Introduction: A Guide to Using this Procedures Manual

Manual Overview

The main body of this manual contains five primary sections. Each section establishes minimum standards that must be met in order for a collection of prospective improvement measures to be classified as a weatherization project; more importantly, an allowable, cost-effective, long-lasting, safe and thorough weatherization project.

The five primary sections are…

Section 1: Top of Building
Section 2: Bottom of Building
Section 3: Sides of Building
Section 4: Non-Energy Saving Measures
Section 5: General Energy Waste Reduction Measures

Sections 1 - 3
Details the "energy-saving-framework" for comprehensive weatherization projects.

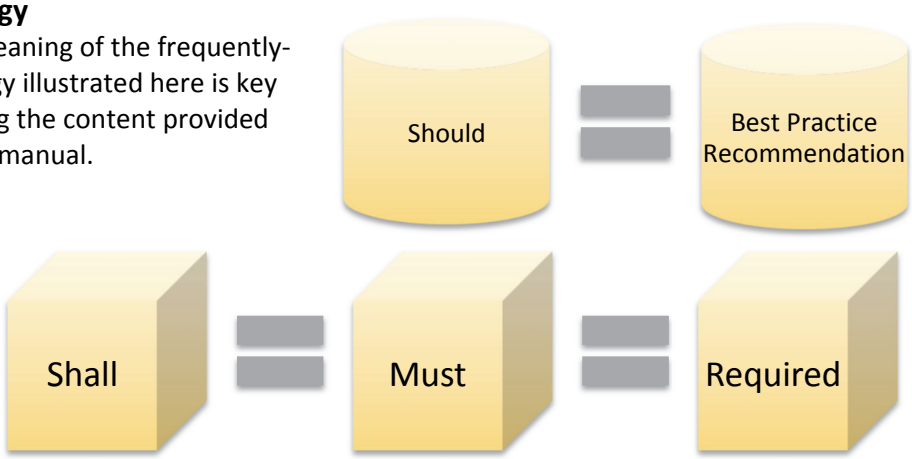
Section 4
Establishes parameters for WAP project components that do not yield directly measurable energy savings but are often needed to ensure that cost-effective, long-lasting, safe and thorough weatherization projects are accomplished. Amongst other content areas, this section covers all Health, Safety and Indoor Air Quality related issues.

Section 5
Outlines protocols for measures that save energy but present little to no expense to the weatherization program budget when installed. A majority of the improvement measures included in this category are funded by Efficiency Vermont during the course of traditional Weatherization Assistance Program projects.

Each of these sections covers allowable and non-allowable weatherization practice to varying degrees.

Key Terminology

The intended meaning of the frequently-used-terminology illustrated here is key to understanding the content provided throughout this manual.



Weatherization Works

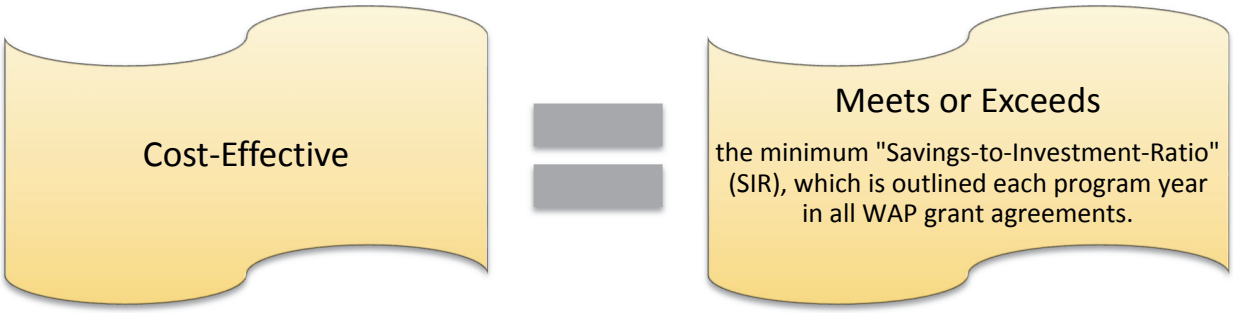
Introduction: A Guide to Using this Procedures Manual

Program Rules

The following program rules apply unless policy exceptions are outlined for specific measures in subsequent sections of this manual.

Cost-Effectiveness Screening Requirements: Energy Saving Measures

All prospective energy saving measures shall be screened for cost-effectiveness using the Hancock Energy Audit Tool (HEAT) or a comparable—State of Vermont and Department of Energy approved—energy modeling software. Installation of prospective energy saving measures utilizing WAP funding is allowable when measures are screened as cost-effective in a site specific energy model.



