identified AND working from underneath the home will be the most effective way to make improvements.

Two Example Scenarios:

1. An example of a major deficiency at the floor sheathing that may be worth accessing and improving from below would be a large opening through the floor underneath a tub or shower in the area around the p-trap assembly and plumbing lines.
2. An example where cutting into/through mobile home belly materials would not be recommended would be in order to gain access for airsealing work around small wire penetrations up through the floor system.

Sides of Building

Water Heater Closets with Exterior Access Panels

A foam-insulated-panel that is protected from the elements and that provides a tight air seal when closed shall be installed whenever there is an exterior access panel to a mobile home water heater closet. This measure is the only prescriptively required measure targeting the sides of mobile homes.

The technical specifications for improving the performance of exterior access panels to water heater closets are included on the next page.

Mobile Home Airsealing

Prioritized Airsealing Overview | Required Measures

Water Heater Closets with Exterior Access Panels | Technical Specifications

Recommended Approach

It is recommended to modify the rough opening, and install weather-stripping as needed[1], to accommodate the installation of a site-built, foam-insulated, sandwich-door-style access panel where the exterior side of the panel has a layer of sheathing ≥ ½ inch thickness and the interior side of the panel has a layer of sheathing ≥ ¼ inch thickness. The foam board insulation in the middle of the sandwich door assembly should be as thick as possible up to a 2 ¼ -inch maximum foam thickness. The available clearance between the panel and the water heater tank may only allow for a thin layer of foam insulation.

Minimum Standard

At minimum, a site-built, foam-insulated access panel must be installed similar to an attic-hatch-style assembly that only has sheathing attached to one side of the foam board. If a foam insulated access panel will be built in this manner, the one layer of sheathing shall be ≥ ½ inch thickness and must be directly bonded/fastened to the exterior facing side of the foam board in a manner that ensures air cannot freely infiltrate and move through the space between the foam board and the layer of sheathing. The foam board insulation should be as thick as possible up to a 2 ¼ -inch maximum foam thickness. The available clearance between the panel and the water heater tank may only allow for a thin sheet of foam insulation.

Alternate Approach that Reuses the Existing Access Panel

Attaching foam-board directly to the back side of an existing mobile home access panel does not fully comply with this standard alone but it can be an allowable part of the improvement measure performed in this area. To fully meet the acceptable minimum standard for this improvement measure when reusing the existing access panel, foam board must be bonded/fastened to the existing access panel in a manner where no air can freely infiltrate and move through the space between the foam board and the access panel. Then, a layer of sheathing ≥ ¼ inch thickness must be bonded/fastened to the interior facing side of the foam board in the same manner.

<u>Non-Compliant</u> Approach

The practice of friction fitting foam board insulation into the rough opening of the access point into the water heater closet does not meet this standard and represents a non-allowable installation.

[1] The installation of effective weatherstripping is a requirement no matter which materials/installation methods get used for these water heater access panels. Note that for certain door frames located at this part of the mobile home only adhesive compression foam weatherstripping will work.

Mobile Home Belly/Floor Systems

Belly/Floor System | Required Sealing Measures

Expectations are for all belly types and designs

By conclusion of a MH project, all holes, tears, voids in the mobile home belly material shall be completely sealed in a durable manner. Use of tape is not allowable for belly sealing purposes.

Belly/Floor System Perimeter-Section | Required Insulation Measures

Expectations are for all belly types and designs

The entire perimeter of the belly/floor system, including the wings/outriggers, shall be insulated to the maximum R-value possible using either blown-in fiberglass or cellulose insulation. Note that "Maximum R-value possible" does not mean add as much blown-in insulation as possible until no more insulation will physically fit into the space. The blown-in insulation installed by WAP shall be installed to the insulation density that both a) maximizes the R-value performance achieved per inch and b) ensures a dense-packed installation is achieved.

Belly/Floor System Center-Section | Required Insulation Measures

Expectations are varied by belly design type

The center sections of the belly/floor system for each individual project shall be weatherized in accordance with the policies outlined below for the most comparable belly/floor system type and design.

Belly Type A | Joists run crossways. Wings/outrigger section of belly is flat. Center belly material sags/has a rounded bottom.

The center belly section must have an average "effective" R-19 by the conclusion of the project. When adding blown insulation to achieve an average "effective" R-19 in the center belly section, the blown-in insulation shall not be densepacked. This must be a loose-fill installation only. Also, the center belly cavity cannot be completely filled up with insulation in the portions of the belly cavity that measure 10" or deeper.

Belly Type B: Joists run crossways. Wings/outrigger section of belly is flat. Center belly is flat but dropped down lower resulting in a deeper belly cavity in the center section than out at the wings/outriggers.

