STORM WINDOWS: A REPORT FROM THE FIELD

Windows are key architectural features of the facade of an historic building, so their maintenance and preservation are essential to the integrity of the appearance of the entire exterior. However, few window contractors, architects, owners, and preservationists, are aware of all the preservation and renovation options available; particularly when it comes to storm windows and secondary glazing. Here are some words of advice from one of the most experienced contractors in the field.

by Michael Carey

The last time we covered storm windows (*Traditional Building*, July/August 1998), we concentrated on the technical, offering a guide specification for high-performance storm windows. So this time around we looked at them with an eye to the practical aspects of field installation and design options. We spoke to David L. Martin, President of Allied Window, Inc., a manufacturer of "invisible" custom aluminum storm windows for historic and other renovation projects on commercial and residential buildings.

Mr. Martin has earlier sent us a portfolio of jobs completed by Allied. Virtually all non-residential building types, and a great number of historic styles, were represented. Mr. Martin has many years of experience in the field, and knows the practical aspects of specifying, designing, constructing, and installing storm windows in this wide range of applications.

Storm window dos and don'ts

So what are some of the most important dos and don'ts when specifying non-residential secondary glazing?

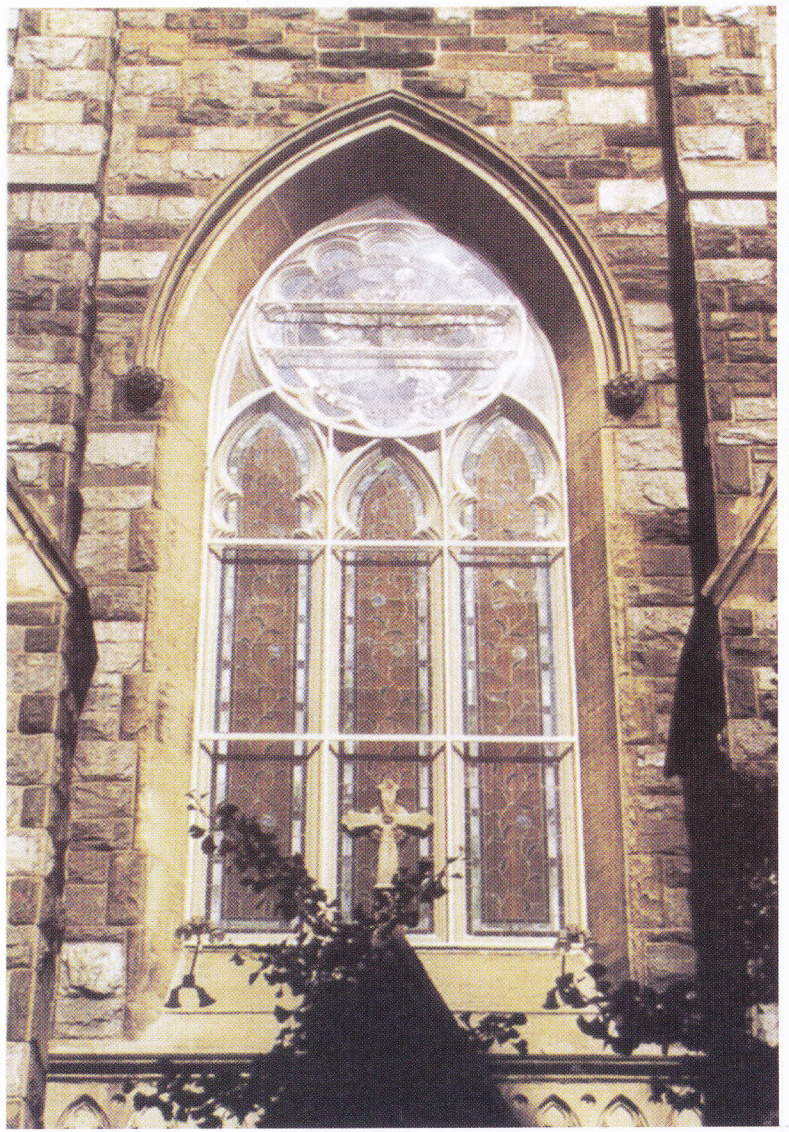
The most important part of the process, according to Martin, is determining what you want to accomplish: "What is the main purpose of the project and what is the agenda of the client? It is important to take a 'value engineering' approach," he says. "An approach which seeks the best balance of all of the factors involved."

