



WINDOW REFURBISHMENT AND REPLACEMENT

Design Criteria and Considerations

The City of Riverside, ELS, Preservation Architecture, and Rincon, are proposing a combined strategy of refurbishment and replacement of the 131 windows at Cesar Chavez Community Center. The existing windows are of two types, metal and wood.

Approximately 15% of the windows are metal. Metal windows occur at the Community Room facades and above doors at the cast stone churrigueresque entry features. The remainder of the windows are wood. These are typically located at the classroom wings and at the auditorium facades.

The original metal windows are intact and typically in good repair. It is proposed that these are to be refurbished and reglazed.

The wood windows are in varying states of disrepair. Many of these are original. Some of them may have been replaced in kind by the City in 1989. It is proposed that the wood windows are to be replaced with Andersen 'E-Series' (or equal) aluminum clad wood windows with double paned insulated glass units.

The City of Riverside arrived at this approach to refurbishment and replacement of windows after considering a variety of design options and design criteria. This exhibit addresses the issues which are key to the maintenance of this historic and iconic structure and the needs of the Cesar Chavez Community Center. These issues are:

1. Historical Compatibility
2. Durability
3. Sustainability

CESAR CHAVEZ COMMUNITY CENTER

WINDOW REFURBISHMENT AND REPLACEMENT MATRIX

Chavez – Wood Window Rehabilitation

Based on extensive experience, the south side wood windows are cooked and irreparable, as the extent of damage and requisite replacement at the south side is well in excess of 50%, and which conditions are readily observable.

At the front (north), repairing the wood windows in situ would fall into the category of patching and painting, which is maintenance. If the City prefers that direction, that basic work would be undertaken under their facilities maintenance program. In our experience we have found that few jurisdictions have the capacity to provide the level of maintenance these would require for long-term durability. The existing window conditions demonstrate the challenging conditions of the climate and building orientation that have led to significant degradation with limited maintenance.

Frontward wood window conditions are deteriorated wood elements, including damaged parts, open wood joints and degrees of wood rot at wood window sashes, damaged and missing glass and deteriorated glazing putty. The operability of all these wood windows has failed, so most front windows have been nailed or screwed shut, original operating hardware either damaged or mostly missing.

Relative to which, the north side wood window repair/rehabilitation would require:

1. Document, remove and salvage (including complete inventorying and tracking) all existing window sash.
2. Following removal, complete a detailed inspection of sash and frame conditions to determine extent of repair and replacement.
3. Based thereon, replace damaged sashes – i.e., where damage is 50% or more -- with new wood sashes and glazing to match (approx. 20% of units).
4. Repair/rehabilitate existing wood sashes:
 - remove all hardware, anchors and miscellaneous attachments
 - strip all paints and coatings to sound paint layer or wood
 - fill holes, voids and cracks with wood restoration epoxy
 - remove and patch deteriorated wood pieces and parts (i.e., wood dutchman)
 - remove all glazing putty
 - replace damaged and missing glazing to match
 - reputty all glass
 - sand, prime and paint all
5. At exterior and interior wood frames and sills:
 - remove hardware, anchors and attachments
 - strip paints and coatings to sound paint layer or wood
 - fill holes, voids and cracks with wood restoration epoxy
 - remove and patch deteriorated wood pieces and parts (i.e., wood dutchman)
 - sand, prime and paint all
6. Install existing and new wood sash units with concealed fasteners and new hardware where indicated to be operable.

Note that this scope of rehabilitation work would be a budgetary allowance until defined in the course of construction, thus a design-build effort.

It is additionally important to acknowledge that, at present, the wood windows are approximately 100 years old and wood windows have obvious life spans. Consequently, following the extensive and expensive work outline above – given the required labor along with the number and size of these windows, the cost would far exceed the cost of high-quality in-kind replacement – the uninsulated windows would be 100 year old wood that would thereafter require regular maintenance.

Under *Standard 6 of the Standards for Rehabilitation: Deteriorated historic features will be repaired rather than replaced.*

In-situ window repair is conceivable and would faithfully comply with *Standard 6*. And were there a modest number (and size) of effected windows, such as is the case with the reasonably numbered and readily repairable steel windows, the work would constitute repair.

However, the more extensive work to rehabilitate the front windows exceeds what is commonly understood to be repair and is, more accurately, reconstruction. Under *Standard 6*, the term "severe" is clearly open to interpretation. As such, the extensive work required to reconstruct the front wood windows, including complete removal and rebuilding of wood sashes, removal and replacement of all hardware, plus the replacement of all glazing, may reasonably be considered severe deterioration.

