Volume 5 Number 4 Fall 1989

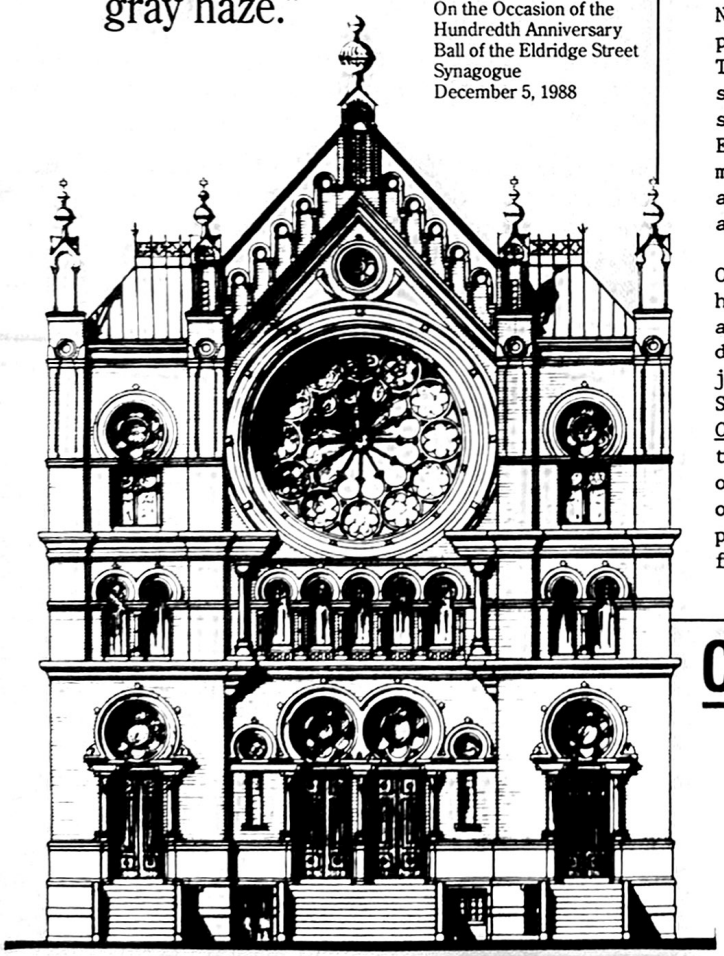
Common Bond

A newsletter on maintenance and preservation for owners of architecturally significant religious buildings

Preservation Profile

Go to the Eldridge Street Synagogue, as I did last week, and you will see that Thomas Carlyle was right when he said that "the past is a (living) world and not a void of gray haze."

Remarks by Bill Moyers
On the Occasion of the
Hundredth Anniversary
Ball of the Eldridge Street
Synagogue
December 5, 1988



For over one hundred years the Eldridge Street Synagogue has stood among the tenements of Manhattan's Lower East Side. Constructed in 1886-87 for Congregation Khal Adas Jeshurun, the building was described by the press at its opening as "the East Side's most prominent and magnificent synagogue." In its early years, the Eldridge Street Synagogue was one of the premier Orthodox congregations in New York City, with a membership of over 4,000. Despite these auspicious beginnings, the congregation's membership declined drastically during the 1920s and 1930s, a result of restrictive immigration laws and the exodus of Eastern European Jews from the Lower East Side to more desirable parts of the city. By the mid-1930s, the remaining congregation had moved into the bes medresh (house of study) in the synagogue's basement (where worship has been conducted ever since), and the magnificent sanctuary was abandoned.

After years of weathering, vandalism and neglect, the building was "rediscovered" in the 1970s by New York City's religious, architectural and preservation communities. In 1979, the Friends of The Eldridge Street Synagogue was formed and successfully raised the funds necessary to stabilize the building. Shortly thereafter, the Eldridge Street Project was created in order to manage the full restoration of the building as an active synagogue and as a museum of Jewish history and culture in America.