The advantages of the use of storm windows or secondary glazing on

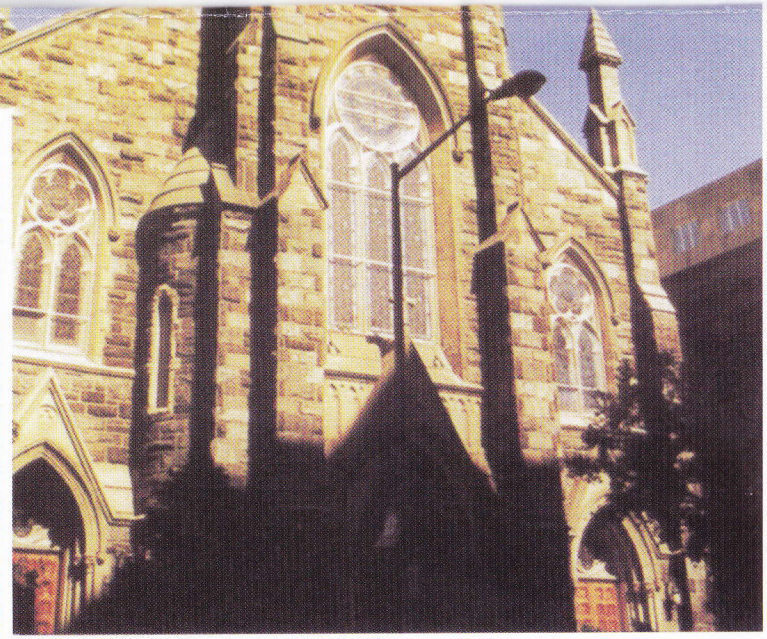
historic buildings are clear: They are an alternative to replacing original windows, thus preserving the aesthetic integrity of the building; they also reduce damage to original windows, they reduce sound and condensation problems, they reduce potentially damaging Ultra-Violet light, eliminate drafts and uneven heating or cooling problems, and they reduce energy costs. These advantages must be weighted alongside factors such as function, aesthetics, maintenance and service, and, finally, cost.

In terms of function, Martin notes, storm windows must, first and foremost, meet the operational needs of the customer. This generally involves issues of comfort, sound, ventilation, security, sun control, and so on. In terms of energy savings, Martin also asserts that, while it may not be a primary concern, "energy savings will always pay for the windows," and the importance of cost should be factored against this. Aesthetics, according to Martin, may be either a major or minor factor in a project. When it is a major factor, however, it is usually *the* major factor.

"In a project where the aesthetic integrity of the windows and window settings is of the greatest concern, the approach will be different from that taken when the major concern is the reduction of energy loss," says Martin. The point is that while all aspects of a job are important, "these factors need to be prioritized in each individual project."



The Church has 36 openings all together, the largest of which is this 22-ft. tall and 9-ft. wide window. The Church specified polycarbonate, which is shatterproof and has a ten-year discoloration warranty, but can create problems with heat build up that can damage stained glass. Allied designed the windows to stand out from the stained glass on shims, creating 1/8-in. and 3/16-in. gaps to allow ventilation. The storm windows are all fixed lites, including four assemblies — the circle and fill-ins — three Gothics, and two sets at the bottom.



St. Mary's Church in Washington, D.C., posed an interesting challenge for Allied Window when they were asked to provide exterior secondary glazing on the building's stained glass. For these windows protection was the main issue, rather than insulation.

As an illustration, Martin says that only one of Allied's storm-window products was designed for a specific market — an inside-sliding window that has been manufactured for 50 years — while all others were developed for specific problems and for specific projects.

As for don'ts, Martin suggests that price should not be a strict criterion because storm windows will pay for themselves over time.