Thus, the second part of *Standard 6* may be applied: *Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials.* We are all making faithful efforts to define the appropriate replacement units by exploring the full range of options:

1. In-kind replacement with new custom single-glazed, true-divided wood windows to match the existing.
2. Custom manufactured double-glazed, simulated-divided, aluminum exterior clad wood windows to closely match the existing (ex.: Andersen).
3. Custom manufactured double-glazed, simulated-divided all-aluminum windows to closely match the existing (ex: Wincos).



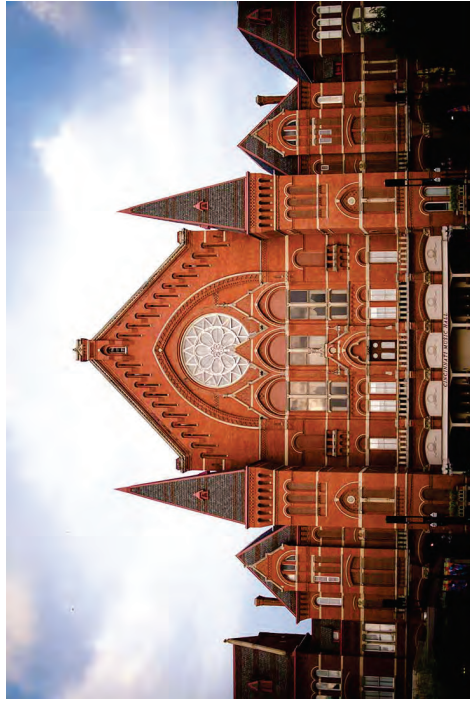
ANDERSEN WINDOWS 'E-SERIES': GLOVERSVILLE, NY PUBLIC LIBRARY



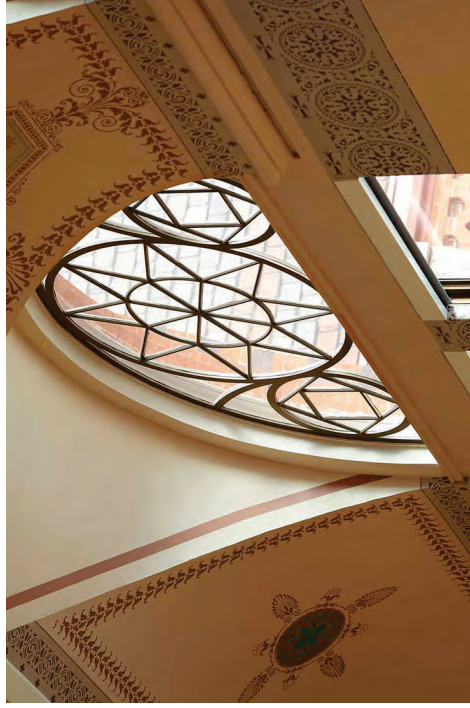
ALUMINUM CLAD WOOD WINDOWS: HISTORIC ARCHITECTURE

Aluminum clad wood windows (composite) have been installed successfully on architecturally significant historic building across the country. The buildings pictured here on the National Register of Historic places were renovated with aluminum clad wood windows.

Sash and muntin color, size, profile, and configuration are customizable. Windows designed specifically for each project insure that the new windows are compatible with the historic architecture.



