



Let's turn the answers on.

Home Energy Savings Program

Utah Qualified Weatherization Trade Ally Program Manual

Version 1.0

Release Date – November 14, 2012

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List of Attachments

[Attachment A: Home Energy Savings Residential Weatherization Specifications](#)

[Attachment B: Multifamily Process Overview](#)

[Attachment C: Weatherization Specifications - Installation Checklist](#)

[Attachment D: Project Diagram – Attic Insulation](#)

[Attachment E: Project Diagram – Windows](#)

Version History

Rocky Mountain Power Home Energy Savings program will update this Program Manual periodically. Revisions from previous version will be summarized in the table below.

Version #	Section	Release Date	Revision
1.0	All	November 14, 2012	Updated to reflect new tariff incentives and Qualified Weatherization Network requirements, and the addition of new technical resources as attachments.

Utah Qualified Weatherization Trade Ally Network

The Utah Qualified Weatherization Trade Ally Network (network) is part of the Home Energy Savings program and is designed to increase the quality of weatherization installations and projects. Better quality weatherization work results in higher energy savings across the state and leads to improved customer satisfaction with both trade allies and the Home Energy Savings program. The purpose of the Utah Qualified Weatherization Trade Ally Program Manual is to provide specific details on the network and installation requirements.

Please note that this network manual applies only to trade allies installing weatherization (insulation and windows) measures, while the accompanying Home Energy Savings Residential Weatherization Specifications ([Attachment A](#)) includes a best practice that all new and all accessible existing ducts be sealed and insulated as a critical component of improving the “shell” of a home. The program will provide comprehensive coaching to ensure trade allies are able to perform all services outlined in the Weatherization Specifications, but trade allies must also sign a separate participation agreement and submit any additional required documentation to conduct qualified duct sealing and duct insulation services as a participating HVAC trade ally. This presents an opportunity to diversify your measure offerings and could result in additional customer sales for duct sealing and duct insulation as a stand-alone service via the list of participating HVAC trade allies posted to the program website (homeenergysavings.net/Utah/tradeallies/hvac.html).

Program Overview

The Home Energy Savings program provides cash incentives to residential electric customers for the purchase of weatherization products and services including attic, floor, and wall insulation and the installation of energy efficient windows. By helping customers minimize their energy use, the Home Energy Savings program not only saves customers money on their energy bill, it also reduces the growing demand for power in the region.

The Home Energy Savings program was designed for single family installations. Due to increased interest in multifamily installations (five or more attached units), the program is extending incentives to multifamily installations which involves a unique application process. Please refer to [Attachment B: Multifamily Process Overview](#) and contact the program at 1-800-942-0281 for additional multifamily requirements including the mandatory pre-qualification process and post-inspection.

Network Enrollment Requirements

Trade allies who wish to participate in the network must complete the following sequence of enrollment requirements.

Step #	Details for Enrollment
<p><u>Step 1</u> Contact program to indicate interest in joining the network</p>	<p>Trade Ally Hotline 1-800-942-0281</p> <p>E-mail HESTradeAllyRMP@rockymountainpower.net</p> <p>Baseline qualifications:</p> <ul style="list-style-type: none"> • The network was designed specifically for weatherization (e.g., insulation and windows) trade allies and installers. • Trade allies must conduct work for residential customers within Rocky Mountain Power service territory. [rockymountainpower.net/about/cf/sam.html] <p>Assuming trade allies meet the baseline qualifications, the program will provide:</p> <ul style="list-style-type: none"> • Participation agreement for signature • Utah Qualified Weatherization Trade Ally Program Manual • Home Energy Savings Residential Weatherization Specifications (see Attachment A) • Overview of next steps required as part of the enrollment process
<p><u>Step 2</u> Confirm preliminary eligibility</p>	<p>Trade Ally submits a signed participation agreement along with the following required documentation:</p> <ul style="list-style-type: none"> • Proof of valid state business and trade license(s), (including any sub-contractors). <ul style="list-style-type: none"> – Registered as a contractor through the Utah Division of Occupational and Professional Licensing. – Attic, wall and floor insulation trade allies must maintain one or more of the following licenses: <ul style="list-style-type: none"> ▪ B100-General Building Contractor ▪ R100-Residential and Small Commercial Contractor ▪ R101-Residential and Small Commercial Non-structural remodeling and Repair ▪ S250-Insulation Contractor – Window trade allies must maintain the following license: <ul style="list-style-type: none"> ▪ S240-Glass and Glazing Contractor – Additional details on registration requirements can be found on the Utah Division of Occupational and Professional Licensing website at dopl.utah.gov/licensing/contracting.html

Step #	Details for Enrollment
<p><u>Step 2</u> Continued</p>	<ul style="list-style-type: none"> • Proof of minimum of \$2 million in general liability insurance with Rocky Mountain Power as a named insured, \$1 million auto liability insurance, and Workman’s Compensation and Employers’ Liability as required by state law. • Provide three business references for suppliers or licensed trade allies from whom you have purchased materials or provided services to within the past 12 months. • Provide three customer references for similar weatherization projects completed within the past 12 months. • List up to four previous employers or businesses owned/operated within last five years. <p>Program staff will review all paperwork provided, contact references and confirm trade ally has a clean record (e.g., no unresolved complaints or citations logged within last 12 months) with the Better Business Bureau, the Utah Division of Occupational and Professional Licensing and/or the Public Service Commission of Utah.</p>
<p><u>Step 3</u> Complete program orientation</p>	<p>Trade allies must complete an orientation session covering program and technical requirements before transitioning to the on-boarding process.</p> <ul style="list-style-type: none"> • Frequency of orientation sessions will be determined by the program administrator. • This step may occur at the same time as the program’s review of documentation provided in Step 2. <p>The program will also identify other local resources for additional technical training that would support trade allies in becoming familiar with new installation techniques and standards.</p>
<p><u>Step 4</u> Complete on-boarding process</p>	<ul style="list-style-type: none"> – Trade ally must submit <u>only one job</u> after preliminary eligibility has been confirmed. • No other <u>network-related</u> applications will be accepted until the on-boarding process has been successfully completed and program formally grants approval for full participation. • Program will accept non-network related applications for measures that were installed <u>before</u> the new tariff effective date up until 90 days after work completion date. – Inspections will be conducted on the first job, within no more than 2 weeks of complete application submittal. Feedback/support will be provided to ensure trade ally installations meet program requirements. • The program has created a Weatherization Specifications - Inspection Checklist that includes general program and measure-specific requirements for installations (see Attachment C for details). • A job will fail the inspection if one or more of the requirements are not met.

Step #	Details for Enrollment
<p style="text-align: center;"><u>Step 4</u> Continued</p>	<ul style="list-style-type: none"> – If the job fails inspection, trade allies are expected to: <ul style="list-style-type: none"> • Take corrective action within 30 days if the issue can be fixed. • Submit a new job to “replace” the original job submitted that failed the first inspection. • Program staff will provide any additional technical support necessary to ensure trade allies understand why the job failed so that the next job is sure to pass the first inspection. – One job must pass the first inspection before the program will approve full network participation. <p>If a series of three jobs fail inspection as part of the on-boarding process the trade ally’s eligibility for the network may be revoked. The program will ensure trade allies understand why they were deemed ineligible and will outline steps to take to re-enter the on-boarding process.</p>
<p style="text-align: center;"><u>Step 5</u> Program grants approval to join the network</p>	<p>As soon as the first 3 steps are completed, the trade ally will receive formal approval for participation in the network along with a copy of the fully executed participation agreement.</p> <p>Approved trade allies will be listed on the Qualified Weatherization trade ally lists on the program website.</p> <p>If any Qualified Weatherization trade allies elect to offer duct sealing and duct insulation in addition to weatherization services they will be added to the participating HVAC trade ally list as well.</p>

Network Performance Expectations

Qualified weatherization trade allies are an important component to the success of the Home Energy Savings program. Completing qualified installations and providing customers with accurate program information, assistance in completing incentive applications and excellent customer service are essential requirements for participation in our program.

After a trade ally is granted approval for full participation in the network, the following performance expectations apply:

1. Keep current and provide proof of all required licenses, certifications and insurance policies.
 - The program will track and monitor the expiration of licenses and insurance policies and provide notification to trade allies 60 days before any upcoming expiration dates stating risk of removal from program if not renewed, and the deadline for renewal.
 - If documentation of renewals is not provided by close of business on the expiration date(s):
 - Trade allies will be removed from the network.
 - Any applications received where work was performed after the expiration date will be denied.

- Trade allies are expected to reimburse customers for any incentives denied.
 - Trade allies removed from the program will have the opportunity to re-enter the program after taking the necessary steps to provide full assurance of program compliance. Plans for re-entry will be designed on a case-by-case basis.
2. Maintain good standing (i.e., no unresolved complaints) with Better Business Bureau, Utah Division of Occupational and Professional Licensing, and/or the Public Service Commission of Utah.
- The program will periodically monitor these sites to stay informed of any issues that may arise, and ensure that trade allies resolve complaints in a timely manner and maintain good standing.
 - If complaints go unresolved, program staff may terminate the trade ally's participation in the network. Any trade allies removed from the network will have the opportunity to re-enter the network after taking the necessary steps to provide full assurance of program compliance. Plans for re-entry will be designed on a case-by-case basis.
3. Install approved equipment and measures to program requirements and technical standards.
- All insulation work must be installed to the standards described in this Program Manual and the Home Energy Savings Residential Weatherization Specifications (see [Attachment A](#)).
 - The program requires prescriptive duct sealing and duct insulation be completed as part of insulation installations if ductwork is present and accessible.
 - The program does not offer an incentive for present and accessible ductwork that is less than 10 linear feet. This duct sealing and duct insulation step is required as a best practice for weatherization installations.
 - If present and accessible ductwork is 10 linear feet or more, it may qualify for a program incentive.
 - All duct sealing and duct insulation work must be performed by a participating HVAC trade ally, whether or not it qualifies for a program incentive.
 - Periodic inspections will be scheduled out of a pool of randomly-selected applications.
 - The Weatherization Specifications - Inspection Checklist includes general program and measure-specific requirements for installations (see [Attachment C](#) for details).
 - One or more requirements not met will result in a failed inspection. Trade ally will be informed of the issue and will be expected to take corrective action within 30 days if the issue can be fixed. Once the application is re-submitted, a second inspection will be conducted. If the job fails on the second inspection, the application will be denied and the trade ally is expected to reimburse the customer for the incentive amount.
 - If a series of six jobs fail inspections within any 12-month period, the trade ally's eligibility for the network may be revoked. The program will ensure trade allies understand the technical installation performance issues and will outline steps to take to re-enter the network. Plans for re-entry will be designed on a case-by-case basis.

4. Maintain and improve understanding of Home Energy Savings program requirements, and energy efficiency technologies and installation techniques.
 - In addition to the required orientation session, the program will provide on-going technical support:
 - Any installation quality issues will be identified via inspection results.
 - Trade allies will receive technical support from inspectors to improve any identified performance issues.
 - Inspection staff will be assigned to regions within the trade ally network, to ensure responsive attention to trade ally technical support needs.
 - The program will also offer business and professional development support to help trade allies understanding of industry, market and program influences on their businesses.
 - Trade allies will be encouraged to participate in ongoing training to improve understanding of energy efficiency technologies and installation techniques. The Home Energy Savings program will assist in identifying appropriate training opportunities.
5. Enroll a minimum of one project per quarter.
6. Accurately promote the program to customers and support the sales of approved energy efficiency measures.
7. Provide excellent customer service and assist customers with program incentive applications.
8. Be aware of and accurately communicate additional incentive and tax credit offerings that may be available to customers.
9. Complete and submit all required trade ally applications and other required documentation.

Quality Control

The program administrator will perform on-site quality control inspections and verifications to ensure qualifying services have been conducted in compliance with program requirements. Upon trade allies receiving formal approval to participate in the network, applications will be randomly selected for inspection.

Network Termination and Re-enrollment

A trade ally's participation agreement may be terminated for cause by program staff at any time. Actions that could lead to termination include:

1. Failure to adhere to all performance expectations as described above.
2. Falsifying incentive application information.
3. Conveying inaccurate program information to customers.
4. Use of Rocky Mountain Power and/or Home Energy Savings program logos, without written authorization.
5. Improper representation of the relationship between the trade ally and Rocky Mountain Power, the Home Energy Savings program and/or the program administrator.

Any trade ally removed from the network will have the opportunity to re-enter the network after taking the necessary steps to provide full assurance of program compliance. Plans for re-entry will be designed on a case-by-case basis.

Qualifying Customers

In order to qualify for the Home Energy Savings program, all customers must meet the following eligibility requirements:

- Customer must reside in the state of Utah and purchase electricity from Rocky Mountain Power on residential rate schedules 1, 2 or 3.
- Landlords who own rental properties where the tenant is billed on residential rate schedules 1, 2 or 3 also qualify.
- Incentive checks will be issued to the account holder or verified third party payee. Property owners, landlords, property management companies or homeowner associations not listed on the account where qualified equipment was installed or services performed must submit a completed Third Party Payment Addendum to receive incentive check(s) made payable to them.

Available Incentives¹

Insulation

Qualified Weatherization trade ally installed - Homes with electric heating system		
Service & requirements	Qualification	Customer Incentive
<ul style="list-style-type: none"> Attic insulation - Work must be completed by a qualified weatherization trade ally. 	Existing R-20 or less, final depth R-38 or greater	\$0.65 / sq. ft.
<ul style="list-style-type: none"> Wall insulation - Work must be completed by a qualified weatherization trade ally. - Basements must be finished or conditioned living space (permanently installed heating or ducted for cooling) in order to qualify. Interior walls, such as walls between rooms, do not qualify. - Insulation along rim joists does not qualify. 	Existing R-10 or less, final depth R-13 or fully fill cavity	\$0.65 / sq. ft.
<ul style="list-style-type: none"> Floor insulation - Work must be completed by a qualified weatherization trade ally. - Floor insulation must be installed between conditioned and unconditioned space in order to qualify for incentives (basement floors do not qualify). 	Existing R-18 or less, final depth R-30 or greater	\$0.65 / sq. ft.