Also, he warns against accepting a residential solution for a commercial application. "Only a few people make commercial-grade windows," Martin says. "In 1978 storm-window shipments reached 38 million units, of which 98% were residential. In 1998 it was down to 11 million units." From a large and competitive market, the number of storm-window makers has decreased, according to Martin's estimate, by about 75%: "An architect looking for a commercial

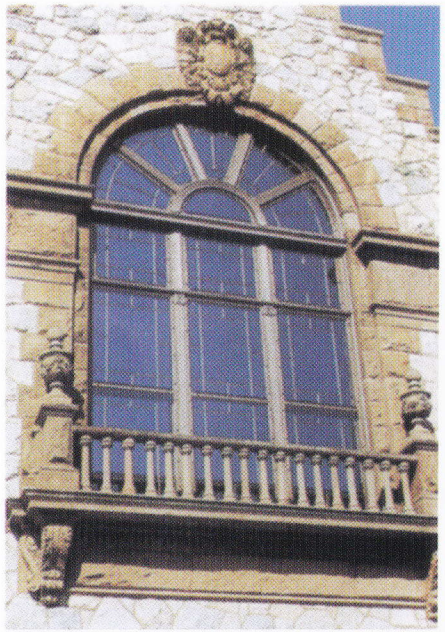
grade window has few choices." This, Martin insists, should not lead to the specification of inappropriate products.

"Many architects know little about windows and less about storm windows," says Martin. "They are usually a minor element in a major renovation project — you don't find storm windows in Sweets." So one of the biggest don'ts, according to Martin, is to take a "near enough is good enough" approach. Research and the early involvement of a storm-window specialist are essential.

A final don't from Martin: "Don't listen to anyone who says it can't be done."

The Specifier and the Supplier

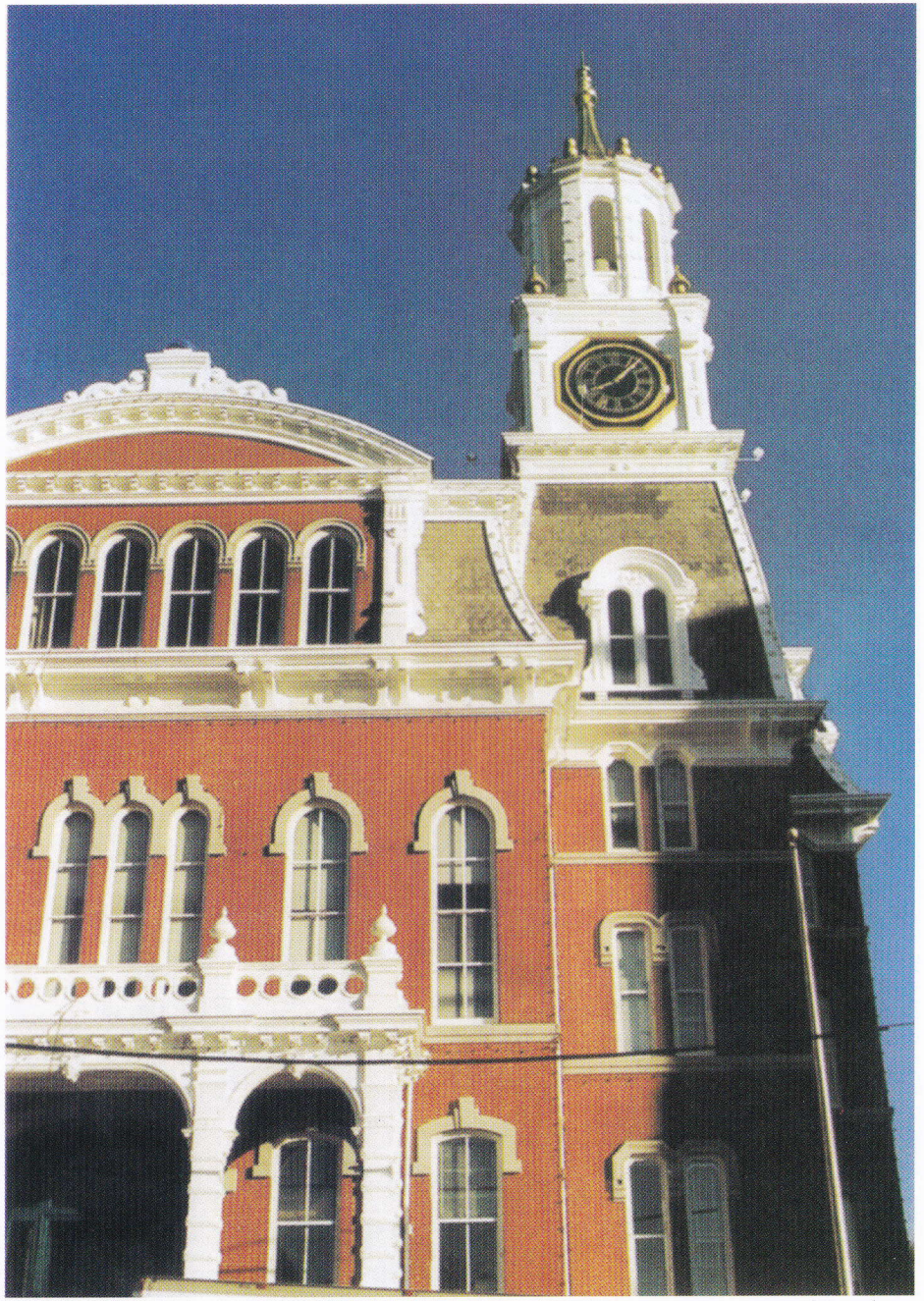
One of the main potential problems in a storm-window project can be miscommunication between specifier and supplier. From a supplier's perspective, this is usually caused by a lack of understanding on the specifier's part. "Most architects and specifiers don't understand what can be done with storm windows," says Martin, "but if we can work with an architect ahead of time, things will go smoothly."



