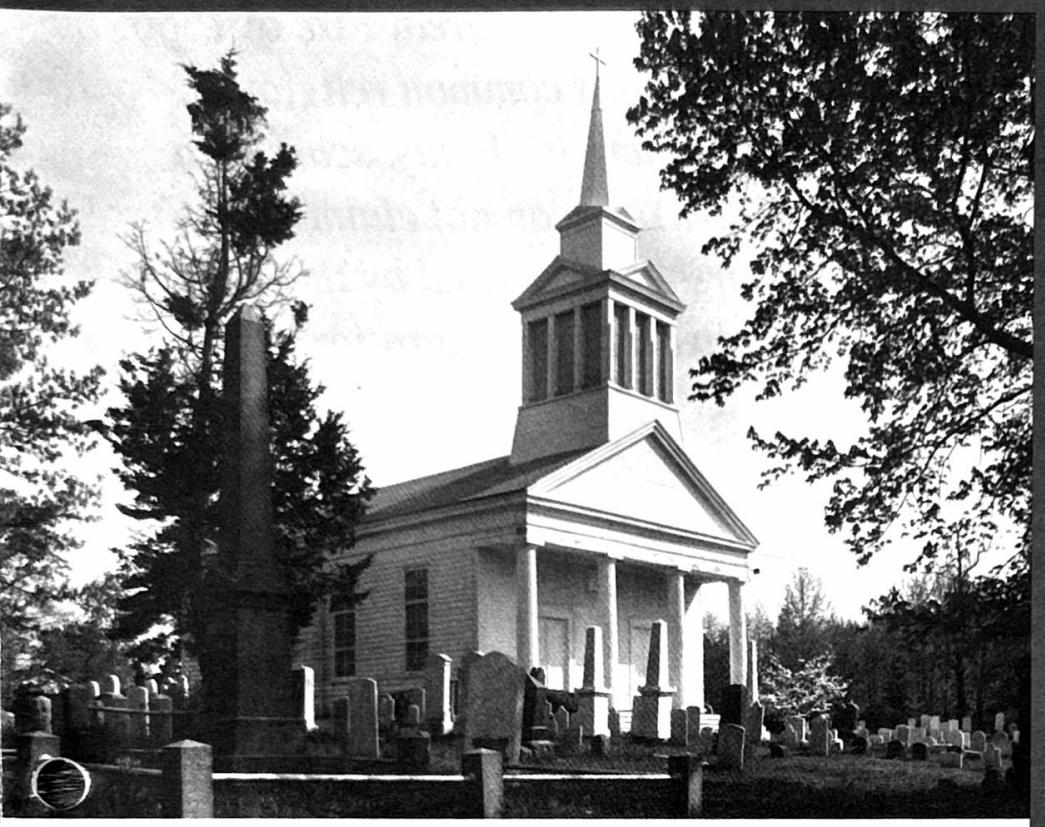
New York Landmarks Conservancy

Common Bond



Erected in 1842, the Woodrow United Methodist Church on Staten Island was originally designed as a simple Greek Revival style temple-form church. It achieved its present configuration with the addition of the belfry in the late nineteenth century. *Charles H. Henkels, AIA*

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The newsletter of the Sacred Sites Program on maintenance and preservation for caretakers of architecturally significant religious buildings.

Dear Reader:

American religious buildings, like American culture generally, are astonishing for their variety. This variety reflects the various religious, cultural, and architectural traditions native to this country as well as those brought by various settlers and immigrants beginning in the seventeenth century and continuing to this day. Beginning with this issue, *Common Bond* will examine various types of American religious buildings. In this issue we will examine the "Wren-Gibbs" church in America. Brought to this continent by English settlers in the early eighteenth century, this style of building is familiar to most people as the prototypical colonial church. However, its history is as rich and complex as the various artistic, political, and religious influences felt in the American colonies during the colonial and early republic periods. We believe this to be a fitting introduction to this subject.

The Technical Feature examines various low-cost and no-cost energy conservation measures you can take to lower your energy bills and manage your building operations more effectively. We also examine the value of such commonly touted energy conservation measures as insulation and secondary glazing on stained glass windows as they apply to religious buildings.

Ask the Technical Preservation Services Center takes a look at various de-icing agents and examines their pros and cons.