Qualified Weatherization trade ally installed - Homes with electric cooling system (Non-electric heating systems with central air conditioner)		
Service & requirements	Qualification	Customer Incentive
<ul style="list-style-type: none"> Attic insulation - Work must be completed by a qualified weatherization trade ally. 	Existing R-20 or less, final depth R-38 or greater	\$0.15/ sq. ft.
<ul style="list-style-type: none"> Wall insulation - Work must be completed by a qualified weatherization trade ally. - Basements must be finished or 	Existing R-10 or less, final depth R-13 or fully fill cavity	\$0.30 / sq. ft.

¹ Incentives are subject to tariff approval and may change with notification.

<p><i>conditioned living space (permanently installed heating or ducted for cooling) in order to qualify. Interior walls, such as walls between rooms, do not qualify.</i></p> <p><i>- Insulation along rim joists does not qualify.</i></p>		
<p><i>N/A Floor insulation</i></p> <p><i>- Electric cooling is not sufficient to meet the requirement for a floor insulation incentive</i></p>	N/A	N/A

Self-installed - Homes with electric heating system		
Service & requirements	Qualification	Customer Incentive
<ul style="list-style-type: none"> Attic insulation 	Existing R-20 or less, final depth R-38 or greater	\$0.40 / sq. ft.
<ul style="list-style-type: none"> Wall insulation <i>- Basements must be finished or conditioned living space (permanently installed heating or ducted for cooling) in order to qualify. Interior walls, such as walls between rooms, do not qualify.</i> <i>- Insulation along rim joists does not qualify.</i> 	Existing R-10 or less, final depth R-13 or fully fill cavity	\$0.45 / sq. ft.
<ul style="list-style-type: none"> Floor insulation <i>- Floor insulation must be installed between conditioned and unconditioned space in order to qualify for incentives (basement floors do not qualify).</i> 	Existing R-18 or less, final depth R-30 or greater	\$0.25 / sq. ft.

Self-installed - Homes with electric cooling system
(Non-electric heating systems with central air conditioner)

Service & requirements	Qualification	Customer Incentive
<ul style="list-style-type: none"> Attic insulation 	Existing R-20 or less, final depth R-38 or greater	\$0.15 / sq. ft.
<ul style="list-style-type: none"> Wall insulation - Basements must be finished or conditioned living space (permanently installed heating or ducted for cooling) in order to qualify. Interior walls, such as walls between rooms, do not qualify. - Insulation along rim joists does not qualify. 	Existing R-10 or less, final depth R-13 or fully fill cavity	\$0.20 / sq. ft.
<p>N/A Floor insulation</p> <ul style="list-style-type: none"> - Electric cooling is not sufficient to meet the requirement for a floor insulation incentive 	N/A	N/A

Insulation SPIFF - Homes with electric heating system only

Requirements	Customer Incentive
<ul style="list-style-type: none"> The full extent of <i>two</i> qualifying areas in the same residence must be insulated at the same time and must be submitted on the same application. The full extent means the entire qualifying attic area, all qualifying exterior walls, and the entire qualifying floor area. Any combination of two qualified areas is acceptable: attic & wall, attic & floor, wall & floor. Both areas must independently qualify for each individual incentive. Incentive is available only to customers who use a qualified weatherization trade ally for all qualifying measures. Only applies to single family homes. 	\$300

Insulation Requirements – applies to all incentives

- Home must have an electric heating system or an electric cooling system serving at least 80% of the home’s conditioned floor area.
 - Electrically heated home incentives apply to houses with a permanently installed electric furnace, heat pump or electric zonal heating systems (baseboard or ceiling/wall heaters). Space heaters do not qualify.
 - Homes with an electric heating system *and* a central air conditioner only qualify for the **“Homes with electric heating system”** incentives.
 - Electrically cooled home incentives apply to houses with a permanently installed ducted electric central air conditioner and a non-electric (gas, oil or propane) heating system.
- Qualified weatherization trade ally and self-installed work must be performed in accordance with the Weatherization Specifications - Inspection Checklist in [Attachment C](#).
- For self-installers: projects will be paid on materials only.
- For multi-family applications only: provide a copy of completed W-9, if applicable.
- Insulation must be installed between conditioned and unconditioned space in order to qualify for incentives.
 - A finished or conditioned living space has a permanently installed heating or ducted cooling system.
 - Unconditioned spaces exist outside of the home’s thermal boundary (e.g., garages, crawlspaces, the exterior of a home, and potentially a basement).
- Insulation incentives are available on existing homes only.
 - Work performed as part of building code requirements is not eligible for an incentive.
- Incentives are limited to one insulation incentive per type (attic, floor, and/or wall insulation) for the lifetime of the home.

Additional information:

The program has developed a sample Project Diagram for attic insulation to assist trade allies in calculating qualified square footage – see [Attachment D](#).

Normally, basements are conditioned spaces. An unconditioned basement must have all of these properties: No stairs connecting above-grade levels to the basement, access to the basement is limited to exterior entry, no heaters or supply/return registers located in the basement, no living space located in any part of the basement.

Please contact the program for more information if you would like assistance in determining what qualifies as conditioned vs. unconditioned space.

Windows

Trade ally installed or self-installed - Homes with electric heating and cooling systems (Electric heating systems with central air conditioner)

Measure	Qualification	Customer Incentive
Tier 2 windows (R-5)	U-factor of 0.22 or lower	\$2.00/ sq ft

Trade ally installed or self-installed - Homes with electric cooling system (Non-electric heating systems with central air conditioner)

Measure	Qualification	Customer Incentive
Tier 1 Windows	U-factor of 0.30 or lower	\$0.50/ sq ft
Tier 2 Windows (R-5)	U-factor of 0.22 or lower	\$1.00/ sq ft

Window Requirements

- Home must have an electric cooling system serving at least 80% of the home's conditioned floor area.
 - **Homes with electric heating and cooling systems incentives** apply to houses with a permanently installed electric furnace, heat pump or electric zonal heating systems (baseboard or ceiling/wall heaters) and a permanently installed ducted electric central air conditioner.
 - **Homes with electric cooling system incentives** apply to houses with a permanently installed ducted electric central air conditioner and a non-electric (gas, oil or propane) heating system.
- Work must be performed in accordance with the Weatherization Specifications - Inspection Checklist in [Attachment C](#).
- All work, except for self-installations, must be completed by either a qualified weatherization or participating windows trade ally to qualify for an incentive.
- For self-installers: projects will be paid on materials only.
- For multi-family applications only: provide a copy of completed W-9, if applicable.
- Only one incentive will be paid per measure for the lifetime of the home.
 - Replacement of window units that have previously received an incentive through the program do not qualify.
- Incentive amount cannot exceed the total cost of the project.
- Exterior doors will be considered for incentive if they are 80% glass.
- Skylights will be considered for incentive if all program requirements are met.
- Window incentives are available on existing homes only.

- Work performed as part of building code requirements is not eligible for an incentive.
- Areas that are not finished or conditioned living spaces (with permanently installed heating or ducted cooling), such as a garage do not qualify.
 - See “*Additional information*” in insulation requirements above for more information about conditioned vs. unconditioned space.

Additional information:

The program has developed a sample Project Diagram for windows to assist trade allies in calculating qualified square footage – see [Attachment E](#).

Duct Sealing and Duct Insulation

Details about duct sealing and duct insulation incentives and associated requirements are outlined in the Utah HVAC Trade Ally Program Manual.

Super Bundle

Super Bundle Requirements

- A bonus incentive is available to customers who install weatherization and HVAC measures at the same time (as part of one continuous project timeframe)
- All requirements for individual incentives must be met and standard incentives will be paid on approved individual measures
- Additional bonus incentive will be paid after all “bundled” individual incentives are approved
- All individual incentive applications and associated required documentation must be **submitted as one package** at the same time.
- Applications must be received within **90 days of the work completed date (except central air conditioner best practices installation incentive)**.
- Only one bonus incentive offered for the lifetime of the home.
- Available in single family homes only.

Super Bundle Options (Individual Incentives)	Bonus Customer Incentive
<ul style="list-style-type: none"> • Gas furnace and central air conditioner bundle <ul style="list-style-type: none"> ○ 95% gas furnace with ECM ○ Central air conditioner (15 SEER and 12.5 SEER) with best practices installation and proper sizing ○ Attic insulation ○ Duct sealing and duct insulation <p><i>By first improving the shell and duct work in the house, the HVAC equipment can be sized smaller helping to offset the incremental cost of high efficiency equipment.</i></p>	\$200 (\$1,200 cap on total combined incentives)

Applying for Program Incentives

Incentive applications and all required documentation must be received by the program **within 90 days of the work completed date**. Please note that filling out incentive applications incorrectly or incompletely will result in incentive processing delays or denial of the incentive.

Required Documentation

Measure	Incentive Application	Invoice	Proof of payment	Other Required Documents
Insulation	✓	✓	✓	For multi-family applications only: copy of completed W-9 for all landlord accounts that are tied to a business name.
Windows	✓	✓	✓	<ul style="list-style-type: none"> • Window manufacturer specification sheet <u>or</u> NFRC stickers for each window (must include U-factor) • For multi-family applications only: copy of completed W-9 for all landlord accounts that are tied to a business name
Duct Sealing and Duct Insulation				See Utah HVAC Trade Ally Program Manual for details

Incentive Application

Incentive applications are available on the program website at rockymountainpower.net/hes or by calling the trade ally hotline at 1-800-942-0281. Incentive applications must be completed and submitted with all required documentation to the program for review **within 90 days of the work completed date**.

Trade Ally Invoice

A trade ally invoice or itemized receipt must be submitted with the incentive application and must include the following information.

Measure	Invoice/Receipt Requirements
Insulation	<ul style="list-style-type: none"> • For each area insulated: <ul style="list-style-type: none"> ○ Square footage of area. ○ Insulation type (loose fill, batt or blanket). ○ Number of bags of loose fill, if applicable. ○ Pre-existing R-value and added R-value. ○ Work initiated and work completed dates. ○ Itemized costs. • <i>Incentive amount cannot exceed the total cost of the project (labor and materials for trade ally-installed jobs, or materials only for self-installs)</i>
Windows	<ul style="list-style-type: none"> • Total number of qualifying windows. • Dimensions for each window. • Work initiated and work completed dates. • Itemized costs. • <i>Incentive amount cannot exceed the total cost of the project (labor and materials for trade ally-installed jobs, or materials only for self-installs).</i>
Duct Sealing and Duct Insulation	See Utah HVAC Trade Ally Program Manual for details.

Proof of Payment

Proof of payment must be submitted with the incentive application and is third-party documentation that the product or service was paid for. The proof of payment submitted must match the total on the invoice.

- Payments made by **check** require one of the following: 1) copy of canceled check or 2) bank statement showing full payment.
- Payments made by **credit card** require one of the following: 1) charge receipt or 2) credit card statement showing full payment.
- Payments **financed** require a signed finance agreement that includes:
 - Customer and trade ally name and signature.
 - Amount financed.
 - Terms and conditions.

Note: The program has witnessed persistent problems arising from finance agreement provisions that require customers to sign over incentive checks. Some of these problems have even escalated into litigation. The program is prohibited by law from providing customer information to anyone but the

customer and therefore cannot get involved in trade ally – customer negotiations about incentive payments and finance agreements. We recommend avoiding this particular provision in your finance agreements.

- Payments made by **cash** require an invoice that is marked “\$X.00 Paid in Cash” with the date the payment was made.

The program has developed a document that illustrates proof of payment requirements which can be found on the Home Energy Savings website (homeenergysavings.net/Downloads/RMP_ProofofPayment.pdf).

Deadline to Submit Incentive Application

The program must receive the incentive application and all required documentation **within 90 days of the work completed date** to be eligible for an incentive.

Helping Customers with Incentive Processing

Trade allies are expected to assist customers in completing incentive applications and providing required documentation. The following steps will help ensure timely submission and payment of incentives.

1. Take the time to review all of the eligibility and incentive requirements with customers.
2. Provide customers with the appropriate incentive application (most up-to-date applications available at rockymountainpower.net/hes) and assist them with its completion.
3. Provide customers with an invoice detailing the work performed and ensure they understand that proof of payment is required. Explain proof of payment requirements when appropriate.
4. Note that the total incentive amount claimed must not exceed the total project cost.
5. Submit the application and required documentation (trade ally invoice, proof of payment and product documentation) on behalf of the customer or leave all required, completed information with the customer for submission. Tell customers to keep a copy of all documentation for their records.
6. Customers must submit their completed forms with all required documentation **within 90 days of the work completed date**.
7. The Rocky Mountain Power account holder will receive an incentive check within 45 days of program receipt of a completed and approved application packet.

Missing or Incomplete Incentive Applications

Incomplete applications submitted to the program will not be processed. The program will notify the customer by mail and request the information that is missing. The missing information must be submitted to the program by the deadline set in the notification letter or the incentive will not be processed. If the program does not receive the missing or incomplete information by the deadline a letter will be mailed to the customer with an explanation of why the incentive will not be processed.

Measure	Top 5 Reasons for Delayed Incentives Due to Missing Information
Insulation & Windows	<ol style="list-style-type: none"> 1. Proof of payment is missing or is not an approved option as listed in the Proof of Payment section above. 2. Invoices are missing or do not include all required itemized details. 3. NFRC stickers or manufactured specification sheet for windows are missing or do not provide all detailed required information. 4. Site/household information is incomplete or missing. 5. Customer and trade ally signatures are missing.
Duct Sealing and Duct Insulation	See Utah HVAC Trade Ally Program Manual for details.