Cost-Effective Measures: Are They Required or Not?

Many improvement measures are required every time they are screened as cost-effective. But some measures are optional whenever they are cost-effective. Additional clarity on required versus optional improvement measures is provided throughout Sections 1-5.

- ✓ Note that "optional" improvement measures should only be included in weatherization projects when doing so will not detract from a WAP provider's ability to maintain the established maximum allowable job cost average (JCA) across a WAP program year. (This JCA is established yearly in all WAP grants.)

- ✓ Improvement measures should be prioritized for inclusion in a WAP project according to their "Savings to Investment Ratios" (SIRs), with priority given to measures with the highest SIRs. There are notable exceptions where it is allowable to bypass measures with higher SIRs in favor of those with lower SIRs. These exceptions are covered in detail on the next page.

Cost-Effectiveness Screening Requirements: Weatherization Projects as a Whole

There is a duality to the cost-effectiveness screening requirements for weatherization projects. Yes, individual energy saving improvement measures need to be screened for cost-effectiveness. But a significant portion of the prospective improvements for many WAP projects are classified as Non-Energy Saving Measures. When delivery of a cost-effective, long-lasting, safe and thorough weatherization project requires multiple Non-Energy Saving Measures there may be a point where the project as a whole is no longer cost-effective. In some cases, projects that are not cost-effective have to be deferred and/or referred to other porgrams. Section 4 outlines specifics decision making parameters regarding Non-Energy Saving Measures, project-level screening requirements and WAP deferral protocols.

Introduction: A Guide to Using this Procedures Manual

Prioritizing Measures in Order of Descending SIRs

Prospective energy conservation measures should be prioritized in order of descending SIRs whenever possible. However, it is necessary to make occasional exceptions when vetting building shell improvement measures in relation to filtration reduction projections for some projects. These exceptions revolve around a perceived shortcoming of most commercially available asset/parameter based energy modeling software programs approved for DOE/WAP use wherein filtration reduction is viewed as one large stand-alone energy conservation measure.

Large contributions toward the filtration reductions accomplished in weatherization work are attributable to building surface improvements. The measures being performed that substantially reduce filtration through building surfaces are often being modeled exclusively as insulation improvement measures that only impact the overall R-value of the surfaces and without consideration given to their impact toward overall filtration reductions.

Common and notable insulation improvement measures that have a large impact in reducing filtration in our housing stock are:

- Densepacking closed cavity building surfaces (ceilings/walls/rimjoist between above grade stories, and floor systems)
- Applying spray foam insulation (boxsill/bandjoist areas)

The table below provides an example of a common scenario where pursuing measures out of a rigid order of SIRs is acceptable: This is based from a cape style home w/ full basement (poured concrete foundation walls).