MARVIN WINDOWS 'ULTIMATE SIGNATURE': CINCINNATI MUSIC HALL



HISTORICAL COMPATIBILITY

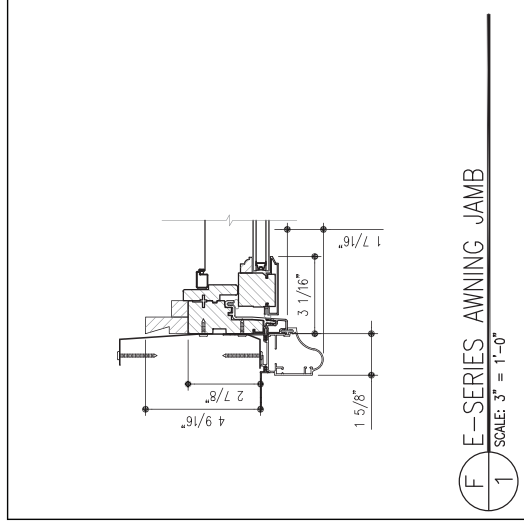
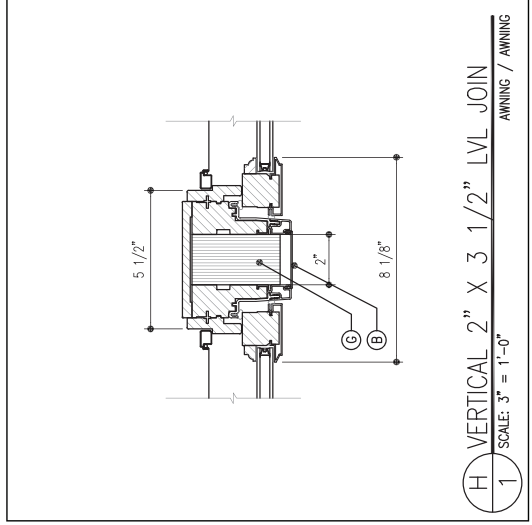
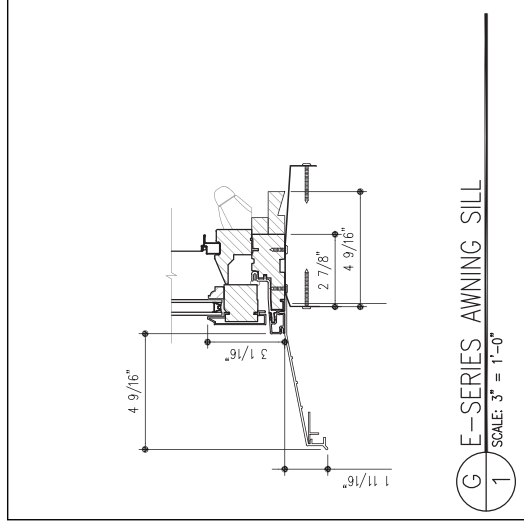
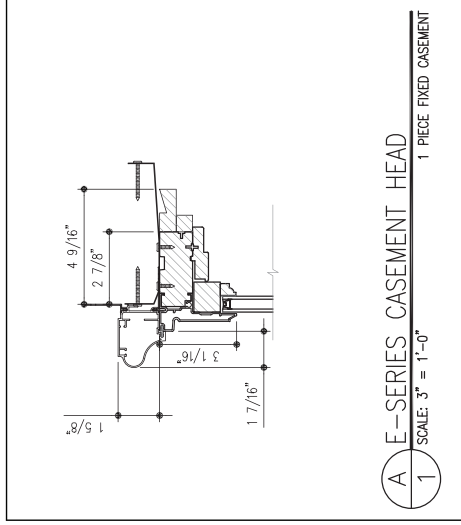
ALUMINUM CLAD WOOD WINDOWS: HISTORIC ARCHITECTURE

The design team is working with window manufacturers to prepare details which demonstrate their capacity for customization and historical accuracy. The Andersen 'E-Series' details at left depict the assembly and level of detail proposed for replacement windows at Cesar Chavez Community Center.

The exterior aluminum cladding color would be specified to match the color of the existing wood windows.

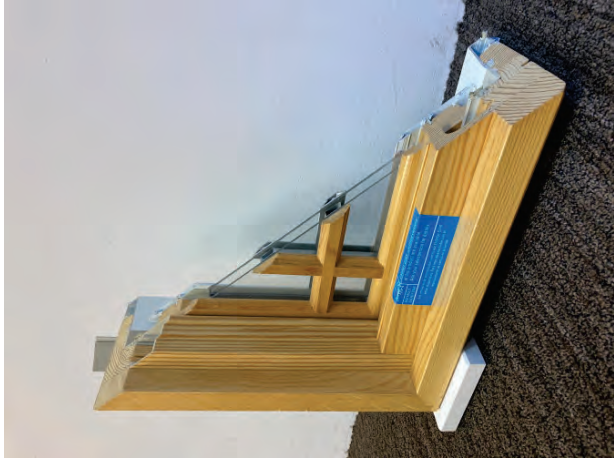
Trim, sash, and muntin profiles would be engineered to be a very close match to those of the existing wood windows.

The design team will have corner window samples from at least two and possibly three manufacturers for review at the Cultural Heritage Board presentation.



ANDERSEN 'E-SERIES' DETAILS FOR CESAR CHAVEZ COMMUNITY CENTER

HISTORICAL COMPATIBILITY



CORNER SAMPLE MARVIN 'ULTIMATE SIGNATURE' - INTERIOR



CORNER SAMPLE MARVIN 'ULTIMATE SIGNATURE' - EXTERIOR

DURABILITY - WARRANTIES

The team researched warranties for “replacement in kind” windows and for two manufacturers of composite assembly windows. Warranties for the composite assembly windows far exceed that for a replacement in-kind product. Maintenance for composite windows would also be greatly reduced.

The team did not obtain warranties for repaired windows but it is assumed that warranties and maintenance schedule for repaired windows would be similar to that for replacement in kind.