On December 5, 1988, at a ball commemorating the hundredth anniversary (actually the hundred first anniversary, by then) of the synagogue's dedication, Bill Moyers delivered a speech justifying the preservation of the Eldridge Street Synagogue. So compelling were his remarks that Common Bond sought Mr. Moyers' permission to print them. Common Bond believes that Mr. Moyers' observations could be just as valid for countless other congregations who are grappling with preservation efforts and seeking community support for such endeavors. --- Editor's Note

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A refusal to remember. Abraham Lincoln would have been appalled by it. He knew the power of memory to shape the continuity and character of a people. In his first inaugural address, Lincoln talked about the "mystic cords of memory which stretched from every battlefield and every patriot grave to every living heart and hearthstone all over this broad land." Those words define something especially human, a power of transmitting experience from one generation to another down through the corridors of time. They connect us emotionally and spiritually to the human being who came before and who will follow.

I believe that in every one of you tonight live the genes of your grandfather and your grandmother and your great-grandfather and your great-grandmother, and I believe that you will find in the Eldridge Street Synagogue the living presence of a past that connects you as much to the history of your faith as the genes in your body connect you to the forebears who lived and died for you and for us, living memories just as powerful tonight as the very air we breathe. History becomes a continuing conversation between past and present and the question is whether we listen.

So we must preserve that synagogue for the sake of beauty itself. Every particular ornament in its glorious architecture makes this city a little better for being there but it is that spirit which animates beyond the power of a building to speak that carries on this conversation between the past and today.

Bertolt Brecht said it this way:

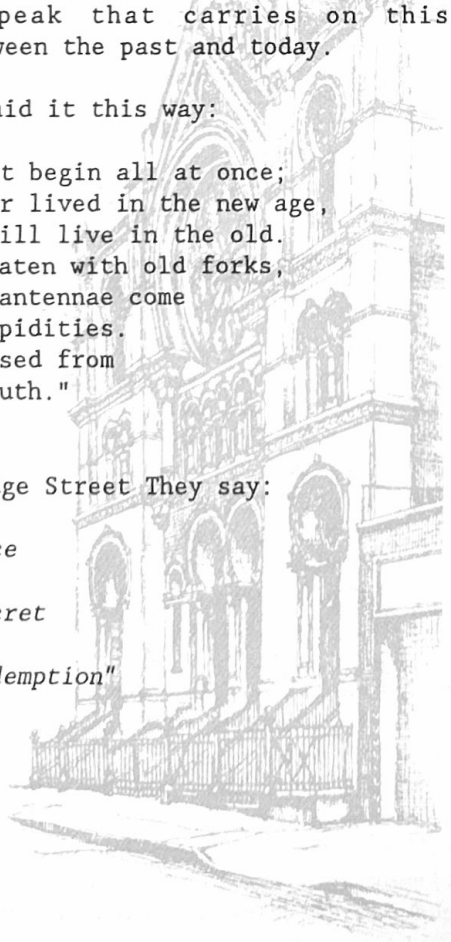
"New ages don't begin all at once;
My grandfather lived in the new age,
My grandson will live in the old.
New meat is eaten with old forks,
From the new antennae come
the old stupidities.
Wisdom is passed from
mouth to mouth."

Do stones speak?
They do on Eldridge Street They say:

"In remembrance

is the secret

of redemption"



Ask the Technical Preservation Services Center

Question:

The contractor who repaired our church roof did not re-install the snow guards. Should they be re-installed?

Mr. John Sowarby, Restoration Coordinator
St. John the Baptist R. C. Church
Poughkeepsie, New York

Credit: Neal A. Vogel

Photo 1: St. John the Baptist R. C. Church

Answer:

Snow guards are used to help control the accumulation of snow and ice on roofs. Free-falling snow and ice poses a threat to pedestrians, vehicles and the building itself. A pitched roof sheds light powdery snow efficiently and with minimum danger to pedestrians, but heavy wet snow accumulates on even the most steeply-pitched roof, especially in valleys and along roof intersections. This phenomenon is especially true for religious buildings which often have complicated, steeply-pitched roofs with many intersecting elements, such as steeples, transepts and skylights. Snow guards do not stop snow or ice from falling. Their presence, however, breaks up large masses of snow and ice into manageable pieces that are less hazardous to pedestrians and secondary (lower) roofs. Snow guards also help keep accumulated snow away from uninsulated overhangs and gutters. In doing so, their presence helps prevent ice dams, which can damage a building's drainage system, from forming.