For the main windows of the hall, Allied designed and fabricated six separate panels at the top of the arched window as well as six panels and three openings at the bottom. The building had old residential storm windows — or none at all in the case of the top of the arch — which were replaced with double-strength regular commercial-weight glass. Screens were installed in all operating windows and Allied was able to completely color match the frames.

One of the main jobs of the supplier, particularly important in the early stages of the project, is to educate the specifier as to the full range of options open to them. "A good supplier will not only tell the specifier about the benefits of storm windows, but lay out all of the alternative considerations for their decision making," says Martin, "from showing how they compare with replacement windows, through to helping the specifier prioritize factors involved in decision making."

When asked what kind of questions a specifier should use to determine the suitability of a supplier, Martin suggests that a reference list of projects will give a good idea of a company's scope: "On a commercial project, a specifier needs to be sure of the supplier's commitment to the commercial market and references will give you a good idea of the level of commitment." References will, ac-



Allied Window's work on the Norwich City Hall in Norwich, Conn., was complicated by a number of factors: Firstly, the installation had to occur when the scaffolding from other renovation work was in place, and, secondly, the building required 216 window units in five completely different designs, some measuring up to 44x176 in. Allied used modifications of their Historic One Lite model with double-strength glass and their standard white frame color.

When the town of Wellesley, Mass., considered installing exterior storm windows on their historic town hall as part of a major renovation, they turned to Allied Window, Inc. The architect brought Allied into the project early and the firm was able to generate and submit a number of alternatives for the 104 openings in the building.

The project included a number of different window styles and Allied installed ten bowed windows at one end of the building. Bowed storm windows are a rarity in the marketplace.

cording to Martin, "also tell you a lot about the geographic scope of the supplier and the scope of the projects they have done."

Martin asserts that a firm should have a truly custom ethos: "Interior or exterior storm windows are available for every conceivable type and style of prime window, on any building." ■

WINDOW ALTERNATIVES

Storm Windows vs. Replacement Windows

Advantages:

•Lower cost •Can meet specific needs of the building •Availability and flexibility •Simple installation •Color availability •Tax-credit opportunity •Retention of the primary windows and glass

Disadvantages:

•Less convenient •May affect aesthetics

Interior Storm-window installation

Advantages:

•Lower cost than exterior units •Better option for UV protection •Better option for low-E glass •Easier to clean •More flexibility for large openings •Best for buildings over eight stories

Disadvantages:

•Ventilation is more difficult •Installation space may be limited •High moisture level can cause condensation •Loss of window-stool space •Screens can be a problem

Exterior Storm-window installation

Advantages:

•Prime window protection •Security Installation may be simpler •Availability of screens

Disadvantages:

•Some loss of window detail •Reflection of glass •Usually limited to eight-story buildings •Higher cost than interior units •Cleaning is more difficult

Storm-window types

Interior:

•Magnetic panels with aluminum or vinyl frames •Lift-out designs •Sliding or rolling panels •Fixed/removable units •Vertically-operating panels

Exterior:

•Fixed/removable units •Vertically-operating panels •Traditional wood storm panels

Source: Allied Window