3.2.2. Energy Efficiency

Evolving Understanding of Energy Efficiency and Sustainability

Our understanding about the impacts of energy-efficiency features and sustainability measures is constantly evolving. When making alterations to promote energy efficiency and sustainability, keep the underlying philosophy of the *Secretary of the Interior's Guidelines for Sustainability* in mind. (See https://www.nps.gov/tps/standards/rehabilitation/sustainability-guidelines.pdf.) Especially consider the breathability of historic building fabric, as well as potential unintended consequences of sealing buildings so tightly that moisture is trapped.

Insulation is one important element with substantial energy-savings potential – but with it comes substantial potential for trapping moisture. Prioritize blown-in attic insulation and crawl-space batting before making changes that impact historic fabric – provided that moisture retention is considered.

Maintenance

(a) Preserve and maintain the energy-saving features of the original structure, such as eaves, operable windows, screens, and screen doors for ventilation (SOI Standards 2, 5, 6).

High Priority	Medium Priority	Low Priority
Required	Required if visible from the ROW	Recommended

(b) Retain original operable windows, shutters, awnings, canopies, transoms and porches, which allow for natural climate control (SOI Standards 2, 5).

High Priority	Medium Priority	Low Priority
Required	Required if visible from the ROW	Recommended

Alterations

(c) Install weatherization in a way that avoids altering or damaging character-defining features and finishes (SOI Standards 7, 10).

High Priority	Medium Priority	Low Priority
Required	Required if visible from the ROW	Recommended

(d) Allow and promote installation of compatible energy-efficiency mechanical systems, provided that they do not damage character-defining historic features (SOI Standards 7, 10).

High Priority	Medium Priority	Low Priority
Required	Required if visible from the ROW	Recommended

The Role of an Energy Audit

Consider a professional energy audit to identify energy-efficiency improvements that will not compromise the historic character of the structure.

(e) Use reversible features like insulated window coverings to enhance energy efficiency (SOI Standard 10).

High Priority	Medium Priority	Low Priority
Recommended	Recommended	Recommended

(f) Consider adding awnings to enhance energy efficiency, provided that attachments are reversible (SOI Standard 10).

High Priority	Medium Priority	Low Priority
Recommended only if historically present	Recommended	Recommended

(g) In some instances, consider installing new passive cooling features like operable windows, storm windows and doors, and awnings to enhance energy efficiency.

High Priority	Medium Priority	Low Priority
Inappropriate	Appropriate	Appropriate

(h) When adding storm windows and doors, match the configuration, profile, dimension, and finish of the historic windows (SOI Standard 6).

High Priority	Medium Priority	Low Priority
Inappropriate	Required if visible from the ROW	Recommended

(i) Install draft stoppers in a chimney, if possible; open chimney dampeners can increase energy costs by up to 30 percent.

High Priority	Medium Priority	Low Priority
Recommended	Recommended	Recommended

Building Code Guidance for Energy Efficiency

For additional guidance, refer to the City of Fredericksburg's building code (currently the 2015 International Building Code). Updates to the building code will be noted at https://www.fbgtx.org/88/Building.