Unfortunately, snow guards are often removed when historic roofing materials are replaced. Replacing roofing materials does not eliminate the danger of falling ice and the need for snow guards. As a general rule, snow guards should be retained or replaced (in kind) when roofing materials are replaced.

SNOW AND ICE SLIDES

The most important factor to consider when evaluating the need for snow guards is the potential threat that snow and ice slides pose to the safety of pedestrians. If there is pedestrian or vehicle traffic parallel to the pitched roof slope, snow guards are essential. Ice sliding from the roof ridge can pick up considerable speed as it falls, and may land a significant distance away from the building. A high roof with a moderate to steep pitch can shed ice and snow fifteen feet or more from the base of the building. When evaluating the potential threat to pedestrians, consider the trajectory for ice depending on the height and pitch of the roof (Figure 1). While the probability of an accident may be remote, liability concerns are usually worth the relatively low cost for installing or restoring snow guards. Installation costs vary from $1,500 - $2,500 for a small job and up to the $4,000 range for larger roofs. Roof characteristics, the type of snow guards and the materials used as well as regional construction costs also affect installation costs.

Another factor to consider when analyzing the need for snow guards is the presence of a secondary roof below the main roof (Figure 1). Snow and ice slides can damage secondary roofs, especially if the secondary roof is not designed to shed snow and ice efficiently. The type of materials employed on the secondary roof is the most critical factor to evaluate. Slate and clay tile are susceptible to mechanical shock and can therefore be fractured by falling chunks of ice. Secondary metal roofs are vulnerable to dents, tears and scrapes, which break down protective coatings that prevent corrosion. The shock of repeated impact from heavy, wet snow or chunks of ice will accelerate the deterioration of these roofing materials.

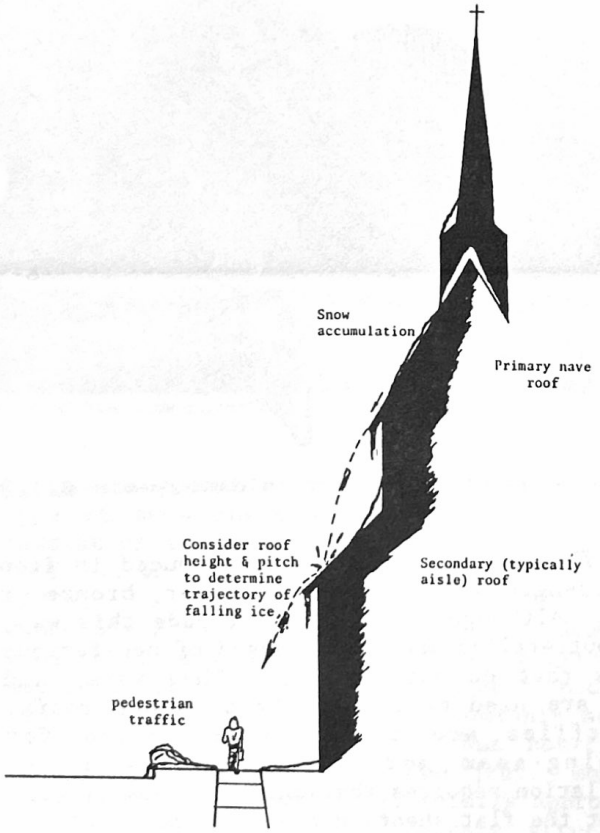


Figure 1. Snow guards prevent damage to secondary roofs, and injury to passing pedestrians.
Credit: Neal A. Vogel

