Mechanical Ventilation

Protocol Summary

Background Regarding ASHRAE Standards Adoption
Vermont WAP adopted ASHRAE-62.2-2013 for all federally funded WAP projects where the construction/renovation phase of the weatherization process would occur after July 1st, 2013.

The same adoption for all non-federally funded Vermont WAP projects occurred one year later—July, 1st 2014.

Weatherization Projects In Process: In any circumstance where the energy audit occurred prior to the adoption dates referenced above and the construction/renovation phase of the weatherization process was yet to be completed, the following policy was enacted:

- ✓ The energy audit and scope of work shall be updated to include any mechanical ventilation improvements necessary to ensure compliance with ASHRAE-62.2-2013.

Local Ventilation Requirements
By conclusion of each Vermont WAP project there shall be a minimum of one operational mechanical ventilation device within each building, ideally in either the primary bathroom or the kitchen. This requirement is in effect regardless of whether or not there is a determined need for whole building ventilation based on ASHRAE 62.2-2013 alternate compliance path calculations.

The minimum operational capacity for local ventilation purposes in each home is 30 cfm. This is a total of 30 cfm. Any operational exhaust fan inside a single family (site-built or mobile) home can contribute toward this total.

Ventilation capacity cannot be determined by estimating fan flow or based solely on a fans rated capacity from the manufacturer in any circumstance. Actual fan flow readings are required before and after the construction/renovation phase of the weatherization process.

If and when whole building mechanical ventilation is required according to the ASHRAE 62.2-2013 alternate compliance path, it is recommended that the same mechanical ventilation device be used to meet both local-ventilation and whole-building ventilation requirements for the WAP project rather than installing multiple devices.

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Whole Building Ventilation Requirements
Whole building ventilation requirements shall be calculated using one of two approved calculators.

1. RED Tool Calculator
   http://www.residentialenergydynamics.com/REDCalcFree/Tools/ASHRAE6222013
2. The NYSWDA produced calculator titled "VT ASHRAE 62.2-2013 Calculator ver1.19.xlsm"

   - ✓ The alternate compliance path shall be used
   - ✓ The nearest weather station shall be used
   - ✓ Actual measured fan flows shall be used

Whole building ventilation can be met with continuously operating devices or with intermittently operating devices that are programed to comply with ASHRAE 62.2-2013.

Exhaust Fans: Venting Material & Installation Specifications
By the conclusion of a WAP project all exhaust fans present in a home must be vented to the exterior of the building shell in the manner outlined below:

- ✓ Smooth wall vent pipe (PVC or metal piping) shall be used whenever possible.
- ✓ Flexible vinyl ducts shall not exist on any portion of a vent run at the conclusion of a Wx project.
- ✓ Flexible aluminum materials are only allowed if the installation of rigid materials is not possible, as a short (≤ 2 lin. ft.) takeoff from the fan to a rigid exhaust pipe, or to transition from the end of a rigid exhaust pipe to an exhaust hood.
- ✓ All seams must be sealed together in a durable fashion.
- ✓ Whenever possible a 1/8" to 1/4" pitch down toward the exhaust outlet at the exterior building shell shall be maintained to minimize the potential for condensation to form and drip back toward the exhaust fan.
- ✓ All vent piping sections located outside the thermal envelope shall be insulated. FSK faced fiberglass is a preferred material for this purpose whenever the venting materials cannot be encapsulated with loose fill insulation materials. Use of foil-faced bubble wrap materials is not allowable for this purpose.

Clothes Dryers

Protocol Summary

Clothes Dryers: Venting Material & Installation Specifications

By the conclusion of a Wx project all clothes dryers present in a structure must be vented to the exterior of the building shell in the manner outlined below:

- ✓ Smooth wall metal vent pipe shall be used whenever possible.
- ✓ PVC piping shall not exist on any portion of a vent run at the conclusion of a Wx project.
- ✓ Flexible vinyl/plastic ducts shall not exist on any portion of a vent run at the conclusion of a Wx project.
- ✓ Flexible aluminum materials are only allowed if the installation of rigid materials is not possible, as a short (≤ 2 lin. ft.) takeoff from the dryer outlet to a rigid exhaust pipe, or to transition from the end of a smooth wall metal exhaust pipe to an exhaust hood.
- ✓ Pipe sections should not be screwed together.
- ✓ Seams shall be foil-taped. This is one of the few Wx measures where use of tape is acceptable and encouraged practice.
- ✓ Whenever possible a 1/8" to 1/4" pitch down toward the exhaust outlet at the exterior building shell shall be maintained to minimize the potential for condensation to drip back toward the exhaust fan.
- ✓ All vent piping sections located outside the thermal envelope shall be insulated. FSK faced fiberglass is a preferred material for this purpose. Use of foil-faced bubble-wrap materials is not allowable for this purpose.

Mechanical Ventilation Installations in Wet or Unfinished Basements

Mechanical, exhaust-only ventilation systems shall not be installed in any wet and/or unfinished basements or crawlspaces as a remedy to bulk water intrusion or moisture problems using WAP funding.