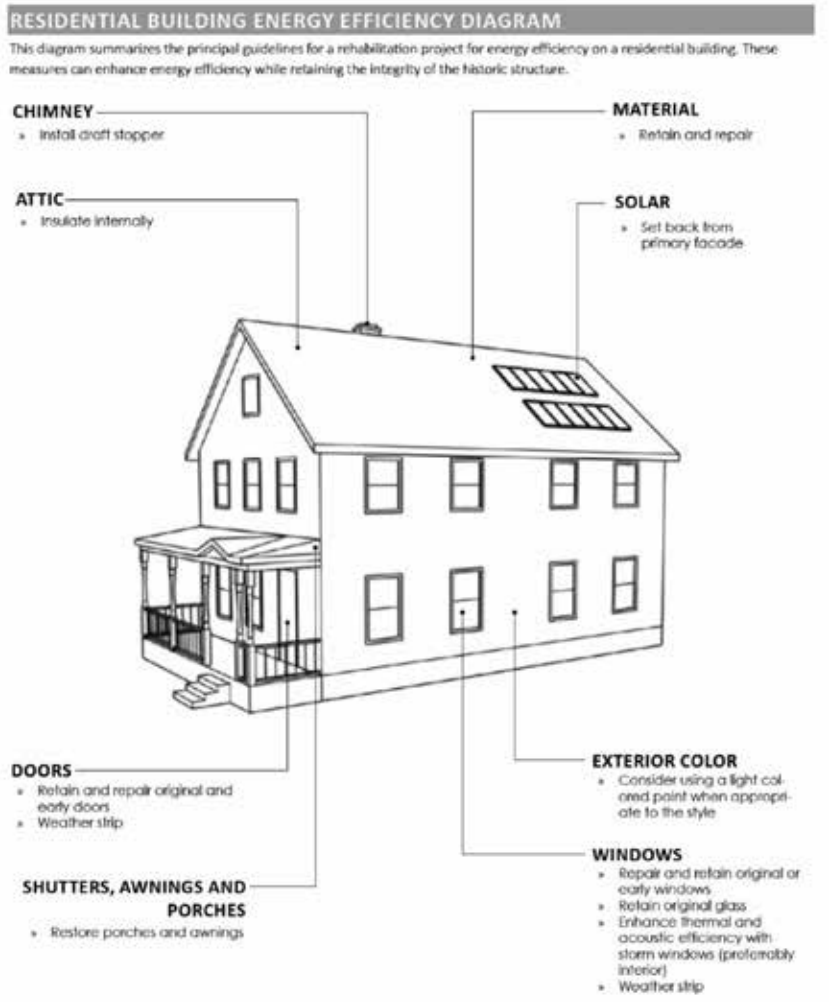

Figure 3-3. Diagram of **appropriate** residential energy-efficiency measures. Source: Winter & Company archives.

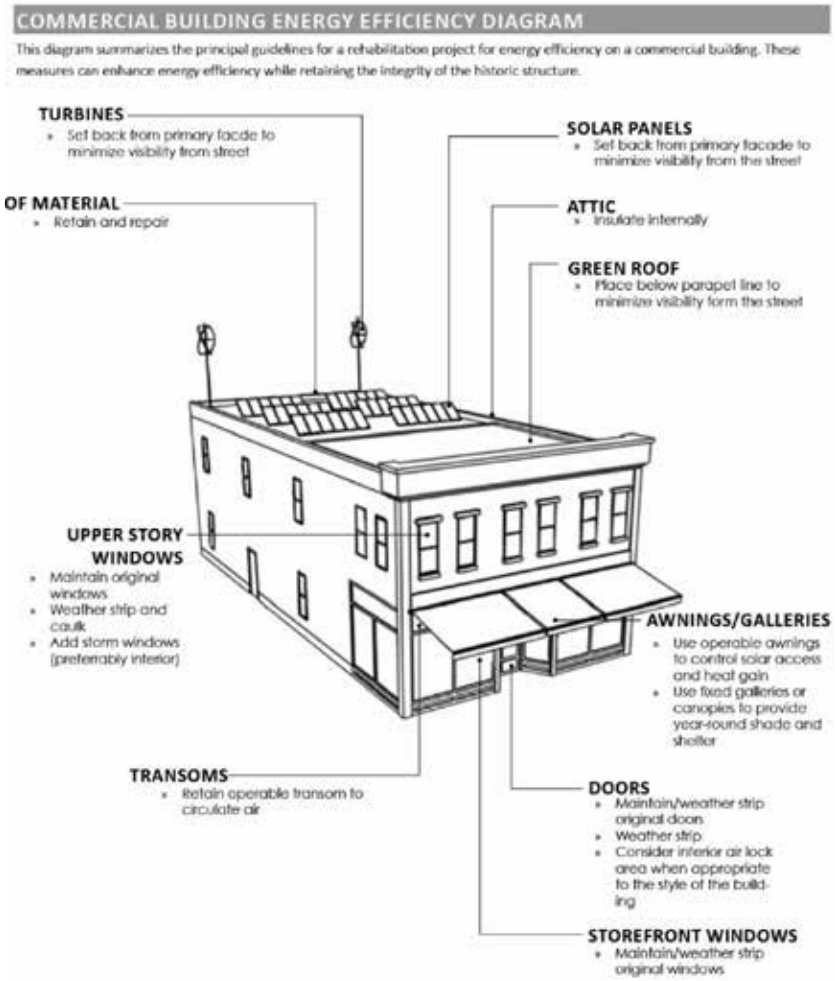

Figure 3-4. Diagram of **appropriate** commercial energy-efficiency measures. Source: Winter & Company archives.