TECHNOTES



Pella Windows for Projects with Historic Requirements

The intent of this Technote is to provide an overview for how Pella products are often applied on projects with historic requirements. While building codes are fairly clear, well defined and apply to all construction projects for the purposes of public safety, one might say that requirements for an historic renovation project are generally negotiable. That is not to say that when the National Park Service (NPS) and tax credits are in play that there will not be specific requirements for window and door installations, it is just that even when the National Park Service is involved their requirements can vary to meet specific needs for saving a building. This should be expected considering that the goal is to preserve history and not see a building demolished or left to fall in disrepair as the result of being made to follow a rigid process. To be certain the goal should be to preserve buildings as originally constructed, which is why restoring existing building materials that are categorized as being historic like windows and doors is always the first and most desirable option. Unfortunately that is not always found to be a reasonable approach and the pursuit of a workable solution for replacement materials becomes necessary in order to save a building from being razed or left to deteriorate further.

What is generally required from an aesthetic perspective:

The most common requirements for a historic renovation project is matching the original window setback, exterior color, exterior brickmould profile, and the visible glass dimensions. Matching the setback and the exterior color to what was existing is generally not a problem, particularly considering the project design professional typically provides the exterior color. The matching of an existing brickmould profile is also fairly straightforward, the new brickmould profile must be an exact match to the shape and dimensions of the existing brickmould. Matching existing visible glass dimensions is a bit more forgiving in that the outside dimensions of the new unit's glazing that is visible must be within 1/16" of the existing in either direction. For the sake of clarity that is 1/16" from each side of the glass, or 1/8" overall according to National Park Service guidelines. It should be noted that the checkrail of an existing double-hung window or the like is typically not required to match, which is certainly due to window manufacturers generally not offering a custom profile checkrail as an option. These particular historic requirements generally make sense because they are arguably the most characteristic aspects of a window's physical appearance. The reasoning behind matching the exterior color is pretty obvious. Matching the original setback from the face of the wall maintains the shadow line that it creates. Shadow lines are what emphasize the contours of building materials, which is a very important feature in the appearance of a building. As for brickmould profiles, they are easily seen and identifiable in the detail of a window at a very short distance; however, it is the visible glass that provides the actual scale and proportion of a window and that is seen from virtually any distance during the day and at night, particularly when a building is lit from the interior at night.

As an exception there has been the occasion where an historic project has required that the window frame profile receive even greater scrutiny and a custom profile material or extrusion was developed to wrap the contours of the new window frame to replicate more closely the contours or shape of the historic window frame (see Figure 1). While requests for this added level of detail are rare, there have been occasions when it proved to be desirable and was able to be accommodated by Pella.