The Rev. Thomas F. Pike
Chair, Advisory Committee

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Technical Preservation Services

Using a shovel may be the safest way to remove snow and ice from stoops and sidewalks without damaging masonry, but it's not always the most practical.

Salt-based de-icing products can provide a welcome head start to the task of clearing snow and ice, but use them with caution. They can damage masonry surfaces and harm surrounding vegetation if applied improperly or too frequently.

Deterioration of Masonry

These products, containing calcium chloride, potassium chloride, and sodium chloride, are made to melt snow and ice and are sold under a variety of brand names. Be careful, however, when using any of these products. Repeated and inappropriate applications can promote a slow but harmful process: the scaling and flaking of masonry surfaces. This action, called "salt fretting," is often found where the base of the building meets the sidewalk. Continued use of de-icing products on deteriorated masonry can cause severe fretting and the loss of large pieces of masonry from a building, stoop, or sidewalk.

Ken M. Lustbader

The repeated and inappropriate application of many de-icing products can lead to masonry damage. In this photo, the lighter patches are the result of the deterioration of the masonry's surface.

De-icing products work by creating a chemical reaction that produces heat to melt snow and ice. The melted snow and ice, along with the dissolved salts, are drawn into the pores and fissures of a building by a process called "rising damp." Once inside the pores of a wall, the water evaporates, leaving the salts behind which then solidify. In their solid-crystalline form these salts are physically much larger than in their liquid form. It is their increased size that places stress on the masonry, leading to fretting, surface spalling, exfoliation, and even the loss of large chunks of masonry.

The repair of masonry damaged by de-icing products can be expensive, consisting of the application of a solution designed to harden damaged areas or the complete replacement of a masonry unit.

Helpful Hints

Use of a de-icing product requires more than spreading it around. Knowing the age of a sidewalk and the product's ingredients are important to prevent damage. Before buying a de-icing product, consider the following:

- Concrete sidewalks should be over one year in age, otherwise they can be severely damaged by any de-icing product.
- Products containing ammonium nitrate and ammonium sulfate should never be used since these will break down even the most durable masonry materials.
- Applying de-icers near areas of vegetation can potentially harm plant life.
- To provide traction underfoot, use sand, cat litter, or sawdust. These products will not, however, melt snow or ice.

Here are several suggestions to help speed melting and minimize damage to masonry when using a de-icing product:

- Follow the manufacturer's instructions for use and safety.
- Before applying the product, shovel and remove as much snow and ice as possible.
- Apply the product sparingly in the area of highest foot traffic.
- Apply the product away from the base of the building and edges of stoops.
- Assist the melting process by shoveling snow, ice, and slush away from the building and stoops.
- In the spring, wash down sidewalks, stoops, building bases, and areas near vegetation to help disperse the residue of the product.

Available De-icing Products

Since all de-icing products can potentially damage masonry and harm vegetation, use a product that works fast at lower temperatures and requires the least amount of material per application. Generally, these tend to be the calcium chloride-based products rather than sodium chloride-based products, commonly known as "rock salt."

Calcium Chloride: Calcium chloride-based de-icers are effective to 25°F below zero and are faster acting than sodium chloride and potassium chloride. These products are often sold in white pellet form, which are preferred over flakes, as they are less apt to be blown away. The recommended application rate is two to four ounces per square yard. Calcium chloride is moderately priced and can potentially harm vegetation and corrode metal.

Potassium Chloride: De-icing agents which contain potassium chloride, sold in pellet form, are not effective at temperatures below 25°F. They work at slower speeds than sodium and calcium chloride. The recommended application rate is eight ounces per square yard. Potassium chloride is expensive and can potentially harm vegetation but will not corrode metal.

Sodium Chloride: Often referred to as "rock salt," sodium chloride-based de-icers are not effective at temperatures below 20°F and work more slowly than calcium chloride. The recommended application rate is eight ounces per square yard. Sodium chloride is inexpensive and can potentially harm vegetation and corrode metal.

Other Options: Urea, used primarily as a fertilizer, is commercially available as a de-icing product. Sold in white pellet form, urea does not chemically attack masonry, metal, or vegetation; however, it is not effective at temperatures below 25°F and is not as readily available as salt-based de-icing products.

Additional Information

For additional information regarding de-icing products, contact the Landmarks Conservancy's Technical Preservation Services Center at (212) 995-5260.