ICE DAMS

The other reason for installing snow guards is to prevent ice dams from forming (Figure 2). An ice dams is a mass of ice that forms at the edge of a roof, blocks gutters and inhibits the drainage of water from the roof surface. The usual winter weather patterns and related characteristic freeze-thaw cycles found in the northeast and upper midwest promote the formation of ice dams. On a typical winter day the temperature will often rise above freezing, especially around roof areas of the building exposed to the sun. Later in the day, as the temperature drops, melting snow re-freezes in gutters and ice dams begin to form. Many historic religious buildings are constructed in a way that also promotes the formation of ice dams. Older churches and synagogues tend to have lofty interior spaces, many of which are open to the roof, without any intervening ceiling. Where interior ceilings exist, they often are not insulated. During the day the building interior is warmed either by the heating system or by sunlight, which enters the building through tall, uninsulated windows. The heat collected inside warms the snow accumulated

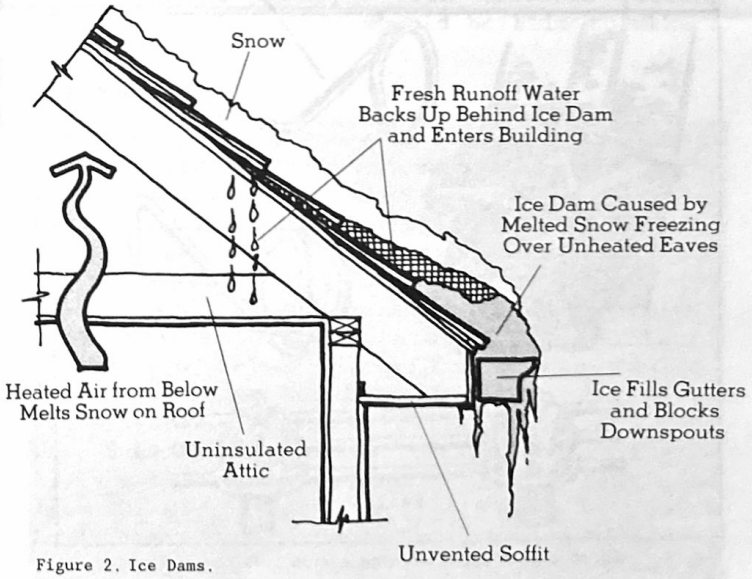


Figure 2. Ice Dams.

Credit: Robert D. Loversridge, Jr.

on the roof above and the melting snow begins to slide off the roof. When the melting snow reaches portions of the roof that extend beyond the heated interior (the roof overhang and gutters) it re-freezes, fills gutters, clogs downspouts and creates dams that inhibit proper drainage. Fresh run-off water can continue to back up behind the ice dam and eventually could enter the building.

Snow guards help pace or control the flow of run-off water by holding dislodged, though still unmelted, snow back from the unheated portions of the roof, allowing the run-off water to drain freely into unclogged gutters and downspouts before it has an opportunity to re-freeze. If ice dams do occur, the presence of snow guards will prevent the accumulated snow pack from sliding off the roof as one mass.

Insulating the attic or ceiling and improving attic ventilation will help prevent the warm air in the building interior from thawing the snow on the roof. Cleaning gutters in the fall will also help delay the formation of ice dams at the eaves.

TYPES OF SNOW GUARDS

Three types of snow guards, sometimes historically called "snow brakes," are widely used: butterflies, wires and rails. Of the three, butterflies and rails are most commonly used today. Butterflies and wires prevent slides from occurring by inhibiting large continuous sheets of snow and ice from forming on the roof. In doing so, these types of snow guards minimize the size of snow and ice chunks that accumulate and pitch off a roof. Rails, on the other hand, break up or interrupt sliding snow before it pitches off the roof. They are especially effective in areas prone to heavy wet snow. Because rails keep snow away from the eaves and gutters, they are the most effective type of snow guard for preventing the formation of ice dams. The type of snow guard appropriate for a particular situation depends on the roofing material, the roof configuration, annual snowfall characteristics, and the installer's preference. (NOTE: When metal snowguards are used on metal roofs, their metallic coatings must be compatible with the roofing material in order to prevent galvanic corrosion.)