Not Qualified Incentive Applications

Incentive applications that are not in compliance with program requirements will not be processed. The program will notify the customer by mail with the reason the incentive will not be processed.

Measure	Top 5 Reasons for Returned or Not Qualified Applications
Insulation & Windows	<ol style="list-style-type: none"> 1. Home square footage heated/cooled less than 80% of the home's conditioned floor area. 2. Previous insulation R-value too high. 3. Window U-factor requirements not met for specific windows (i.e. picture window U-factor too high). 4. Incentive application submitted more than 90 days after work completed date. 5. Account/address issues (i.e. not on qualifying rate schedule, name or address not on customer account, etc.).
Duct Sealing and Duct Insulation	See Utah HVAC Trade Ally Program Manual for details.

Incentive Checks

Incentive checks are issued within 45 days of program receipt of a completed and approved application and are only payable to account holders and verified third party payees. Property owners, landlords, property management companies or homeowner associations not listed on the account where qualified equipment was installed or services performed must submit a completed Third Party Payment Addendum (available at rockymountainpower.net/utforms) to receive incentive check(s) made payable to them

Marketing Tips and Customer Service

The Home Energy Savings program incentives provide sales staff with simple ways to increase the level of service provided to your customers. Some suggestions are:

- Engage customers by asking about their knowledge of energy savings benefits (and cash back incentives) of installing insulation and new windows.
- Create an energy efficiency sales package that incorporates all current incentives available to customers.
- Ensure your customers receive the appropriate incentive application (found at rockymountainpower.net/hes) and required documentation for processing.
- Customers will ultimately:
 - Save money on their electricity bills by reducing heat gain and loss.
 - Use less electricity to keep their homes at a comfortable temperature.
 - Reduce air pollution by using less energy to keep their homes comfortable.
 - Lower greenhouse gas emissions through reduced electricity use.

Program Contact Information

Trade Ally Hotline	1-800-942-0281
Customer Hotline	1-800-942-0266
Fax Number	1-800-687-6176
Website	rockymountainpower.net/hes
E-mail	HESTradeAllyRMP@rockymountainpower.net

Home Energy Savings

Residential Weatherization Specifications

Version 1
November 14, 2012

RESIDENTIAL WEATHERIZATION SPECIFICATIONS

November 14, 2012

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I. GENERAL SPECIFICATIONS

1. These specifications apply to existing residential (retrofit) weatherization for single family homes, manufactured homes, and qualifying multi-family buildings that are three floors or fewer above grade.
2. Weatherization measures shall be installed in accordance with these specifications, all applicable State and local codes, HUD code, and federal regulations. In cases where a federal, state or local code or regulation exceeds the requirements herein, that code or regulation shall apply. If the federal, state or local code or regulation does not exceed the requirements herein, then the requirements contained in this specification shall apply.
3. An inspector or representative of the utility (who has demonstrated competency of understanding these specifications through successful passing of an approved written test) shall inspect projects to verify and document projects comply with these specifications.
4. All weatherization shall be completed in a manner that will provide a safe, permanent, effective, and professional installation.
5. Insulation shall be installed in areas of the envelope that separate conditioned space and unconditioned or outside spaces where none exists or where R-value is less than that described in the measure description of the reporting software.
6. In manufactured homes, all combustion appliances, except gas cooking appliances and gas clothes dryers, shall have outside combustion air ducted directly to the appliance. Fireplaces and wood-burning stoves shall have tight-fitting glass or metal doors that cover the entire opening of the firebox. All dryer ducts must be vented to the outside to control moisture.
7. All existing spot ventilation systems are in good working order (i.e. meet the ducting specs; see Section MV).
8. All homes that have any weatherization measures installed shall receive:
 - a) [*Care for Your Air: A Guide to Indoor Air Quality*](#), EPA

II. GENERAL MATERIAL SPECIFICATIONS

1. Materials used shall meet or exceed applicable local, state and federal codes and regulations. All materials shall be installed in accordance with manufacturer's instructions.
2. All materials shall be resistant to corrosion, degradation from ultraviolet light, and be compatible with other elements and materials (e.g. will not react chemically, etc.) so as to enhance long life expectancy of installed measures.
3. Structural members and building components shall be free of decay and structurally sound before the weatherization measure is installed.
4. Weatherization materials, products and labor shall be warranted by the Installer against failure due to manufacturing and installation defects for a period of at least 2 years, from the installation date, except that sealed, insulated-glass units shall be warranted against failure of the seal for a minimum of 5 years. The Installer shall provide a written warranty, with the installation date, to the Homeowner or Homeowner Designee. Manufacturers' written warranties may be used by Installers to satisfy a part of this requirement where appropriate.
5. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals is the accepted standard for R-value/U-factor of materials used by Installers. Products that vary from ASHRAE may be acceptable if they comply with current Federal Trade Commission (FTC) certifications, testing and labeling rules, and have independent laboratory testing which indicates the product's R-value/U-factor. The National Fenestration Rating Council (NFRC) Certified Products Database (CPD) shall be used to determine U-factors for windows and doors.
6. All materials used for thermal insulation shall meet the requirements contained in the applicable material specifications listed below. Certain requirements in these specifications refer to voluntary standards such as ASTM International (astm.org) for specific test methods or physical properties. For purposes of compliance with this weatherization specification, the referenced voluntary standard shall be considered as mandatory.

a) Mineral Fiber Blankets/Batts	ASTM C 665
b) Mineral Fiber Loose Fill	ASTM C 764
c) Cellulose Loose Fill	ASTM C-739
	FR 1209
	CFR 1404
d) Perlite	ASTM C-549
e) Vermiculite	ASTM C-516-96e1
f) Polystyrene Board	ASTM C-578
g) Polyurethane and	
Polyisocyanurate Board	ASTM C 591

7. Insulation materials including facings (except foam plastic insulation – see Specification II-8) shall be installed in accordance with requirements of the International Building Code (IBC) flame spread and smoke developed. Requirements do not apply to facings, provided that the facing is installed in substantial contact with the unexposed surface of the ceiling, floor or wall finish.
8. Installation of foam plastic insulation shall comply with thermal and ignition barrier code requirements for "foam plastics," as defined by the local building code. Spray or injected foam insulation shall be installed by a manufacturer recognized (or other equivalently trained) licensed trade ally.
9. All insulation materials installed shall meet the requirements of the Federal Trade Commission Labeling Rule (16 CFR 460).
10. Caulking shall be one of the following materials conforming to the federal specifications listed below or material demonstrating equivalent performance in resiliency and durability. The cartridge or tube containing the caulking material shall be labeled indicating conformance to the applicable federal specification:
 - a. Silicone Rubber TT-S-1543A
 - b. Polysulfide or Polyurethane TT-S-230C
 (single component)
 Polysulfide or Polyurethane
 - c. (multiple component) TT-S-227E
 - d. Acrylic Terpolymer TT-S-230C
 (single component)
 - e. Butyl Rubber TT-S-1657
 - f. Acrylic Latex ASTM C834

III. General Weatherization Requirements

1. Human Contact Areas

Fibrous insulation installed in human contact areas shall be covered with a vapor permeable air barrier (i.e. house wrap, foam board, plywood, gypsum board, vapor permeable FSK) to limit human exposure to insulation fibers. Materials such as non-vapor permeable plastic sheeting and non-vapor permeable FSK shall not be used for this purpose. Vertical and overhead surfaces containing fibrous insulation, in areas that are routinely accessed by building occupants, shall also be covered. All covering shall meet applicable codes.

2. Electrical Wiring

- a) Insulation shall not be installed in contact with active knob and tube wiring.
- b) For all types of electrical wiring, all electrical splices, junctions, connections, fixtures and switches must be contained in code compliant and covered electrical boxes prior to being covered with insulation.

3. Combustion Appliance Exhaust Ventilation Inspection (Does not apply if windows are the sole weatherization measure installed.)

- a) Combustion heating and water heating systems shall be visually inspected at accessible locations for signs of improper venting and to observe that combustion vent flue terminates outdoors. Visual inspections shall be documented by trade ally.
- b) Repairs shall be made prior to project completion to assure that exhaust venting at accessible locations is continuously connected between the appliance and outdoors ending in a code approved vent cap.
- c) Homeowners shall be notified of signs of improper venting, damaged venting, corrosion or deterioration of equipment or venting system and encouraged to contact a heating or water heating trade ally or fuel utility for further inspection.
- d) Gas clothes dryers shall be vented to outside.
- e) Homes with unvented combustion heating appliances are not eligible.

4. Carbon Monoxide Detectors

- a) Carbon monoxide detectors shall be installed in all family living units containing a permanently installed combustion appliance

All Carbon Monoxide Detectors shall:

- a) Be Underwriters Laboratories Tested and Listed to ANSI/UL 2034-09

Carbon Monoxide Detectors should:

Include an electrochemical sensor

- b) Be powered by long-life lithium type battery
- c) Include a digital readout that automatically displays the current CO level detected when an alarm signal is activated
- d) Include a data feature which is activated when the test/reset or memory button is pressed, and the readout shall include the current CO level detected down to 10 parts per million (ppm), the highest level detected down to 10 ppm, and for how long the peak level was detected

Locked Battery Compartment

- a) Battery should be factory pre-installed within a compartment which has a separate battery door that is locked closed with a tamper-resistant screw
- b) Battery compartment should not be accessible without removing alarm from its mounting

Five-Year Warranty

CO detector manufacturer should warrant alarm and sensor for minimum 5 years, and shall guarantee that battery provided will power alarm for minimum 5 years without replacement

Installation Requirements

- a) CO detector shall be installed in all family living units containing a permanently installed combustion appliance.
- b) CO detector installed in accordance to manufacturer installation instructions
- c) Detector shall not be installed within unconditioned space, furnace closet or garage

Occupant Education

- a) The CO detector shall be tested upon completion of installation, and the occupant shall be instructed how to operate, test and maintain the alarm
- b) The occupant shall be instructed how to properly respond to an alarm signal
- c) The occupant shall be provided with the manufacturer's owner's manual

AR.1. Attic and Roof Insulation

1. Duct Insulation, Duct Sealing and Air Sealing

Accessible gaps and penetrations between conditioned space and attic space should be sealed in compliance with Section AS – Air Sealing.

Disconnected ducts shall be re-attached prior to installing insulation following the guidance provided in Section D.1. – HVAC Duct Insulation & Sealing.

All accessible ducts in unconditioned attic areas should be sealed, supported, mechanically fastened, and insulated in compliance with Section D.1. – HVAC Duct Insulation & Sealing when installing attic insulation.

2. Attic Preparation and Debris

Degradable and absorbent scrap materials, especially wood and cardboard, shall be removed from the attic. The roof and attic shall free from water leaks and moisture damage prior to performing work.

3. Baffles for Eave and Soffit Vents

- a) Eave and soffit vents shall be baffled to prevent air movement through the insulation and blockage of the vent; all insulation types shall comply with this requirement. Baffles shall maintain an opening equal to or greater than the size of the vent. Baffles should be fastened to roof rafters with no less than 9/16-inch galvanized staples or roofing nails.
- b) Baffles shall be rigid and air impermeable. All baffles should extend at least 4 inches above the final level of insulation.
- c) Where a continuous soffit vent exists, baffles shall be installed equally spaced along the length of the soffit and allow sufficient Net Free Area (NFA) of ventilation. Unbaffled bays that open to a soffit shall be blocked and sealed with a rigid moisture-resistant material so blown product is not able to enter soffit.
- d) Baffles should be installed far enough into the bay to reach the exterior side of the top plate.

4. Dams

Dams shall be installed between insulated and uninsulated areas, such as garages, covered porches and along the upper edge where ceilings differ in height, to keep loose-fill insulation from falling over the edge. To build dams, use batt-type insulation laid flat, with an R-value equal to that in the attic. The batt shall be at least 14-1/2 inches wide. Other acceptable dam materials would be plywood, rigid foam board or moisture-resistant cardboard. See specifications for damming attic accesses. Sloughing is not permitted.

5. Exhaust Ventilation Ducts & Dryer Ducts

Exhaust ventilation ducts and dryer ducts located in the attic shall comply with requirements in Section MV – Mechanical Ventilation.

6. Installation

- a) Ceilings shall be insulated to a minimum of R-38 or the highest R-value approaching R-38 which is practical.
- b) Uninsulated sloped ceilings between ventilated attics shall be insulated where practical. Airflow shall be maintained over the sloped-ceiling insulation by tubes, baffles, or by using rigid insulation; or the sloped-ceiling area may be insulated to the full cavity depth where local codes allow, provided installation meets requirements in Section 19 – Unvented Vaulted Ceilings insulation requirements.

- c) If exposed water pipes are located in the attic space, water pipe shall be insulated for freeze protection as specified in Section HW Hydronic and Water Pipe Insulation.
- d) Enclosed attics and enclosed rafter spaces shall be vented similarly to new construction code requirements.

Enclosed attics and enclosed rafter spaces should have cross ventilation for each separate space. Ventilating openings shall be protected against the entrance of rain and snow.

The net free-ventilating area should be not less than 1/150 of the area of the space ventilated, except that the area may be 1/300, provided no more than 60% of the required ventilating area is provided by ventilators located in the upper portion of the space to be ventilated.

If an attic vent is used as an exhaust duct termination it should not be included in passive attic vent area calculations.

Vent openings shall be covered with corrosion-resistant metal mesh with mesh openings of maximum 1/4 inch in dimension.

The vent area shall be the NFA, defined as the actual open area of the vent after subtracting any area blocked by screens or louvers. All vents shall be screened.