The center belly section must have an average "effective" R-19 by the conclusion of the project. When adding blown insulation to achieve an average "effective" R-19 into a center belly section, the blown-in insulation shall not be densepacked. This must be a loose-fill installation only. Also, the center belly cavity cannot be completely filled up with insulation in the portions of the belly cavity that measure 10" or deeper.

Belly Type C: Joists run longways. Wings/outrigger section of belly is flat. Center belly is flat.

The entire center-belly section shall be insulated to the maximum R-value possible using either blown-in fiberglass or cellulose insulation, except for the section directly underneath the ductwork. Note that "Maximum R-value possible" does not mean add as much blown-in insulation as possible until no more insulation will physically fit into the space. The blown-in insulation installed by WAP shall be installed to the insulation density that both a) maximizes the R-value performance achieved per inch and b) ensures a dense-packed installation is achieved. No insulation shall be intentionally blown into the section of the belly cavity directly underneath the ductwork even if space allows. Instead, foam board shall be installed underneath the ductwork/belly material to an "effective" R-10 value in this area.

Mobile Home Ceilings/Roof Systems

Ceilings/Roofs | Required Insulation Measures

Typical Mobile Home Roof Designs

Any portion of a mobile home attic/roof system where the cavity depth between the ceiling and roof is deeper than 14 inches shall not be insulated with more than 14 total inches of insulation even if more insulation would fit. The 14 total inches of insulation includes the preexisting insulation and the insulation installed by the WAP. It references the final "settled-depth" of the insulation.

- **By conclusion of each mobile home project every attic/roof system section shall be insulated to a minimum, average "effective" value of R-40 *(without exceeding the 14 inches of insulation limit in any portion of the mobile home attic/roof)*.**
- **Whenever a minimum, average "effective" value of R-40 is not possible due to space limitations between the ceiling and the roof:**
  - ✓ **Each ceiling/roof system section shall be insulated with blown-in insulation to the maximum R-value possible *(without exceeding the 14 inches of insulation limit in any portion of the mobile home attic/roof)*.**

Mobile Home with Roof-Over

Whenever there is a roof-over that allows for physical access into the attic space between the two roof lines, then the original roof cavity shall always be sealed and insulated prior to adding any additional insulation over the top of the original roof.

If there is already batt-insulation over the original roof, a perimeter-pull shall be done on all sides. Additional blown-in insulation must be added to achieve a minimum "effective" R-40 value throughout the roof/attic area everywhere that the roof clearance allows for an "effective" R-40 to be attained.

Mobile Home with Split-Level Ceilings

In mobile homes with split-level ceilings, the interior walls backing up to attic space shall not be insulated with fiberglass batting if the space is large enough to physically access. The wall sections must be either densepacked with cellulose, spray foamed with closed-cell spray foam, insulated with foam-board, or insulated with blown-in fiberglass insulation. Any existing fiberglass-batting must be removed from the attic wall prior to installing any of these allowable materials.

Miscellaneous Mobile Home Policies

Abbreviated Recommended v. Required Actions Tables | Based from FAQs

Description	Recommended	Required
Boxing-in pressure tanks, well pumps or other mechanicals found between the ground and mobile home belly material is:	X	
Adding pipe insulation to water lines found between ground and mobile home belly material is:	X*	
Whenever additional air is provided to the home to alleviate excessive CAZ depressurization by cutting through the floor, the piping/conduit must be routed through the floor opening and extend out through the skirting. The conduit must also be sealed and insulated. This is:		X
For an existing heating system in a mobile home, the installation of solid flue pipe, solid offsets or sweeps is:		X
For an existing heating system in a mobile home where there are adjustable venting materials present instead of solid flue pipe or solid offsets or sweeps, the vent pipe materials are to be replaced:		X
For a new heating system installed by WAP the installation of solid flue pipe, solid offsets or sweeps is:		X
Measuring actual exhaust fan flow at an energy audit is:		X
Measuring actual exhaust fan-flows at the quality control inspection is:		X
Ensuring that the total measured fan-flow in every mobile home meets or exceeds 30 cfm capacity for local ventilation purposes is: *Note the measured fan-flows from multiple fans can be added together to reach this minimum 30 cfm total measured fan-flow requirement for local ventilation purposes.*		X
Taking actions during installation to ensure that the actual measured fan-flow is ≤ 80 cfm for any exhaust appliance installed in a mobile home during a WAP project when the rated capacity from the manufacturer exceeds 80 cfm is:		X
Installing foam board underneath crossover ducts when there is little-to-no ground clearance underneath the ducts is:	X	

*Installation of heat tape is also allowable.