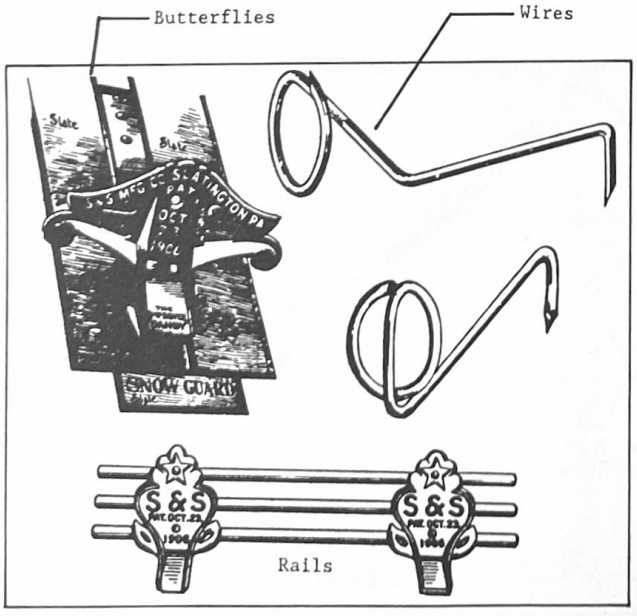


Figure 3. Three common types of snow guards from the early 20th century.

Butterflies, also known as "snow irons," have been manufactured since the late 19th century (Figures 3 & 4). *Butterflies are solid pieces* of decorative metal which appear as tabs projecting 2"+ above the roof surface. They are positioned in a set pattern extending from just above the eaves to midway between the eaves and ridge of the roof. Butterflies do not detract from the appearance of the roofing materials. In fact, the rhythm produced by staggered spacing and the ornamental shape of the heads often creates a decorative effect. Butterflies are most effective in preventing large sheets of ice and snow from forming when they are installed in several staggered rows.

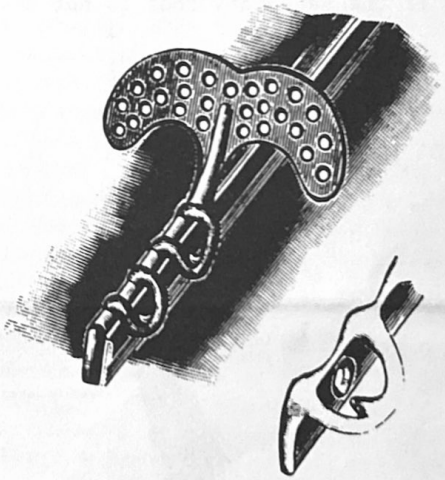


Figure 4. "Butterfly" type snow guards for standing-seam metal roofs.

Butterflies were traditionally produced in iron for strength and plated with copper, bronze or brass. Although some are still made this way, most butterflies are now composed of non-ferrous metals that do not corrode. They were, and still are used most commonly on slate roofs. Butterflies are also a good choice for standing-seam metal roofs since their installation requires that only the seam itself, and not the flat sheet on the roof, be punctured (Figure 4).

There are three methods of attaching butterflies to slate roofs: nailing bars, slotted bars, and clips. In new installations, nailing bars are preferable because they are nailed directly into the decking rather than attached to fasteners which hold the slate to the decking. However, when replacing snow guards under existing slate, slotted bars or clips should be used since less slate is disturbed. Because slotted bars hook on the nails that hold the slate in place, they may eventually loosen the fasteners. Therefore, clips are recommended for re-installations because they can be installed without removing slate and because they distribute the vibration of sliding ice evenly over the fasteners.

Wire snow guards, which stand upright on the roof, consist of twisted heavy-guage metal and resemble the tail of a pig (Figure 3). They typically are made of copper, and usually are employed on slate roofs (Photo 2). The wires hook over the lip of the slate and are nailed into the underlying decking. However, thousands of wires are required to be effective. Wire snow guards may produce unattractive stains on slate, especially when galvanized iron, which eventually corrodes, is used. Wires work in the same way as butterflies but are not as durable as either butterflies or rails.