Air turbines shall not be installed in order to meet the ventilation requirements of these specifications; however, ventilating area of existing air turbines may be included by estimating the net free ventilating area of the air turbine in a locked, non-rotating position.

- e) The UL label or equivalent label shall appear on every bag of loose fill cellulose material. It shall include the file number (R-number) of the manufacturer and the issue number for labels purchased. This ensures adherence to the requirements of CPSC cellulose regulation 16 CFR 1209 (i.e., critical radiant flux, smoldering combustion, settled density, and corrosiveness).

7. Baffles for Light Fixtures, Fan/Lights, Fan/Heaters, Chimneys and Miscellaneous Heat Producing Fixtures

- a) Only fluorescent fixtures with rated thermal protection shall be covered with insulation.
- b) Recessed lighting fixtures and other heat producing fixtures that are Type-IC (Insulation Contact) rated by UL may be covered with insulation.
- c) Non-combustible baffles attached to the ceiling structure shall be used to maintain a 3" clearance around the perimeter of recessed lighting fixtures and other heat producing fixtures that are not Type-IC rated. Insulation shall not be installed directly above recessed lighting fixtures and heat producing combinations that are not Type-IC rated
- d) All combustible insulation materials, including existing insulation, shall be kept a minimum of 2 inches from metal flues and masonry chimneys. Non-combustible insulation (per ASTM E-136) may be installed with no clearance around flues and chimneys if permitted by local or State fire code. However, if the flue is a single wall type (i.e., made from a single thickness of rolled sheet metal) then, a 2-inch air clearance to all insulating materials shall be maintained.
- e) Air sealing of all items referenced in this section shall be addressed as listed in Section AS Air Sealing and Testing.

8. Vapor Retarders

- a) If a vapor retarder is present, it shall be in contact with the surface between attic and conditioned space.
- b) New insulation with a vapor retarder shall not be installed on top of existing insulation.

9. Water Pipes in Attics

Water pipes located in the attic shall be insulated to meet requirements in Section HW – Hydronic and Water Pipe Insulation.

10. Interior Attic Access Doors

- a) Weather-stripping shall be permanently attached to create an effective air seal between the attic access frame and the door. Accesses with air leaks that cannot be weather-stripped shall be repaired or replaced prior to insulating. Ceiling accesses shall be insulated to at least R-30 with batt-type or rigid insulation. Alternatively, R-5 or greater rigid insulation installed between the access cover and a rigid protective material (Plywood or other durable rigid material) attached over the entire insulation area is allowed. Insulation must be sealed around the perimeter to the access cover using caulk, adhesive or spray foam. Access cover assembly must be tightly sealed using weather stripping around the entire perimeter.
- b) Batt-type insulation shall be attached to the door with twine. The twine shall be stapled to the edges of the door. Stapling the insulation directly to the door is unacceptable. Fibrous insulation must be covered with a vapor permeable air barrier material.
- c) Attic accesses shall be protected from having loose-fill insulation fall through the opening. The full level of ceiling insulation shall be maintained to the edge of the attic access opening by one of the following methods:
 - I. The opening may be framed with wood or plywood boards. The framing shall be permanently attached and extend at least 4 inches above the final level of insulation. **Cardboard or foamboard are not acceptable for attic access damming.**
 - II. A minimum 14-1/2-inch wide insulation batt laid flat, with an R-value equal to that specified for the attic, may be placed tightly around the perimeter of the access opening. This 14-1/2 inches shall be maintained in all outward directions from the access opening, including corners. Scoop out all loose-fill insulation from the edges before laying batts.

11. Pull-Down Stairs

Pull-down stairs in heated areas shall be weather-stripped and insulated to a minimum of R-10. Insulation and weather-stripping shall be installed to allow easy operation of the stairs. Factory or site-built pull-down stair covers shall have a minimum R-10. New pull-down stair assemblies with a minimum R-5 insulation rating will be permitted provided the insulation is between conditioned space and the attic stair assembly and gaskets or weather-stripping prevent air infiltration.

12. Exterior Attic Access Doors

Any outside access shall have a door that is constructed for continuous exposure to exterior conditions.

13. Walls in Attic Areas

- a) All walls separating attics and conditioned space shall be insulated in order to maintain a consistent thermal boundary separating conditioned and unconditioned spaces as part of attic insulation.

- b) All penetrations through the wall should be sealed with caulk or foam. Knee wall and skylight wall insulation should be installed prior to installing ceiling insulation. Knee walls and skylight walls shall be insulated to a minimum of R-13 in a 2x4 cavity, and R-21 in a 2x6 cavity. When adding new insulation over existing insulation, the cavity shall be completely filled. Do not install new insulation with a vapor retarder on top of pre-existing insulation.
- c) Wall insulation inside attics greater than two feet in height above horizontal framing, whether new or pre-existing, shall be covered with a durable, vapor permeable air barrier material to prevent air penetration of the insulation, and to ensure that the insulation is held in full contact with the wall cavity. The air barrier material shall be permanently fastened so that it supports the wall insulation. Insulation on walls two feet or less in height above horizontal framing shall be supported by twine or other means to assure permanent installation.
- d) Attic accesses through walls shall be insulated to R-13 and weather-stripped to create an effective air seal. If side attic area is used for storage, fibrous insulation on doors shall be covered to prevent human contact. Foam core doors with a minimum R-5 insulation rating (manufactured for exterior use) and used in knee wall access door installations will be permitted, provided gaskets or weather-stripping prevents air infiltration around the entire door perimeter.

14. Installing Loose-Fill Insulation

Loose-fill insulation shall be installed in contact with the surface between the conditioned space and attic with a uniform R-value. The number of bags used to attain the added R-value shall match manufacturer's estimated bag count. Baffles and dams should be in place prior to installing loose-fill insulation.

15. Installing Batt-Type Insulation

Batts shall be installed in contact with the surface between the conditioned space and attic, cut to fit, placed tightly together with no gaps except those required for clearance around heat-producing fixtures. Compression at eave line is allowed. Where practical, place one layer of batts between the joists and another layer of batts on top of the first layer and at right angles to the joists or offset to cover the seams of the first layer. Baffles and dams shall be in place prior to installing batt-type insulation.

16. Installing Foam Insulation

In an open attic flat, sloped cavity or attic knee walls, both spray or rigid foam are acceptable types of insulation, provided

- a) they meet the requirements for R-value;
- b) are installed in contact with the surface between attic and conditioned space;
- c) comply with thermal and ignition barrier code requirements for "foam plastics," as defined by the local building code.

17. Floored Attics

- a) Cavities below decked storage areas above conditioned space shall be insulated to the highest practical level.
- b) Insulation shall be installed under the boards of floored attics. If loose-fill insulation is used, joist cavities shall be tightly packed with insulation.
- c) Areas with loose-fill insulation next to a floored attic shall be dammed to prevent insulation from falling onto the floored attic.

18. Vented Vaulted Ceilings

If insulation is added to a vented vaulted ceiling, a 1-inch air space shall be maintained above the insulation. Each cavity shall have an upper and lower vent.

19. Unvented Vaulted Ceilings

Unvented vaulted ceilings are allowed using:

- a) Tightly packed fibrous insulation (i.e. fiberglass, cellulose, etc) provided all applicable requirements in Section AR.1. are met and all of the following conditions are met:
 - I. The insulated vaulted ceiling is less than 8 feet in length
 - II. The insulated vaulted ceiling is located between upper (peak) and lower (rake) ventilated attic spaces provided containment materials used at the lower and upper cavity openings allow for rapid vapor diffusion
 - III. A continuous and seamless air barrier is located between the conditioned space and insulation
 - IV. All recessed fixtures in the insulated assembly shall be UL rated for Insulation Contact Air-Tight (ICAT)
 - V. Each unconditioned attic area shall be provided with venting
- b) Air-impermeable insulation (i.e. spray foam or other material as defined in International Residential Code) provided all applicable requirements in Section AR.1. are met and all of the following conditions are met:
 - I. Installation meets all manufacturer installation requirements and all requirements listed in product specific ICC-Evaluation Service Report
 - II. Full program required R-value shall be installed where space allows
 - III. Air-impermeable insulation shall be a vapor retarder or shall be installed in contact with a separate vapor retarder that is in direct contact with the underside of the insulation
 - IV. All recessed fixtures in the insulated assembly shall be UL rated for ICAT
 - V. Each unconditioned attic area shall be provided with venting

20. Interior Roof Insulation

- a) The installation of interior roof insulation shall comply with Section 19b.
- b) Roofs shall be insulated to a minimum of R-24 or the highest R-value approaching R-24 which is practical.
- c) An in-progress inspection shall be performed by the Utility after the rigid board has been installed and prior to covering the insulation to verify the insulation board is properly installed and sealed. The in-progress inspection shall be documented in the house permanent file. Utility may allow photographs in lieu of an in-progress inspection.

21. Exterior Roof Insulation

- a) Roofs shall be insulated to a minimum of R-20 or the highest R-value approaching R-20 which is practical.

- b) Insulation shall not be applied to roofs over ventilated cavities. (e.g., vaulted ceilings with ventilated spaces, attics, sloped ceilings connected to attics and/or knee wall spaces, etc.) Ventilating cavities of flat or sloping roofs shall not be blocked.
- c) Insulation shall be in a rigid board form.
- d) Roof drainage systems shall function after insulation is installed.
- e) Recessed lights in insulated cavities shall be Insulation Contact and Air Tight (ICAT) rated.
- f) All penetrations through the roof covering and all joints between the roof covering and vertical surfaces (e.g., walls, chimneys, etc.) shall be flashed and sealed.
- g) An in-progress inspection shall be performed by the Utility after the rigid board has been installed and prior to covering the insulation to verify the insulation board is properly installed and sealed. The in-progress inspection shall be documented in the house permanent file. Utility may allow photographs in lieu of an in-progress inspection.

AR.2. MANUFACTURED HOME – CEILING AND ROOF INSULATION

The definition of a manufactured home is "a structure, transportable in one or more sections" and "is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning, electrical systems contained therein" (source: Part 3280, Manufactured Home Construction and Safety Standards, Oct. 1994).

For purposes of this specification, the definition of manufactured homes will also include older homes manufactured in factories and hauled over the road to the home site, and regulated by U.S. Department of Housing and Urban Development (HUD).

1. General Requirements for Insulating Ceilings and Roofs

- a) Installation of insulation shall comply with all applicable requirements in Section AR.1. – Attic and Roof Insulation.
- b) Ceiling cavities under flat or crowned metal roofs shall be insulated by completely filling them with blown-in fiberglass insulation and sealing all existing attic ventilation except existing roof jacks. It is recommended that this application be done in conjunction with insulation on the exterior roof surface because of concerns about the potential for moisture condensation.
- c) Ceiling cavities under pitched roofs shall be insulated to R-38 or to the maximum practical R-value, and ventilated to 1 ft² for each 300 ft² of ceiling area.
- d) All penetrations through the ceiling shall be sealed before ceiling cavities are insulated.
- e) If the ceiling cavity contains a non-ducted return-air system, the return-air system shall be eliminated as described in Section D.2 – Manufactured Home HVAC Duct Insulation & Sealing.

2. Exhaust Ventilation & Dryer Ducts

Exhaust ventilation and dryer ducts located in the attic shall comply with requirements in Section MV – Mechanical Ventilation.

3. Exterior Roof Surfaces

- a) If exterior roof insulation is installed, it shall be a minimum of R-7. Exterior roof insulation shall not be installed over ventilated ceiling cavities or over cavities containing air spaces.
- b) Roof drainage systems shall function properly after weatherization has been installed.
- c) Weatherproof roof coverings shall be applied directly over the insulation.
- d) All penetrations through the roof covering and all joints between the roof covering and vertical surfaces (e.g. walls, chimneys, etc.) shall be flashed.
- e) Other methods of installing exterior roof insulation shall be approved by the trade ally in writing prior to beginning the work.

4. Ramada Roofs

- a) A ramada roof is a free standing (self supporting) covering over a Mobile Home.
- b) The ramada roof shall be joined to the Mobile Home (per local code) to create an enclosed attic cavity. The ramada roof shall be weatherproof and be joined to prevent the entry of birds, animals, etc.
- c) The attic cavity shall meet the ventilation requirements of the site-built specifications.

- d) All exhaust-fan ducts, plumbing vent stacks, etc. shall be extended outside and have a termination installed in accordance with local code requirements.
- e) Only fluorescent fixtures with rated thermal protection shall be covered with insulation.
- f) Fiberglass insulation shall be used for this application. The original roof cap of the Mobile Home shall be opened to allow a full fill of insulation inside the cap. Insulation shall be installed above the original roof to provide an installed level of R-38. The openings in the original roof shall NOT be sealed.
- g) All penetrations through the ceiling shall be sealed before the insulation is installed.

FI.1. SITE BUILT – UNDERFLOOR INSULATION

1. Basic Installation Requirements

Insulation shall be installed so that there is no air space between the insulation and the subfloor. Compression of insulation is allowed in order to assure or maintain continuous contact with the bottom of the floor.

2. Duct Insulation, Duct Sealing and Air Sealing

- a) Accessible gaps and penetrations between conditioned space and unconditioned underfloor space shall be sealed in compliance with Section AS – Air Sealing.
- b) All accessible ducts in unconditioned underfloor spaces shall be sealed, supported, mechanically fastened, and insulated in compliance with Section D.1. – HVAC Duct Insulation & Sealing when installing attic floor insulation.

3. Underfloor Preparation and Debris

- a) Degradable and absorbent scrap materials, especially wood and cardboard, shall be removed from the crawlspace. The underfloor shall be free from plumbing and sewer leaks. Moisture damage to building components shall be repaired prior to performing work.
- b) If standing water is found in the crawlspace, it shall be drained before the floor is insulated. Chronic bulk water problems must be fixed with a permanent solution before the floor is insulated. Exception: areas subject to uncontrollable routine seasonal saturation may be allowed by utility.

