

**SWS Variance Request Form**  
**(complete one form for each request)**

<p><b>Proposed State Standard</b></p>	<p><i>The Montana Weatherization Assistance Program Field Guide shall ensure adequate indoor air quality and occupant health by requiring Worst Case Combustion Appliance Zone (CAZ) testing in all homes containing natural draft (Category I) combustion appliances. To create consistency with the Manufactured Home CAZ test procedure, a variance is requested to exclude direct vent (Category IV, sealed combustion) appliances from the Worst Case CAZ depressurization testing protocol for single-family homes.</i></p>
<p><b>Relevant SWS(s)</b></p>	<p><i>2.0201.1d</i></p> <p><i>2.0201.1e</i></p> <p><i>2.0201.1f</i></p> <p><i>2.0201.1i</i></p>
<p><b>Objective of Relevant SWS</b></p>	<p><i>2.0201.1d: Measure pressure difference between combustion zone and the outside under natural conditions.</i></p> <p><i>2.0201.1e: Measure combined effect of mechanical system fans on combustion zone.</i></p> <p><i>2.0201.1f: Detect excessive spillage of combustion gasses</i></p> <p><i>2.0201.1i: Ensure work completed in home has not adversely affected the operation of combustion appliances</i></p>
<p><b>Difference between Proposed and SWS Language</b></p>	<p><i>SWS requires that all combustion appliances receive CAZ depressurization testing in single-family homes. We recommend excluding direct vent appliances from this provision with the following modifications: (original text is black, additions and modifications in red)</i></p> <p><i>2.0201.1d: Baseline pressure will be measured in Combustion Appliance Zone with reference to outdoors <b>where natural draft equipment is present.</b></i></p> <p><i>2.0201.1e: Depressurization test will include exhaust fans, interior door closure, or duct leakage, or a combination</i></p>

	<p><i>thereof, and will not be more negative than -3 pascals accounting for base pressure <b>where natural draft equipment is present.</b></i></p> <p><i>2.0201.1f: If a <b>natural draft</b> combustion appliance <b>has a</b> spillage that exceeds two minutes during pressure testing, specify measures to mitigate.</i></p> <p><i>2.0201.1i: At the conclusion of each work day in which envelope or duct sealing measures have been performed, depressurization and spillage testing will be performed <b>on all natural draft combustion appliances.</b></i></p>
<p><b>Specific Conditions Where Variance will Apply</b></p>	<p><i>Single family homes that do not contain natural draft (category I) appliances. This provision would not apply to power vented or fan assisted appliances – these appliances would be subject to CAZ depressurization testing.</i></p>
<p><b>Reasoning/Justification</b> <b>(Include supporting technical materials as appropriate)</b></p>	<p><i>Direct vent equipment does not suffer from the depressurization induced spillage that is common with natural draft appliances. Mandating CAZ depressurization testing for direct vent appliances offers little, if any benefit to the safety of the occupants while contributing to the cost of the job and potentially detracting from energy conservation measures.</i></p> <p><i>Allowing an exemption for direct vent appliances from CAZ depressurization testing would create continuity between the single-family and manufactured housing sections in the SWS.</i></p> <p><i>The CAZ depressurization limit for direct vent appliances is -25 pascals (2.0299.1). It is exceedingly rare for this level of depressurization to be achieved in a CAZ and would therefore offer little benefit to test.</i></p> <p><i>This modification would bring the Montana Weatherization Assistance Program Field Guide into alignment with the ANSI accredited BPI 1100 (section 7.7) and BPI 1200 (section 7.9), neither of which include direct vent appliances into the CAZ depressurization testing protocol.</i></p>

DOE Review Notes:

Required Signatures:

Marcia J. Limon  
Grantee Representative submitting request

8/27/2015  
Date

Kelly Cutchin  
DOE Technical Approval

8/31/2015  
Date