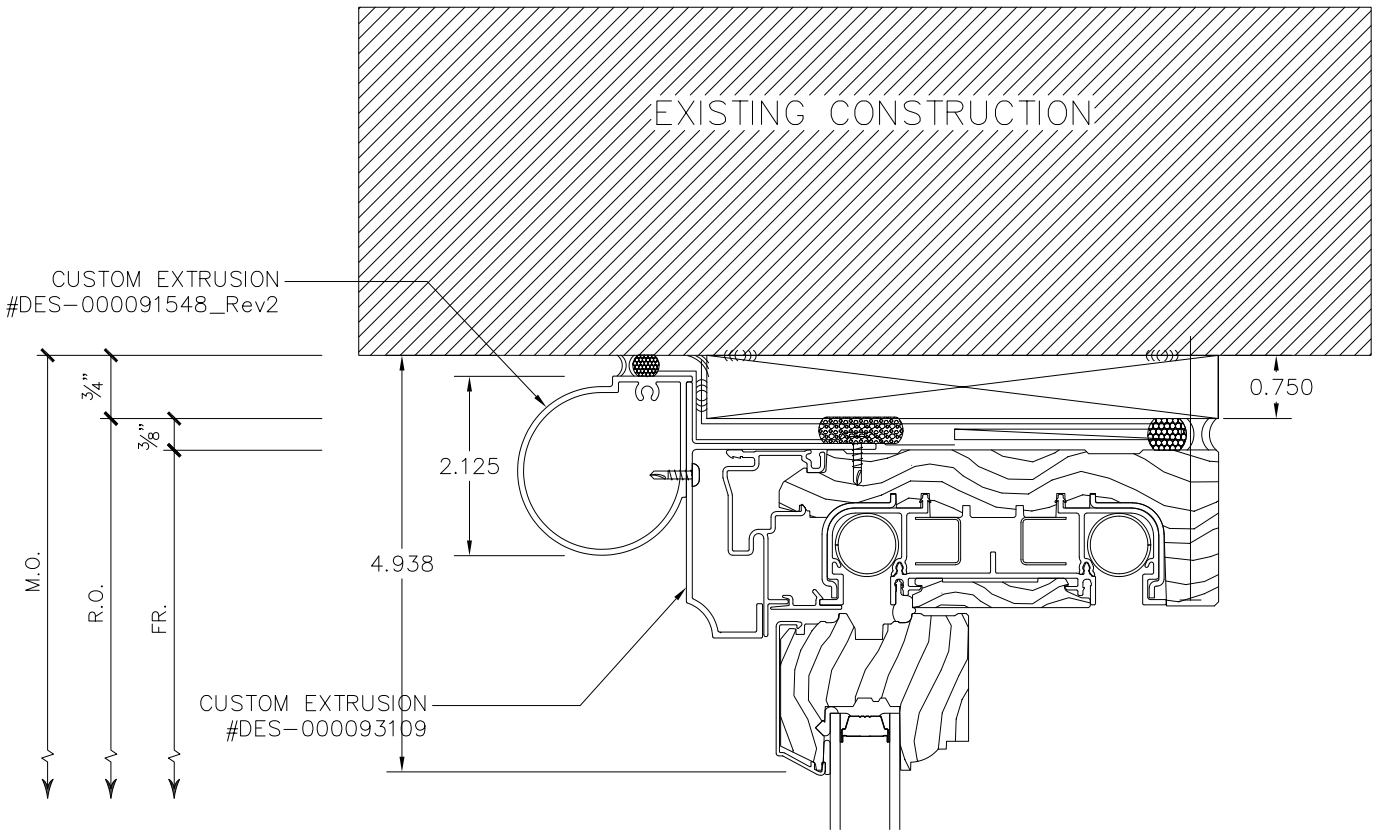


Figure 1: Window section with custom extruded aluminum brickmould and frame cover.

Documentation requirements:

Requirements for submitting documents for an historic renovation project can also vary. On more demanding projects exact details may be required that show a side-by-side comparison of the existing window adjacent to and aligned with its proposed replacement. This commonly includes exact dimensions of not only the window opening, frame size, and visible glass dimensions, but the profile dimensions of both existing and replacement conditions. A mock-up might be considered as a reasonable alternative to this approach; however, a mock-up may also be required following review and approval of the drawings being submitted. Again, this all varies from project to project depending on where the building is located, who is involved, and what may be required to save a building. What will be required should be defined by the Project's design professional, and once defined it can be a challenge to negotiate alternatives. As mentioned previous however, taking immediate action to save an historic building can be essential and the costs associated with preserving windows can lead to a need for alternatives to meet budgetary constraints.

Field measuring existing conditions:

While there are many ways to approach documenting existing conditions on an historic project, the ultimate goal is recording the existing conditions in a way that is complete and accurate. Some of the different techniques are as follows and any one or combination of these techniques may be required:

- Take photographs from a distance to represent context and at close range to assist in the creation of detail drawings. Photographs should be taken from both the exterior and the interior of the building. If it is possible for a window to be removed, it is ideal to have photographs of the existing wall conditions that are to remain. It may be necessary to keep a record of what each of the photographs are of so that their location can be identified by whomever is doing the drawing submittals.
- Measure and record dimensions such as masonry opening, window frame, window set-back, visible glass, and anything that helps facilitate the recreation of what is existing in a drawing. Accuracy of field dimensions is critical and should be done to within 1/16 of an inch if possible.
- Use of a profiling tool (Figure 2) can make it possible to create an exact drawing of the existing brickmould profile or for that matter the entire window frame and wall condition. If it is allowed another method for accomplishing this is to use a reciprocating or oscillating saw (Figure 3) to cut a slice or section out of a window or door frame at the head, jamb, and sill and lay them down on heavy paper like red rosin to trace their outline. After you have created the drawing the section of window or door frame that was removed can be set back into place, secured, and the window or door reassembled. The advantages of this are not only that it is relatively simple, but it creates a very accurate drawing of existing conditions.