4. Exhaust Ventilation & Dryer Ducts

Exhaust ventilation and dryer ducts located in the underfloor areas shall comply with requirements in Section MV – Mechanical Ventilation.

5. Inside Access Doors for Underfloor Areas

- a) Any crawlspace access door adjacent to a conditioned space shall be insulated to at least R-25 for horizontal openings and to at least R-13 for vertical openings. Insulation shall be securely fastened to access doors using staples and twine or a similar method that ensures the effectiveness and durability of the insulation. Insulation shall cover the maximum possible area of the access door without impeding door operation. Insulation must be covered with a vapor permeable air barrier material. Inside access doors shall be weather-stripped. Alternatively, R-5 or greater rigid insulation installed between the access cover and a rigid protective material (Plywood or other durable rigid material) under the entire insulation area is allowed. Insulation must be sealed around the perimeter to the access cover using caulk, adhesive or spray foam. The rigid protective material must be mechanically attached to the access cover to securely hold insulation in place. Access cover assembly must be tightly sealed using weather stripping around the entire perimeter.
- b) Foam core doors with a minimum R-5 insulation rating (manufactured for exterior use) used in vertical wall underfloor access door installations will be permitted, provided gaskets or weather-stripping prevents air infiltration around the entire door perimeter.

6. Outside Access Doors for Underfloor Areas

Any outside access shall have a door that is easily opened to permit inspection, and shall be weather resistant. Vertical accesses may be screened when it is part of the crawl space ventilation system. Horizontal hatch covers shall shed water. Wood in contact with soil or concrete shall be ground-contact approved. Existing covers are acceptable, provided that they are in good condition, weather-resistant and vermin-resistant.

7. Walls Between Conditioned Space and Underfloor Spaces

Uninsulated walls between conditioned and unconditioned spaces in the underfloor area, such as between vented crawlspaces and conditioned basements, shall be sealed for air leakage, insulated to a minimum of R-13 in a 2x4 cavity, and R-21 in a 2x6 cavity and create a continuous thermal boundary. When no wall exists, one shall be constructed and an effective air and thermal barrier shall be installed.

8. Rim Joist Insulation

- a) In conditioned basements, insulation may be installed in direct contact with the wooden perimeter "band" or "rim" joist, provided each joist bay is sealed for air leakage prior to installation of insulation. Batt-type or foam insulation used in this application shall be tightly installed, securely fastened, be at least R-13 and comply with thermal and ignition barrier code requirements for "foam plastics," as detailed by the local building code.
- b) Fibrous insulation exposed to the living space shall be covered with a human contact barrier.
- c) Sill plate shall be sealed to the foundation wall.

9. Water Pipes in Crawlspaces

Water pipes that are located in the crawlspace shall be insulated in accordance with requirements in HW – Hydronic and Water Pipe Insulation

10. Underfloor Insulation Support

Underfloor insulation support systems shall be installed so that the insulation remains in contact with the sub-floor, flat and in place for the life of the house.

Floor Insulation Support Materials

Use one of the following materials to support floor insulation:

Wood lath—Wood lath shall be a minimum of 1/4 x 1 inch for spans up to 48". Spans greater than 48" shall use at a minimum nominal 1x2 lumber.

Twine—Twine shall be non-stretching polypropylene or polyester.

Wire—Wire shall be stainless steel, copper or an equivalent material of similar corrosion resistance, with a minimum diameter of 0.040 inch (size 18 AWG). Self-supporting wire hangers should not be used unless the thickness of insulation is less than the depth of the floor cavity.

Hand stapling is not a durable fastening technique and is not allowed.

Staples shall be driven with a power-actuated stapler to achieve at least 5/8 inch penetration.

Fasteners for lath, twine or wire may be either hot-dipped galvanized nails, screws or corrosion-resistant staples that are at least 18-gauge and long enough to penetrate wood at least 5/8 inch.

Spacing Requirements for Support Systems

The maximum spacing for support systems is as follows:

Table 1: Spacing Requirements

Spans	Maximum Spacing
24 inches or less	18 inches apart
48 inches	12 inches apart
60 inches	8 inches apart
72 inches	6 inches apart

Batt-type insulation shall be supported no more than 3 inches from the ends. This support shall be parallel to the end of the batt. Small pieces of insulation shall be supported.

Support systems shall be fastened to the underside of floor joists. Joists may be skipped; however, the maximum spacing shall not exceed 12 inches. The maximum span of skipped joists shall not exceed 48 inches.

11. Spray Foam Floor Insulation

Spray foam and rigid foam insulation are acceptable for insulating underfloor areas provided the installation complies with thermal and ignition barrier requirements for "foam plastics," as detailed by the local building code.

Insulation support requirements are waived when only spray foam is used underfloor. Fiberglass insulation installed below spray foam insulation shall be in direct contact with the spray foam insulation and shall be installed using approved support materials.

12. Vapor Retarders

If a vapor retarder is installed as a part of floor insulation it shall have a perm rating of 1.0 or less and shall be located between the insulation material and the conditioned space. There shall only be one vapor retarder in the assembly and it shall be in direct contact with the subfloor and face the conditioned space of the home.

13. Vapor Barrier/Ground Cover

- a) Upon completion of the installation of underfloor insulation, an acceptable ground-cover moisture barrier shall be present (new 6 mil black or UV stabilized and opaque polyethylene or existing black 4 mil polyethylene). All joints shall be overlapped with sufficient material (12 inch overlap) so that all ground surface area is covered.
- b) If underfloor insulation is installed over an unheated basement and the basement has no exposed soil, then the provisions for a ground cover and ventilation are not required. Any basement with exposed soil shall be treated as a crawl space and the provisions for ventilation shall be required. In addition, a ground cover shall be present which covers the entire area of exposed soil.

- c) An air barrier or skirting shall protect underfloor insulation that is exposed to wind, including unskirted crawl spaces and cantilever floors.
- d) Ground covers are not required for houses which are built on stilts and have no perimeter system which creates a crawl space.

14. Crawlspace Ventilation

Underfloor crawlspace areas shall be ventilated by openings in exterior foundation walls. Such openings shall have a net area of not less than 1 square foot for each 150 square feet of underfloor area. Openings shall be located as close to corners as practical and shall provide cross ventilation. The required area of such openings shall be approximately equally distributed along the length of at least two opposite sides. They shall be covered with corrosion-resistant wire mesh with mesh openings of 1/4-inch in dimension. Existing vent openings which are covered with wire mesh need not be modified.

Exception: Where the local code official determines that moisture due to climate and ground water conditions is not considered excessive, operable louvers may be allowed and the required net area of vent opening may be reduced to 1/1500, provided the underfloor exposed soil surface area is covered with an approved ground cover

Exception: If continuously operated mechanical exhaust ventilation is provided at a rate of 1.0 CFM per 50 ft² of floor area, ventilation openings may be omitted.

FI.2. MANUFACTURED HOME - UNDERFLOORS

1. Duct Insulation, Duct Sealing and Air Sealing

All HVAC ductwork, including plenums, shall be repaired, sealed and properly supported, according to Section D.2 "MANUFACTURED HOME – HVAC DUCTS", before underfloor insulation is installed.

- a) HVAC ducts and plenums shall be inspected for leaks or openings, and leaks or openings shall be repaired and sealed before underfloor insulation is installed. Non-ducted return-air systems in the floor cavity shall be eliminated.
- b) All plumbing penetrations through the floor (e.g., bathtubs, clothes washers, sinks, etc.) shall be sealed before underfloor insulation is installed.

2. Installation Requirements

- a) Insulation shall be installed so that there is no air space between the insulation and the subfloor. Compression of insulation is allowed in order to assure or maintain continuous contact with the bottom of the floor.
- b) Insulation shall be protected by a moisture permeable covering or skirting before underfloor insulation is installed. Skirting shall be as close to the ground as practical.
- c) A minimum of R-22, or the maximum R-value achievable to fill the floor cavity, shall be installed. Special care shall be taken when insulating the floors of tip-outs.
- d) Where required by State or local codes, a moisture permeable rodent barrier shall be in place and in good repair after the insulation is installed.
- e. All exhaust ducts, such as those for kitchen ranges and dryers, shall be extended to the outside of the crawl space and sealed to prevent exhausted air from returning to the crawl space and/or the Mobile Home when skirting exists.
- f. Operational combustion intakes shall be ducted to the outside of the crawlspace.
- g. All water drains, including condensate drains from air conditioning equipment, shall be extended outside the crawl space.
- h. Water-pipe heaters may be installed in localities with sustained periods of subfreezing winter temperatures. If installed, such heaters shall include a thermostat set at approximately 35 degrees Fahrenheit. If installed, they shall be placed around all water pipes (both hot and cold water) in the crawl space, inside the pipe insulation, and in contact with the pipe surface. Such installations shall conform to the National Electric Code and any applicable State or local code.
- i. Once the rodent barrier is removed, the techniques used to insulate a manufactured home underfloor are the same as with site-built homes. Refer to Section FL – Site Built Underfloor Insulation Section of this manual for underfloor specifications.
- j. Underfloor insulation support systems shall be installed so that the insulation remains in contact with the sub-floor, flat and in place for the life of the house. Support of the insulation may be provided by wood lath, twine, wire, or other material as approved by the Utility.
- k. If installed, vapor retarders installed as a part of floor insulation shall have a perm rating of 1.0 or less and shall be located between the insulation material and the conditioned space.

- l. After underfloor insulation has been installed, an acceptable ground-cover moisture barrier shall be present (new 6 mil black polyethylene or UV stabilized and opaque polyethylene or existing 4 mil polyethylene) where skirting exists. All joints shall be overlapped with sufficient material (12 inch overlap) so that all ground surface area is covered.
- m. When skirted, the entire enclosed underfloor crawl space area shall be ventilated by openings in the skirting. Such openings shall have a net area of not less than 1 square foot for each 150 square feet of underfloor area, including the crawl space area of all structures which open to that of the Mobile Home. Openings shall be located as close to corners as practical and shall provide cross ventilation. The required area of such openings shall be approximately equally distributed along the length of at least two opposite sides. They shall be covered with corrosion-resistant wire mesh with maximum mesh openings of 1/4-inch. Existing vent openings which are covered with wire mesh need not be modified.
- n. Exception: Where the local code official determines that moisture due to climate and groundwater conditions are not considered excessive, operable louvers may be allowed and the required net area of vent opening may be reduced to 1/1500.
- o. Exception: If continuously operated mechanical exhaust ventilation is provided at a rate of 1.0 CFM per 50 ft² of floor area, ventilation openings may be omitted. (IBC 1203.3)
- p. Water pipes that have not been covered by underfloor insulation shall be insulated according to Section HW – HYDRONIC AND WATER PIPE INSULATION”.

3. Blown Floor Insulation

a) Preparation

- I. Rodent barrier shall be repaired to prevent insulation from falling from floor cavity.
- II. Repair materials shall be stitch-stapled to the rodent barrier, or otherwise permanently affixed.
- III. Plumbing leaks shall be repaired and decayed wood flooring shall be replaced.

b) Materials

- I. Materials used to patch the rodent barrier shall be breathable, durable and capable of supporting the insulation.
- II. Expanding foam or other sealants shall be used to seal accessible floor penetrations.
- III. Fiberglass insulation shall be used in this application

c) Installation

- I. Underfloor cavities shall be insulated either by drilling small holes in the rodent barrier or by drilling through the rim joists perpendicular to the floor joists. If holes are drilled through the rodent barrier, they shall be patched. Holes drilled in the rim joists shall be patched with wooden plugs. The entire floor cavity shall be packed with insulation in order to achieve an R-22 minimum, or the highest R-value practical.

WI.1. WALL INSULATION

1. Unfinished Walls

- a. Applies to Exposed Frame Wall, Concrete, or Masonry Walls
- b) Walls shall be insulated to a minimum of R-13 for nominal 4 inch walls and to a minimum of R-21 for nominal 6 inch walls.
- c) Above grade, vapor diffusion retarders shall be installed when practical. Vapor retarders installed as part of wall insulation shall have a perm rating of 1.0 or less and shall be located between the insulation material and the conditioned space.
- d) Vapor retarders shall not be installed over fiberglass batt insulation on below grade wall applications. Fiberglass insulation shall not be installed in contact with below-grade concrete walls.
- e) When rigid insulation is applied to the exterior stud surfaces of an open cavity frame wall, the insulation shall be installed tightly to minimize air leakage and an adequate air/vapor retarder shall be installed at the warm side of the insulation.
- f) Upon completion of exterior surface retrofits, the exterior wall shall be weather-tight with window and door jambs extended or modified to provide adequate drainage. Siding shall be installed per insulation or siding manufacturer instructions or as approved by the Utility.

2. Exterior Wall Cavities

- a) All cavities in all exterior walls shall be completely filled, and insulated to the highest practical R-value, including small cavities above, below and on the sides of windows and doors. Any damage to interior walls resulting from wall insulation installation shall be repaired.
- b) Insulation shall not be installed in wall cavities that serve as air ducts for heating or cooling. Cavities containing wall-mounted heaters shall not be insulated, unless there is blocking (with photographic documentation) to prevent contact with insulation.
- c) Insulation may be installed in wall cavities that are:
 - I. 3-1/2 inch deep or greater with 1 inch or less of existing insulation; or
 - II. less than 3-1/2 inch deep with no existing insulation.
- d) Fibrous blown-in insulation material should be installed using the insert tube method. Foams shall be installed according to manufacturer specifications.
- e) The entire stud bay shall be filled, including cavities requiring more than one hole due to blocking in the cavity.
- f) Stud bays containing supply plumbing may be left uninsulated to prevent freezing.
- g) When access holes for installing the insulation are drilled through the interior wall or finish siding and sheathing, the Utility shall verify that all holes were adequately plugged and provide a tight weatherproof seal.
- h) Plugs shall be sealed, weatherproofed and ready to paint. Plugs shall not be vented. Plugs shall be made of material that will not shrink or expand, which would result in damage to the siding or finish. If the surface of the plug is below the surface of the siding, the hole shall be filled with non-shrinking filler. If siding is removed and holes are drilled in the sub-siding, the holes shall be plugged.