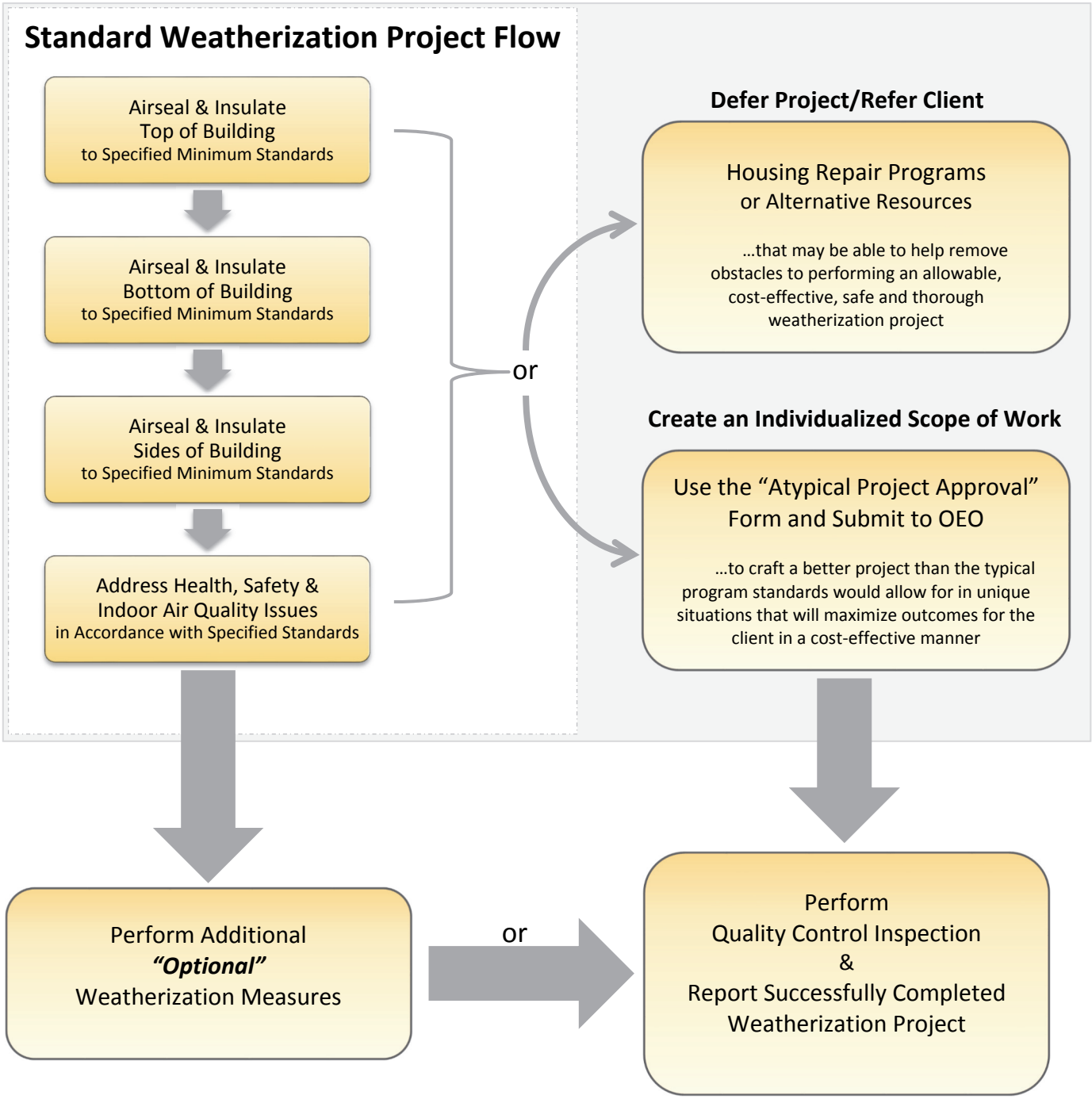
Prospective ECM's to include in project	Measure SIR
Infiltration Reduction	14.0
Insulate Walls w/ Densepacked Cellulose	3.1
Insulate Slanted Ceilings w/ Densepacked Cellulose	2.6
Insulate Boxsill w/ spray foam insulation	1.7
Insulate Foundation w/ rigid foam board	2.8

In a case like this, if the most plausible way to actualize the infiltration reduction projected at an SIR of 14.0 was to include the slanted ceilings and boxsill insulation improvement measures—and the foundation insulation improvement was unlikely to contribute a meaningful hand toward the infiltration reduction—then our program's position is that it would be permissible to exclude the foundation insulation in favor of the slanted ceilings and box sill improvement measures.

Introduction: A Guide to Using this Procedures Manual

Weatherization Standards: Typical Project Expectations Flow Chart

The graphic below illustrates the framework and flow of a typical weatherization project. More detail is provided on the first three pages of this introductory section and throughout this manual.



Introduction: A Guide to Using this Procedures Manual

Balanced Program Strategy: A note about intent

Well trained and skilled people are and will continue to be the foundation of weatherization program success. Thorough evaluation and diagnostic testing is critical to every job. Deciding what actionable steps to take in any given case with thoughtful consideration of all available information is equally important.

The intent of this manual is to outline clarity in expectations in hopes that a clearly painted picture of ends-goals inspires creative solutions and innovations from the field that enable those goals to be met a majority of the time.

The intent of the policies and procedures outlined within this manual is not to disempower field staff, stunt creative problem solving or sentence anyone working in the weatherization network to a robotic professional existence.

In cases where the end-goals as defined in this procedures manual do not make good sense for an individual client or project we challenge and encourage the individuals that make our program strong to identify a better way. Please outline an individualized scope of work and submit the plan for review to the OEO office. A plan that is well grounded in building science principles, suits a clients needs and presents as an impactful investment will be viewed favorably.

Continuos programmatic improvement and maximized impact of our work is a vision that can come to fruition if we all work toward it together. If you are working through a challenging project and think you've identified a better way to solve the puzzle, please pursue it, we at the OEO office will gladly work with you to ensure your innovations are crafted in a manner that is able to meet program obligations. Thanks to everyone in the weatherization network for the thoughtful decisions and heavy lifting being performed daily.