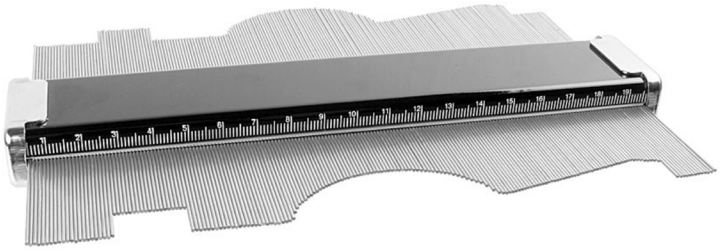


Figure 2: Profile Gauge



Figure 3: Reciprocating Saw and Oscillating Tool

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Historic AIA Continuing Education Unit (CEU) PowerPoint presentation with examples:

Go to Allego on Pella's website and search for the Window Solutions for Historic Buildings CEU or click on the following Link. Here you should find a Pella PowerPoint presentation on the subject of historic preservation which includes examples of Pella projects that qualified for National Park Service (NPS) credits.

Pella Historic Installation shop drawing detailing example:

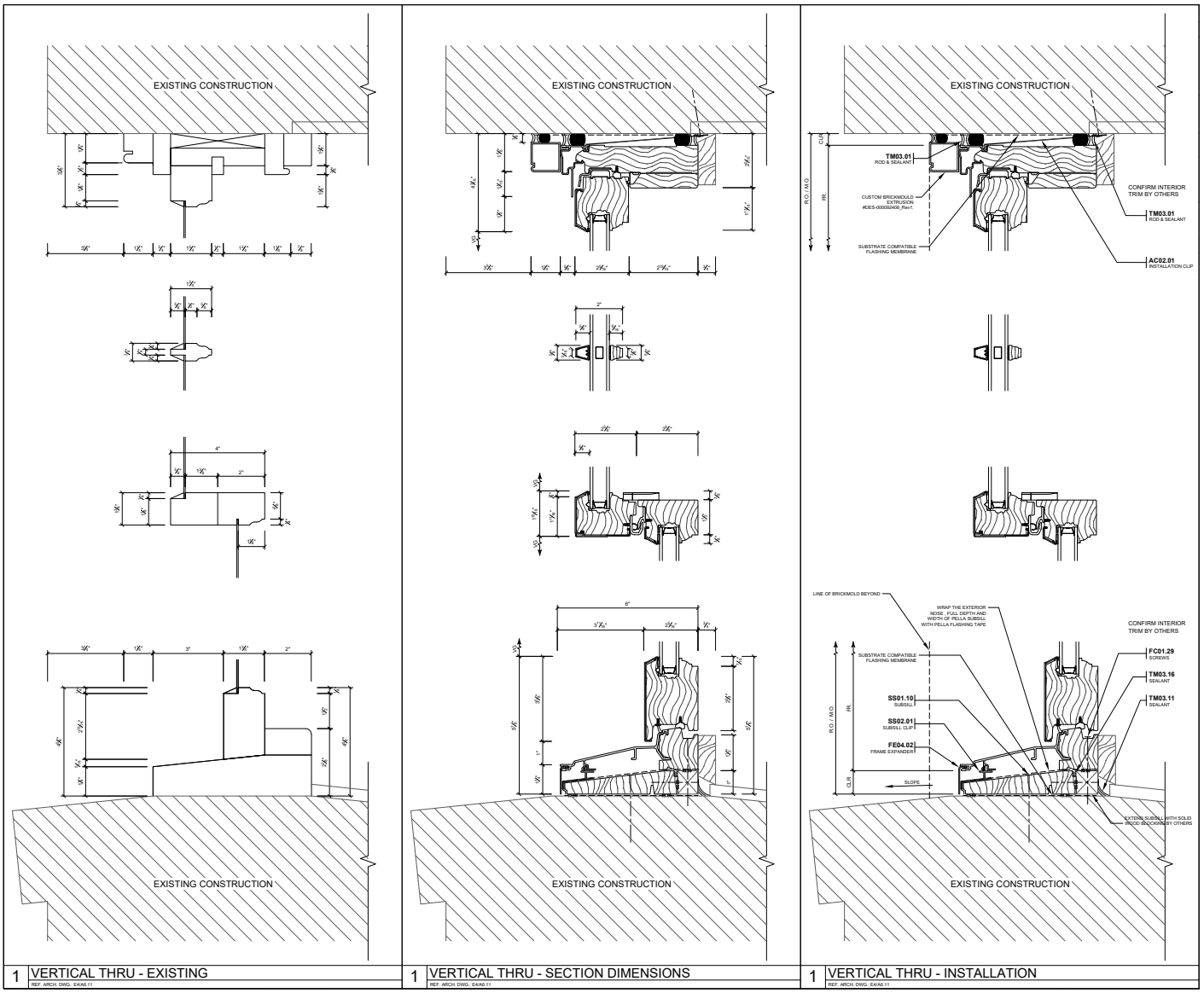


Figure 4: Example of existing window section alongside historic replacement window section.