- i) The UL label or equivalent label shall appear on every bag of loose fill cellulose material. It shall include the file number (R-number) of the manufacturer and the issue number for labels purchased. This ensures adherence to the requirements of CPSC cellulose regulation 16 CFR 1209 (i.e., critical radiant flux, smoldering combustion, settled density, and corrosiveness).
- j) Only non-combustible insulation (per ASTM E-136) shall be installed in wall cavities adjoining fireplaces and/or chimneys.
- k) Insulation shall not be installed in wall cavities which contain electric space heaters unless fire stops are present which isolate the heater from all contact by the insulation material. Verification shall be accomplished by removal of the heater after the insulation is installed or from photographs from installation trade ally.

D.I. HVAC DUCT SEALING AND INSULATION

- a) Uninsulated flex-ducts shall be replaced with R-8 flex-ducts. Sheet metal/rigid ducts with insulation of R-2 or less shall be insulated to a minimum R-8.
- b) Ducts shall be properly supported before insulation is installed. All new and all accessible existing duct joints and metal joints shall be mechanically fastened with screws. Flexible ducts shall be attached using nylon/plastic straps and tightened with a tool manufactured specifically for tightening nylon/plastic straps around HVAC duct. (hand tightening is not acceptable). Stainless steel worm drive clamps or other methods approved in writing by the program are also allowed. Mastic and/or tape shall not be used as mechanical fasteners.
- c) All new and all accessible existing HVAC supply and return ducts, air handlers, and plenums outside the conditioned space shall be sealed at all joints and corners, including prefabricated joints, with duct mastic meeting UL 181 standards. It is unnecessary to seal longitudinal seams unless they are damaged. Tape is not allowed except for use on operable doors in the system such as on the air handler. In this case, cleaning the joint at an operable door with a suitable solvent and sealing with a UL-181BMX listed tape may be used.
- d) Ducts located outside of the conditioned space, including plenums and boots shall be insulated. All duct insulation should be installed and supported using mechanical fasteners such as permanent plastic straps or nylon twine. Tape may be used on insulation seams to provide a continuous barrier.
- e) Ducts shall be completely insulated with a material that has a facing with an approved vapor barrier and flame spread rating of 50 for single family and 25 for multi-family or per local code.

D.2. MANUFACTURED HOME – HVAC DUCT SEALING AND INSULATION

- a) Where applicable, all ducts shall be installed, sealed, insulated, and supported in compliance with section D.1. – HVAC Duct Sealing and Insulation.
- b) Any portion of an HVAC duct, such as a bulkhead, that extends beyond the last register shall be sealed before the duct reaches the exterior wall.
- c) The crossover ducts shall be installed to prevent compressions or sharp bends, minimize stress at the connections, avoid standing water, and avoid excessive duct lengths. When skirting is not present, the crossover duct shall be protected against rodents, pets, etc.
- d) Crossover ducts shall be secured with mechanical fasteners (e.g., stainless steel worm drive clamps, plastic/nylon straps applied with tightening tool, etc.) and sealed with mastic or aluminum/foil backed butyl or equivalent sealant tape.
- e) Existing flexible crossover duct with an insulation value of R-4 or less or which has been damaged shall be replaced with new rigid duct with an insulation value of R-11
- f) Where clearances permit, the crossover duct shall be supported above the ground by strapping or blocking. Min R-4 1" foam board between duct and ground contact
- g) If a non-ducted return-air system is in the floor or ceiling cavity, it shall be eliminated. Seal all return-air openings in the floor or ceiling and seal the main return-air opening in the floor or ceiling of the furnace closet. Return air shall be provided through grills in the furnace closet to the conditioned space. These grills shall be adequately sized for the installed heating system. All interior doors shall be undercut, or other means provided, to allow return air to flow back to the furnace closet.
- h) If the rodent barrier has been removed and batt insulation has been installed in the floor, all HVAC ducts, boots and plenums, except flexible crossover ducts, shall be wrapped with R-11 insulation.

HW ALL HOMES - HYDRONIC AND WATER PIPE INSULATION

Basic Installation Requirements

- a) All water pipes and hydronic heating system pipes in unconditioned spaces shall be insulated with a product designed and manufactured for the purpose of insulating pipes.
- b) Pipe insulation shall be installed to minimum R-values determined according to the following:
 - I. Hydronic heating system pipes having a nominal diameter of 1-inch or less shall be insulated with material having a minimum R-value of 3.6.
 - II. Hydronic heating system pipes with a nominal diameter greater than 1 inch shall be insulated with material having a minimum R-value of 5.4.
 - III. Water pipes shall be insulated with material having a minimum R-value of 3.0.
- c) The piping shall be free from water leaks and properly secured to support the weight of the piping and insulation.
- d) Pre formed insulation shall be properly sized. Corners should be mitered to fit tightly. The inside diameter of the pre-formed insulation should match the outside diameter of the water pipes. If connections and corners are larger than piping, exposed joints should be insulated with insulation that matches the outside diameter of the connection and corners.
- e) Pipe insulation should be secured with twine, corrosion resistant wire or plastic compression ties every 12 inches, and within 3 inches of the ends. Tape is not allowed to secure water pipe insulation.
- f) Pipe insulation shall have a minimum finished thickness of 1 inch. When water pipes run next to a beam or joist, the insulation shall be secured to the beam, at a minimum, every 12 inches. Insulation material should be cut and folded or otherwise molded to completely cover all sections of the system without overly compressing the insulation to less than 1" thickness or allowing gaps to occur in the insulation.
- g) Pipe insulation shall be installed on piping, joints, elbows, valve bodies, etc. except those sections of the system which are obstructed by existing wood framing members or other components.
- h) All slits and joints in the material should be sealed on hydronic heating system pipes.
- i) If insulation is installed on piping exposed to the weather, then such insulation shall be resistant to degradation from moisture, ultra-violet light, and extremes in temperature, or a jacket or facing shall be installed that protects the insulation from these conditions. Manufacturer's recommendation for outdoor installations shall be followed in all cases.
- j) Pipe insulation shall meet the following provisions:
 - I. Pipe insulation materials shall be comprised of mineral fiber, elastomers, urethanes, isocyanurates, or other suitable materials that are designed and manufactured for this purpose;
 - II. The material shall be capable of withstanding continuous operating temperatures of not less than 180 degrees Fahrenheit. Hydronic pipe insulation shall be capable of continuous operation at 250 degrees Fahrenheit;
 - III. The product should be finished with a jacket or facing, suitable to resist damage and degradation. However, if the product is made of closed cell foam and is installed in a location

protected from moisture, ultraviolet light and extremes in temperature, then a protective jacket or facing is not required; and

- IV. The insulation material, any jackets or facings, and adhesive, if used, shall be tested as a composite product and shall have a flame spread rating of 25 or less, and a smoke density of 50 or less when tested in accordance with ASTM E-84.
- k) Pipe insulation shall not be installed on pressure temperature relief valves, on the operating portion of any valves, or on any other control and safety devices.
- l) Where water pipe heaters are present for freeze protection, such heaters shall include a thermostat set at approximately 35 degrees Fahrenheit and they shall be placed around all water pipes (both hot and cold water) in the crawl space inside the pipe insulation in contact with pipe surface. Such installation shall conform to provisions of the National Electric Code and any applicable State or local code.

WD ALL HOMES - PRIME WINDOW, SLIDING GLASS DOOR, AND FRENCH DOOR REPLACEMENTS

Window requirements shall also apply to patio doors unless otherwise stated. Windows shall be installed and supported according to the manufacturer's specifications. If window weight cavities exist and there is access, the weights shall be removed and the cavity shall be filled with insulation and sealed.

1. Eligible measures include:

- a) Replacement of prime windows with NFRC certified products;
- b) Replacement of patio doors (French or Sliding) with NFRC certified products.

2. Overview for all glazing systems:

- a) Safety glazing shall be used where required by current state code. See sections on safety glass for details.
- b) Windows shall operate smoothly and safely.
- c) Screens should be furnished with all operable windows.
- d) Exterior wood, including frame, sash, trim, stops and sills, shall be, at a minimum, caulked and primed.
- e) Hardware and fasteners shall be aluminum, stainless steel, or other noncorrosive materials.
- f) Gaps of over 3/8 inch between the exterior siding and the window shall be covered with solid trim material. Exterior or interior voids over 3/8 inch in depth or width shall be filled with window manufacturer-approved materials, such as backer rod, non-expanding foam or similar product prior to caulking, if caulking will be applied.
- g) Replacement windows shall be certified and labeled for U-factor in accordance with the simulation, testing, and certification procedures of the National Fenestration Rating Council Incorporated (NFRC).
- h) Sources of evident water penetration through window openings shall be located and corrected. Necessary repairs shall be accomplished by the Homeowner or Homeowner Designee prior to installation of windows.

3. Rip Fin (Block or Finless) Windows

Windows without nailing flanges shall be secured to the rough opening within 4 inches of each side corner and a minimum 12 inches on center thereafter. Windows shall not be smaller than the interior jamb and shall fit tightly with it. Gaps of over 3/8 inch between the exterior siding and the block window shall be trimmed. Exterior or interior voids over 3/8 inch in depth or width shall be filled with backer rod prior to caulking. Exposed block windows shall be flashed.

The flashing shall tuck up behind the exterior siding at least 1 inch. Flashing shall have a downward bending lip of at least 1/4 inch on the front and ends. Block or Finless windows shall be supported at the "fin line."

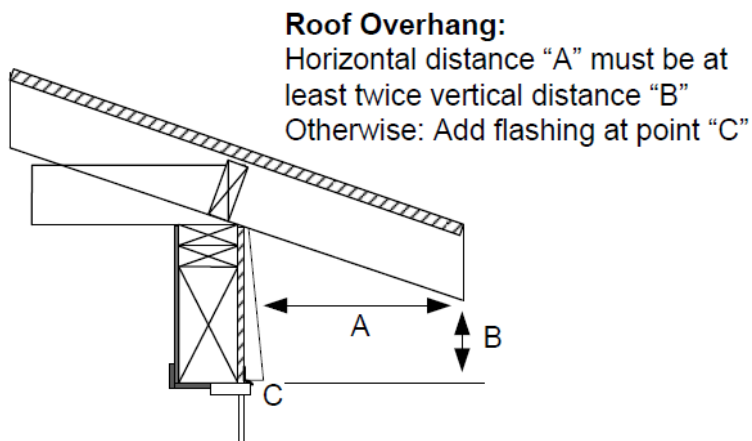
4. Flush Fin (Surface-Mounted) Windows

Flush Fin windows designed for this purpose may be installed on houses with aluminum or vinyl siding, provided that the top of the windows have a metal or other code approved rigid flashing inserted behind the existing siding material and over the top of the window, or the top of the windows are protected by an overhang as shown below. Installing surface-mounted windows on site-built houses or on manufactured homes with wood siding is not allowed. This section does not apply to stucco-mounted windows.

5. Nail Fin (Cut-Out) Windows

Nail fin windows have nailing flanges and are installed on the sheathing or framing. The tops of windows shall have metal or other code-approved rigid flashing inserted behind the existing siding material and over the head trim piece, unless the tops of the windows are protected by an overhang as shown below.

The sides of cut-out windows shall be flashed with 15-pound felt or an equivalent building paper. The building paper shall be inserted underneath the existing siding and building paper and over the fins of the windows. The bottoms of cut-out windows shall be flashed with 15-pound felt or an equivalent building paper. The building paper shall be inserted underneath the existing siding and over existing building paper and under the bottom fins of the windows. All filler and trim pieces must be thoroughly caulked. The flashing shall tuck up behind the exterior siding at least 1 inch. Flashing shall have a downward bending lip of at least 1/4 inch on the front and ends.



6. Stucco or Brick-Mounted Windows

Stucco-mounted windows are replacement windows that mount directly to the frames of existing windows.

The fin of the new window and the outer flange of the existing window shall be sealed with a sealant designed for this purpose. The sealant must stick to both the vinyl fin and the aluminum flange. The lip of the existing aluminum flange shall be at least 3/8 inch wide. The gap between the frame of the replacement window and the interior trim shall be caulked. If the gap exceeds 1/4 inch, the gap shall be filled with closed cell backer rod, or chinked and caulked, and then the gap shall be covered with a permanently attached trim material and caulked on both the top and bottom seams.

The bottom rail of the existing window shall be cleaned to free up weep holes. The miter joints on the fin of the replacement window shall be smooth so the corners do not bulge from the aluminum window.

7. Miscellaneous Requirements

The bottom rail of a patio door shall be firmly supported within 1/2 inch of exterior edge of the frame. Any wood that touches the ground or concrete must be pressure-treated.

8. Health and Safety Requirements

All windows shall meet the following egress and safety glazing specifications. If state or local code becomes more restrictive than these specifications, then installers shall be required to meet current state or local code.

9. General Safety Glazing Requirements

Safety glazing requirements shall apply to replacement windows and patio doors, multi-glazing inserts and storm windows.

All windows shall meet the following egress and safety glazing specifications.

Each pane requiring safety glazing shall bear the manufacturer's permanent safety glazing label. This label of identification shall be etched or ceramic-fired on the glazing and be clearly visible in one of the corners of the light.