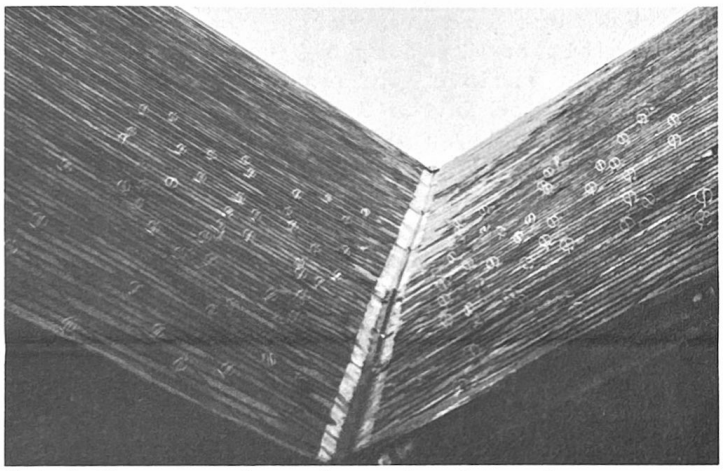
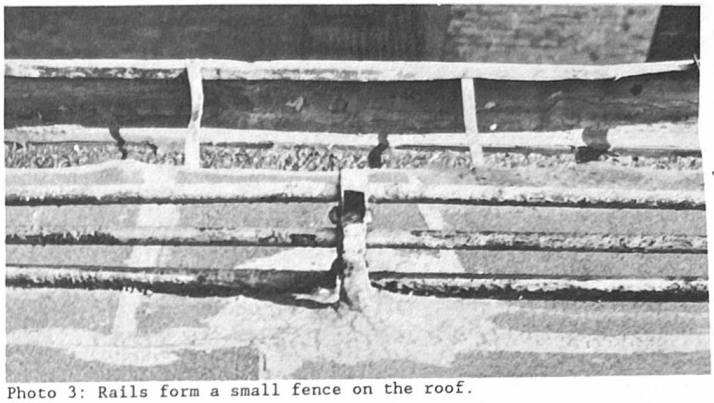


Photo 2: Wire snow guards are often used on slate roofs.

Rails are probably the oldest and most common type of snow guard in use (Figure 3). They consist of a series of brackets, attached to the roof, on which several continuous rods or bars, 1/2"-1" in diameter, are laid to form a small fence 6"-12" off the roof (Photo 3). Some bars from the late 19th and early 20th centuries were square in cross section but twisted to produce a spiralled affect. They were commonly made of painted or galvanized iron, but non-ferrous metals were used on first-class jobs. Wood was used occasionally and is especially appropriate on 18th and early 19th century structures. Today, aluminum is commonly used for snow guards that are not visible. Although cheaper than other metals, aluminum is not as strong and, consequently, is more readily damaged by heavy ice slides. Galvanized steel snow guards should be used because of their aesthetic compatibility with historic roofing materials and proven durability. The installation of rails will necessitate the removal of several slates in order to attach the brackets. Fortunately, because rails are only installed immediately above the eaves, climbing on the roof for the installation is minimized.



Credit: Neal A. Vogel

Photo 3: Rails form a small fence on the roof.

CONCLUSION

If historic documents or physical evidence reveal that the roof of a religious building originally had snow guards, new snow guards should be installed. The new snow guards should be of a type historically found on the building, or on other buildings of similar style and period in the region. It is preferable to replace them with new ones whose materials are similar to the originals. If there is any question as to whether snow guards are needed, a qualified restoration architect, preservationist or contractor familiar with historic roofing materials and methods should be able to make a determination.

The answer to this question was prepared by Neal A. Vogel, who is a Technical Assistant with the Conservancy's Technical Preservation Services Center. Additional information, assistance and product literature were provided by: Todd Smith, Rogers Roofing Company, Inc., Montclair, New Jersey; Berger Building Products Corp., Feasterville, Pennsylvania; Steve Williams, Rising and Nelson Slate Co., West Pawlet, Vermont; Sieger Manufacturing Co., Leesport, Pennsylvania; and Mike Mullane, M.J. Mullane Co., Hudson, Maine. The illustration in Figure 2, by Robert D. Loversridge, Jr., is reprinted from the Old-Building Owner's Manual by Judith L. Kitchen, Ohio Historic Preservation Office of the Ohio Historical Society, with permission. ■