10. Hazardous Locations Requiring Safety Glazing

The following shall be considered specific hazardous locations for the purpose of glazing:

- a) Glazing in entry doors
- b) Glazing in patio doors and French doors
- c) Glazing in a fixed or operable panel that meets all of the following conditions:
 - I. The exposed area of an individual pane is greater than 9 square feet
 - II. The bottom edge is less than 18 inches above the floor
 - III. The top edge is greater than 36 inches above the floor
 - IV. One or more walking surfaces are within 36 inches horizontally of the glazing
 - V. Glazing in hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers, where the bottom edge of the glazing is less than 60 inches above the drain inlet.
- d) Glazing in a fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch arc of the door in a closed position and whose bottom edge is less than 60 inches above the floor or walking surface.

11. Emergency Egress Openings

- a) If a new windows is installed in a sleeping room, it shall have at least one operable window or exterior door approved for emergency egress or rescue if required by local code.
- b) All egress or rescue window installations shall meet local code requirements.

AS Air Sealing & Testing

1. Air Sealing Requirements

- a) All accessible and applicable items on **AIR SEALING CHECKLIST** shall be sealed.
- b) All locations except the following are considered to be accessible:
 - I. Locations not physically accessible due to building structure or mechanically fastened materials
 - II. Top plates located adjacent to eave line
 - III. Top plates covered by more than five inches of loose-fill insulation or a combination of loose-fill and batt/blanket insulation.

Combustion Appliance Zone testing shall be performed in accordance with Section 4 when duct sealing or air sealing is performed.

All accessible and applicable items on **AIR SEALING CHECKLIST** shall be addressed.

AIR SEALING CHECKLIST

Attic	Item	√	Sealing requirements between conditioned and unconditioned space/exterior
	Attic hatch/door		Weather-stripping permanently attached to create an effective air seal between the attic access frame and hatch/door
	Pull down stair cover		Gasket or weather-stripping permanently attached between frame and door or air-tight cover installed between stairs and attic
	Duct penetrations		Foam/caulk or other air-tight seal around perimeter of duct boots between the boot and the subfloor
	Chases		Foam/caulk/rigid material sealed to attic floor/wall; use fire rated materials at chimneys and flues
	Recessed cans		Foam/caulk or other air-tight seal between fixture and ceiling or install air-tight drywall, sheet metal, or other non-combustible assembly; maintain 3" space between non-IC rated fixtures and insulation ; Do not insulate above non-IC rated fixtures (see notes in Section AR.1.7) above
	Bath fans		Foam/caulk or other air-tight seal around fixture perimeter
	Bath fans with heat source		Fire rated materials shall be used. Foam /caulk/ rigid sheet if opening larger than 1 inch
	Electrical penetrations		Foam/caulk or other air-tight seal around perimeter of electrical junction box
	Plumbing penetrations		Penetrations sealed
	Top plates		Accessible drywall to top plate connections, wood to wood seams, other wall penetrations sealed with foam/caulk
	Drop soffits		Rigid material covering attic floor opening and sealed with foam/caulk; or seal openings separating soffit and conditioned space

Attic Continued	Kneewall doors		Weather-stripping permanently attached to create an effective air seal between the attic access frame and hatch/door. Install latch or handle if necessary
	Kneewall transition (under floor paths)		Rigid material between joists; Foam/caulk perimeter of each rim joist
	Kneewall bottom plates		Floor/floor plate connection sealed with foam/caulk
	Open wall cavities		Rigid material sealed to attic floor/wall
Crawl Space/ Unconditioned Basement	Item	v	Sealing requirements between conditioned and unconditioned space/exterior
	Crawlspace hatch/door		Weather-stripping permanently attached to create an effective air seal between the crawlspace access frame and hatch/door
	Chases		Foam/caulk/rigid moisture resistant material sealed to ceiling/wall; use fire rated materials at chimneys and flues
	Duct penetrations		Foam/caulk or other air-tight seal around perimeter of duct boots between the boot and the subfloor
	Plumbing penetration		Penetrations sealed; Rigid moisture resistant material sealed to crawl space/basement ceiling if opening larger than 1 inch
	Electrical penetrations		Foam, caulking; Rigid material sealed to crawl space/basement ceiling if opening larger than 1 inch
	Other open cavities		Rigid material sealed to ceiling
Conditioned Basement	Item	v	Sealing requirements between conditioned and unconditioned space/exterior
	Sill plate/stem wall		Sill plate to stem wall connection sealed with foam/caulk
	Rim joists		Rigid material between joists; Foam/caulk perimeter of each rim joist

Walls Separating Conditioned Space From Exterior/Unconditioned Space	Item	v	Sealing requirements between conditioned and unconditioned space/exterior
	Plumbing penetrations		Foam /caulk/rigid moisture resistant material if opening larger than 1 inch
	Doors		Weather-stripping and door sweep/air-tight threshold permanently attached to create an effective air seal between interior and exterior/unconditioned space
	Other unintentional opening		Sealed with appropriate material if accessible
	Electrical boxes (optional)		Seal box to drywall
	Baseboards (optional)		
	Door & window trim (optional)		
	Window weather-stripping (optional)		

2. Sealing Floor Penetrations

Air sealing shall not prohibit drainage or maintenance of plumbing system.

3. Combustion Appliance Zone Testing

- In homes with one or more non-sealed combustion appliances for the purpose of space heating or water heating, a “worst case depressurization test” shall be performed after air sealing, for all Combustion Appliance Zones (CAZ).
- A CAZ is a conditioned space or enclosed area that contains a combustion appliance for the purpose of space heating or water heating.
- A combustion appliance is any appliance that burns fuel, such as natural gas, propane, oil, or wood. This includes furnaces, boilers, water heaters, wood stoves, and fireplaces.
- CAZ testing may be omitted if a visual inspection of the combustion equipment and venting indicates that combustion gases are properly venting to outside the house and a carbon monoxide detector is installed meeting all of the requirements and recommendations of Section III.4. Carbon Monoxide Detectors.

CAZ Test Procedure

All kitchen, bathroom, and clothes dryer exhaust fans shall be turned on. If the house has a forced air heating system, its air handler fan shall be turned on its highest setting. All interior doors shall be closed if doing so makes the combustion appliance zone more negative.

CAZ Standard

Worst case depressurization with all exhaust fans running shall not de-pressurize a combustion appliance zone by more than 3 Pascals with reference to outside.

CAZ Failure

If a CAZ fails the worst case depressurization test by being depressurized by more than 3 Pascals, the homeowner must be informed in writing of any potentially hazardous condition or situation, with recommendations to remedy or mitigate the condition or situation.

MV Mechanical Ventilation

1. General Mechanical Ventilation Requirements

All homes that have any weatherization measures installed shall receive:

[*Care for Your Air: A Guide to Indoor Air Quality, EPA*](#)

2. Spot Ventilation

These requirements apply to spaces where work is being performed.

Bath & Kitchen Fans

- a) All exhaust fans shall be vented to the exterior of the structure, with ducts mechanically fastened and air-sealed to the termination or the vent.
- b) Any newly installed exhaust fan ducts must be sized according to Exhaust Fan Prescriptive Duct Sizing requirements.
- c) Exhaust ducts in unconditioned space should be insulated to a minimum of R-4.
- d) Exhaust fan ducts should not sag, and should be as straight as possible to maximize effective air flow, and have no more than two 90-degree turns, or equivalent.
- e) Vent ducts should be securely attached at each joint and to the fan housing using mechanical fasteners, such as sheet metal screws or a securely tightened metal clamp. Fasteners shall not interfere with damper operation.
- f) Vent duct should be sheet metal or HVAC flex-duct and insulated to a minimum of R-4. Vinyl coil duct should not be used.
- g) Existing vent ducts should be free of holes and kinks and are in otherwise good condition.
- h) **Kitchen Fans** Non-recirculating kitchen range exhaust fans ducts shall be vented to the exterior of the structure, with ducts mechanically fastened and air-sealed to approved metal termination. Venting kitchen fans to existing plastic ducts and plastic roof vents is not allowed
- i) Any newly installed kitchen exhaust fan ducts should be sized according to Exhaust Fan Prescriptive Duct Sizing requirements.
- j) Kitchen range exhaust fans vented through the ceiling should be connected to a duct made of 28-gauge galvanized steel, stainless steel, aluminum, or copper (IMC 505.1) which is substantially airtight throughout and which terminates directly to the outside through an approved metal termination. Backdraft dampers are recommended.

Downdraft Exhaust Fans

Downdraft exhaust ducts shall exit through the foundation or exterior wall, be sealed (with no visible gaps) to a code-approved vent cap. Unless otherwise allowed by local code, downdraft exhaust ducts shall comply with material requirements for Kitchen Fans.

Dryer Exhaust

Dryer exhaust ducts shall be vented to the exterior of the structure, sealed to prevent exhaust air from entering the building, should have a back-draft damper, and shall terminate in a code-approved vent cap.

New dryer ducts shall be rigid metal and shall be securely connected with mechanical fasteners and permanently supported. Exhaust systems shall comply with local code and manufacturer specifications, be as straight as practical, sloped downward to allow condensate drain, and shall not exceed 25 feet. To prevent blockage with lint, new dryer vent ducts shall not be connected with screws. A metal clamp or UL-rated foil tape may be used to secure dryer duct connections.

Exhaust Fan Prescriptive Duct Sizing

Use table below to size new exhaust fan ducts correctly.

Exhaust Fan Prescriptive Duct Sizing

Duct Type			HVAC Flex Duct			Smooth Hard Duct		
Fan Rating in CFM	50	80	100	125	50	80	100	125
Duct Diameter				Maximum Duct Length in Feet				
3"	not allowed	not allowed	not allowed	not allowed	5	not allowed	not allowed	not allowed
4"	70	3	not allowed	not allowed	105	35	5	not allowed
5"	unlimited	70	35	20	unlimited	135	85	55
6"	unlimited	unlimited	125	95	unlimited	unlimited	unlimited	145
7"	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited

Table adapted from ASHRAE Standard 62.2 (2010), page 6, Table 5.3.

Attachment B: Multifamily Process Overview

Multifamily Process Overview (updated 11-2012)

Introduction

This document provides a description of program requirements, and incentive application and verification processes for multifamily projects. Multifamily dwellings (defined here as 5 or more attached units with shared floors and/or walls) are eligible for most Home Energy Savings program incentives and must meet all eligibility requirements to qualify. The most commonly installed multi-family incentives include:

- Attic insulation
- Duct sealing and/or duct insulation
- Windows
- Light fixtures
- Appliances

Trade Ally Responsibilities

Trade Allies are expected to completely and accurately explain the program's incentive requirements and each step of the multi-family process to the landlord or property owner/manager. It is critical to work with the landlord or property owner/manager to complete Steps 1-3 below **prior to** performing any work to ensure: 1) the property is on a qualifying rate schedule, 2) the property's landlord account is in place and up-to-date, and 3) that all units meet program requirements to qualify for incentives.

The program is available to assist and support trade allies in communications with landlords or property owners/managers when needed. Setting up a landlord account is simple (see instructions in Step 1 below) but we recommend trade allies inform landlords or property owners/managers of this requirement early in the process and offer assistance if needed to avoid any unnecessary delays.

Please do not hesitate to contact the program with any questions about this process:

Trade Ally Hotline 1-800-942-0281

E-mail HESTradeAllyRMP@rockymountainpower.net

Step 1: Customer Information

Qualified multifamily dwellings must be located in the state of Utah, Wyoming or Idaho and purchase electricity from Rocky Mountain Power. A landlord account number and agreement must be in place for an incentive to be paid in multifamily applications. Qualified units must be on the following residential rate schedules:

- Idaho: 1 or 36
- Utah: 1, 2 or 3
- Wyoming: 2 or 18

Landlords or property owners/managers must submit the following information to the program as the first step in the pre-qualification process; trade allies may also submit this information to the program on their customer's behalf.

- Property/complex name
- Property/complex address

- Number of units in the complex
- Landlord or property owner/manager name and contact information
- Landlord account number
- A copy of the landlord account utility bill would be appreciated but is not required
- Submit this information to the program:
 - Email (*preferred submittal method*): HESTradeAllyRMP@rockymountainpower.net
 - Fax: 503-575-4336 (ATTN: Home Energy Savings program – Multi-family)
 - Mail: 100 SW Main Street, Suite 1600 Portland, OR 97204 (ATTN: Home Energy Savings program – Multi-family)

To *verify* the account or rate schedule for an existing landlord account, landlords or property owners/managers can call Rocky Mountain Power customer service at 1-888-221-7070.

To *update* an existing landlord account, landlords or property owners/managers can follow these steps:

- 1) Call Rocky Mountain Power customer service at 1-888-221-7070.
 - a. When prompted, Press 1 for Residential
 - b. Press 4 for Other Matters
 - c. Press 5 to speak with a Representative
- 2) Explain to the Rocky Mountain Power Customer Representative that you have an existing landlord account and need to add several addresses. Provide the existing account number for the property.
- 3) The Rocky Mountain Power Representative will set up a Landlord Agreement and send it to you via e-mail, fax or mail.
- 4) Upon receiving the Landlord Agreement, complete the required information and provide the list of the new address(es) you wish to add. Fax or mail the documentation back to Rocky Mountain Power, referencing the return details at the bottom of the Agreement.
- 5) A Rocky Mountain Power Representative will update the Landlord Account with the new property addresses within 24-48 business hours of receipt.

Avoid processing delays and prepare for potential security deposit trigger!

- *It is important to ensure that every applicable tenant unit account number is linked to the landlord account early in the process. Any delays in updating landlord account information will cause delays in issuing incentive checks for qualified installations.*
- *If a landlord or property owner/manager chooses to update the name on their account for purposes of incentive payment, a security deposit may be triggered.*
 - *The name on the submitted W-9 must match the name on landlord account.*
 - *If the business name on the landlord account is changed, a “new customer” security deposit may be triggered.*
 - *Please call RMP at 1-866-870-3419 Monday through Friday between 7:00 a.m. and 6:00 p.m. for more information.*

Landlords have a new online *wattsmart* tool

New on the [Rocky Mountain Power](#) website is a page about *wattsmart* for landlords. The online tool provides property owners and managers with energy saving tips and incentives to make their rental properties more energy efficient and retain tenants by making the rentals more comfortable and reducing electric bills. The new pages place all of the company programs of interest to landlords in one place, including: Landlord Link, interim billing agreements, service connects and disconnects, tips and programs on energy efficiency, special prices on compact light bulbs, and even energy-efficiency stickers to provide to tenants.

Step 2: Project and Site Information

Prior to starting any multifamily project work, the trade ally must gather preliminary information about the multifamily complex and discuss the project with the program. Now would be a good time to prompt your customer to update their landlord account to ensure all applicable units are linked; avoiding delays in processing incentive checks later. Please remember to contact the program **before** starting any work and provide the following information which is critical to the initial pre-qualification assessment to confirm the property's incentive eligibility:

- Property/complex name and site address
- Total number of buildings
- Total number of units per building
- Heating and cooling source in each unit
- Type of incentive(s)
- Additional required information for attic insulation:
 - Total estimated qualified square footage
 - Attic access location
 - Estimated pre-existing insulation depth and type
- Additional required information for duct sealing and duct insulation:
 - Location of ductwork (attic, crawl space, basement, etc.)
 - Type of ductwork (hard pipe, flex, main trunk line with take offs etc.)
 - Linear feet of existing ductwork
 - Estimated R-value of existing duct insulation

Step 3: Pre-qualification Inspection

After the program confirms that the multifamily property is on a qualified rate schedule, we will schedule a pre-qualification inspection to ensure all incentive qualifications are met. This step is necessary to determine the eligibility of the property **before** any work is started and is intended to provide some certainty for the landlord or property owner/manager to accurately budget for this investment in energy efficiency improvements.

During the on-site pre-qualification inspection the inspector will determine if the property (by building) meets the individual measure requirements. Trade allies are welcome to join the inspector for this on-site visit.

After the on-site pre-qualification inspection is completed, the program will notify the trade ally if the property is eligible for an incentive. At this time, the trade ally may proceed with performing the qualified service.

Step 4: Complete the Work

Step 5: Application Submission

Once work on the multifamily property is complete, trade allies should assist the landlord or property owner/ manager in completing the incentive application and provide them with required information and documentation including itemized invoices. It is important for trade allies to keep landlords or property owners/ managers informed and involved throughout the process.

The following must be submitted when applying for incentives:

- One incentive application for the entire multifamily property
- One itemized invoice detailing the work performed for the property
- Completed W-9 form for the person or entity receiving the incentive check
- One proof of payment for all of the work performed for the property
- A list of all tenant units where work was performed
- Insulation incentives only:
 - Summary report of work performed by unit including the following information (*the program can provide an Excel template for your convenience*):
 - Address (including unit and building number) for each unit where work was completed
 - Square footage of insulation installed
 - Insulation type
 - Pre-existing R-value and R-value added
- Duct sealing and duct insulation incentives only:
 - A completed worksheet for each unit where work was performed.
 - Blank worksheets are not available for download on the website and must be provided by the program.

Incentive applications and all required documents should be submitted **within 90 days** of the completed service to:

- Email (*preferred submittal method*): HESTradeAllyRMP@rockymountainpower.net
- Fax: 503-575-4336 (ATTN: Home Energy Savings program – Multi-family)
- Mail: 100 SW Main Street, Suite 1600 Portland, OR 97204 (ATTN: Home Energy Savings program – Multi-family)

Step 6: Post-work Inspection

After receipt of a completed incentive application the program will schedule a post-work inspection to verify all program requirements have been met.

Step 7: Incentive Payment

Before issuing an incentive, the program must verify that all tenant units where work was performed are linked to the landlord account. The program is unable to issue an incentive for a unit that is not linked to the landlord account. The program will notify the landlord or property owner/ manager of which units need to be added to their account. At this point the customer has two options for processing incentive payment:

- The program can wait until the units are added to the account before paying the whole incentive amount at once.
- The program can pay a partial incentive for the units that are on the account, and then issue payment for the remainder once the other units have been added to the landlord account.

It is the landlord or property owner/ manager's responsibility to notify the program when the outstanding units have been added to the account. A one-time reminder will be sent by the program if we do not receive an update within one month after initial notification of this issue.

For Utah only (applies to work completed on or after November 14, 2012)

- Property owners, landlords, property management companies or homeowner associations not listed on the account where qualified equipment was installed or services performed may submit a completed Third Party Payment Addendum (available at rockymountainpower.net/utforms) to receive incentive check(s) made payable to them.
- Third Party Payment Addendum and all required documentation must be submitted with the incentive application for verification.

Once the application is approved the trade ally will be notified of the status and the application will be processed. Incentive payments will be received within 45 days of application approval.

In the event the completed service was not performed according to program standards, the trade ally will be asked to return to the job and correct the issue(s) within 30 days so that the incentive can be paid.

Attachment C: Weatherization Specifications - Installation Checklist

Weatherization Specifications Installation Checklist (updated 11-2012)

General Program Requirements

- For insulation:** Home must have an electric heating system or an electric cooling system serving at least 80% of the home's conditioned floor area.
 - Electrically heated home incentives apply to houses with a permanently installed electric furnace, heat pump or electric zonal heating systems (baseboard or ceiling/wall heaters). Space heaters do not qualify.
 - Homes with an electric heating system *and* a central air conditioner only qualify for the **"Homes with electric heating system"** incentives.
 - Electrically cooled home incentives apply to houses with a permanently installed ducted electric central air conditioner and a non-electric (gas, oil or propane) heating system.
- For windows:** Home must have an electric heating system serving at least 80% of the home's conditioned floor area.
 - Homes with electric heating and cooling systems incentives** apply to houses with a permanently installed electric furnace, heat pump or electric zonal heating systems (baseboard or ceiling/wall heaters) and a permanently installed ducted electric central air conditioner.
 - Homes with electric cooling system incentives** apply to houses with a permanently installed ducted electric central air conditioner and a non-electric (gas, oil or propane) heating system.
- Incentives are only applicable for insulation installed between conditioned and unconditioned spaces.
 - Interior wall insulation installed between a kitchen and a living room does not qualify because it is installed between two conditioned spaces.
 - Wall and attic insulation in an unfinished and un-heated/cooled garage does not qualify because insulation would be installed between two unconditioned spaces (garage and outside).

Attic Insulation

Requirements

- Pre-existing insulation of R-20 or less
- Final insulation of minimum R-38
- Insulation is in continuous contact with attic surface
- Attic hatch dams installed
- Attic access doors and pull-down stairs are insulated and weather-stripped
- Available in electric heated and electric cooled homes (see definitions above)
- Incentives are only applicable for insulation installed between conditioned and unconditioned spaces
- Baffles for eave and soffit vents installed (if applicable)
- Baffles for light fixtures, fan/lights, fan/heaters, chimneys are installed
- Exhaust ventilation duct work is properly connected and vented to outside

- All accessible surfaces between conditioned and unconditioned space are insulated (ceiling, walls, skylight shaft, knee walls, etc.)
- Water pipes should be insulated – see HES program residential weatherization specification for details

Floor Insulation

Requirements:

- Pre-existing insulation of R-18 or less
- Final insulation of minimum R-30
- Access hatches are insulated and weather-stripped
- Available in electric heated homes only (see definitions above)
- Incentives are only applicable for insulation installed between conditioned and unconditioned spaces
- Incentives are not applicable for floor insulation installed in ceilings of basements
- All accessible surfaces between conditioned and unconditioned space are insulated (floor, walls, knee walls, etc.)
- If a surface separating conditioned and unconditioned space does not exist, one must be constructed to accommodate program required R-values (Example: if no wall exists between crawl space and conditioned basement, one must be constructed, sealed and insulated)
- Ground vapor barrier is installed (if applicable)
- Exhaust ventilation duct work is properly connected and vented to outside
- Water pipes should be insulated – see HES program residential weatherization specification for details
- Under-floor insulation is supported in accordance with weatherization specifications – see HES program residential weatherization specification for details

Wall Insulation

Requirements:

- Pre-existing insulation of R-10 or less
- Final insulation of minimum R-13 or fill the cavity
 - Exterior wall cavities should be completely filled
- Available in electric heated and electric cooled homes (see definitions above)
- Incentives are only applicable for insulation installed between conditioned and unconditioned spaces
- Interior walls, such as walls between rooms, do not qualify
- Spray foam insulation along rim joists does not qualify
- Access holes for installing the insulation are plugged and sealed
- Insulation is not installed in walls used as air ducts
- Insulation is not installed in contact with wall-mounted heaters

Windows

Requirements:

- Tier 1 windows: U-factor 0.30 or lower.
 - Available in homes with electric cooling system only (see requirements above).
- Tier 2 windows (R-5): U-factor 0.22 or lower.
 - Available in homes with electric cooling system or homes with electric heating and cooling systems (see requirements above).
- Best practices installation considerations have been addressed – see Section WD of HES program residential weatherization specifications for details.
- Windows are fully installed, and operable where applicable
- Installations between unconditioned spaces and outside do not qualify, such as in an unfinished/unconditioned garage.
- Replacement of windows that have previously received an incentive do not qualify.

General Weatherization Best Practices

- Vent pipe for gas or water heating equipment is connected and vented to outside
- Program compliant carbon monoxide detector installed if permanently installed heating or water heating combustion appliance is present

Attachment D: Project Diagram – Attic Insulation

Project Diagram – Attic Insulation (updated 11-2012)

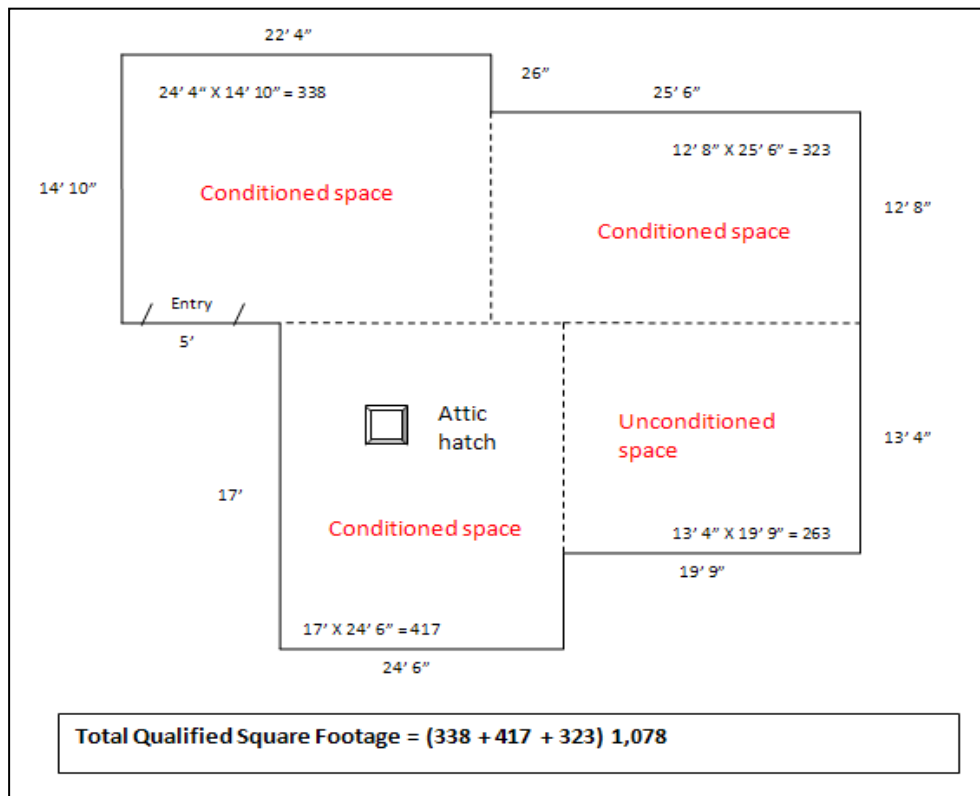
Following is an example of an attic insulation project diagram. This is intended to function as a resource to assist trade allies in calculating qualified square footage of attic insulation for incentive applications. Although this diagram is not required, the program encourages trade allies to use this resource if it is helpful.

The program will only pay incentives for insulation installed between conditioned and unconditioned spaces.

- A finished or conditioned living space has a permanently installed heating or ducted cooling system.
- Unconditioned spaces exist outside of the home's thermal boundary (e.g., garages, crawlspaces, the exterior of a home, and potentially a basement.)

Normally, basements are conditioned spaces. Basements are not usually thermally isolated from the main living area and contain space conditioning ducts. Basements are also used for storage and frequently contain laundry facilities and other living spaces.

An unconditioned basement would have these properties: Thermally isolated from the main floor by insulation in the floor. Insulated, weather-stripped door (if above floor plane) and insulated stairwell walls where thermal plane penetrates floor, air sealed (caulked, foamed penetrations) wiring plumbing, sealed duct penetrations and sealed, insulated ducts. No supply registers. Please contact the program for more information if you would like assistance in determine conditioned vs. unconditioned space.



Attachment E: Project Diagram – Windows

Project Diagram – Windows (updated 11-2012)

For window projects, an accurate drawing of the footprint of the house is required:

- Indicate the location of each window.
- Indicate the dimensions of each window.