Replacement In Kind:
Kinney Woodworks - 3 year warranty

Composite Assembly - Aluminum Clad Wood Windows:
Andersent 'E-Series'

- Glass: 20 years
- Decorative glass: 10 years
- Interior wood: 10 years
- Hardware: 10 years
- Exterior painted aluminum: 20 years

Marvin 'Signature Ultimate'

- Glass: 20 years
- Decorative glass: 10 years
- Interior wood: 5 years
- Hardware: 10 years
- Exterior painted aluminum: 20 years

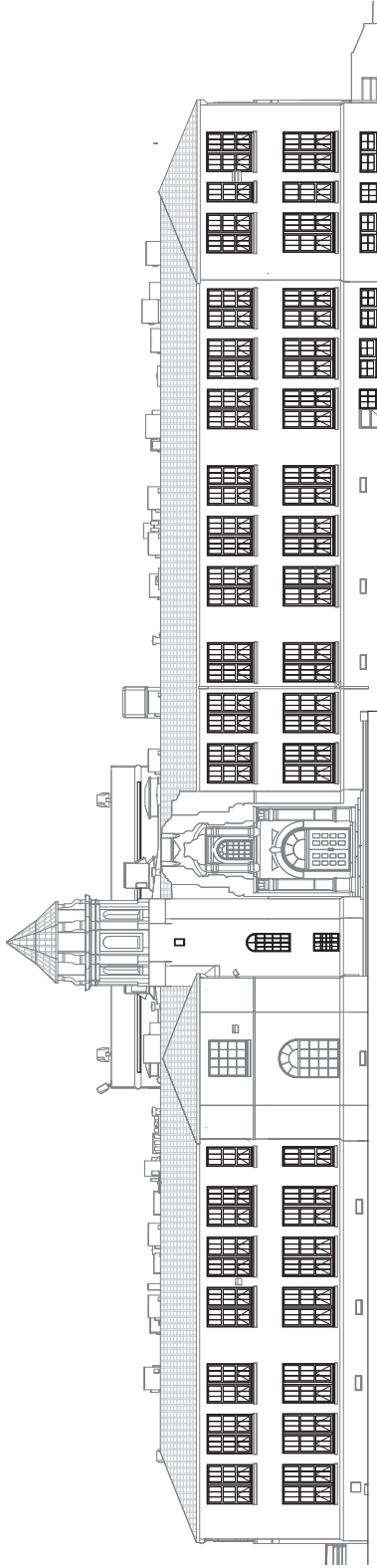
SUSTAINABILITY

The team evaluated the impact of replacing single-pane windows with double-paned insulated glass units (IGUs).

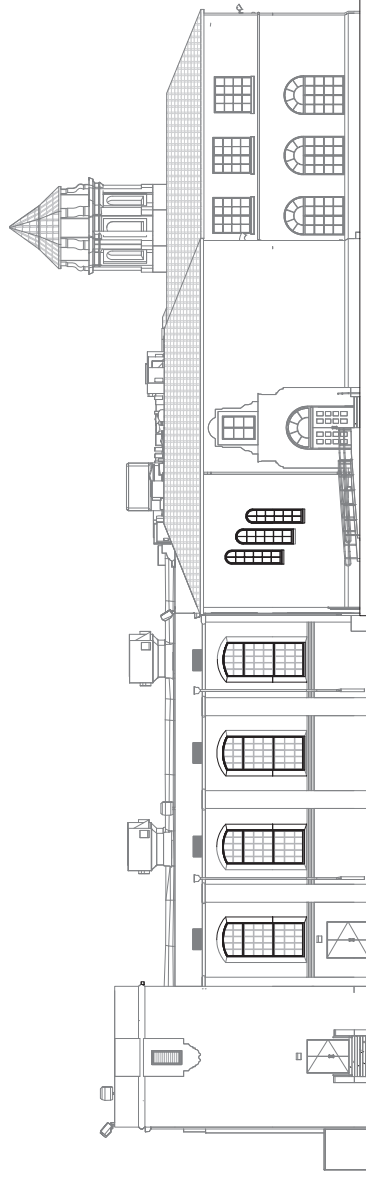
The upgrade to IGUs resulted in an approximately 18% reduction in HVAC system energy use, representing about 11% of the buildings total energy consumption. The upgrade significantly decreases cooling and fan energy use.

In addition to energy savings, IGUs may also enhance thermal comfort for occupants by reducing drafts and minimizing temperature fluctuations near windows. This helps to create a more stable and comfortable indoor environment.

DURABILITY/ SUSTAINABILITY



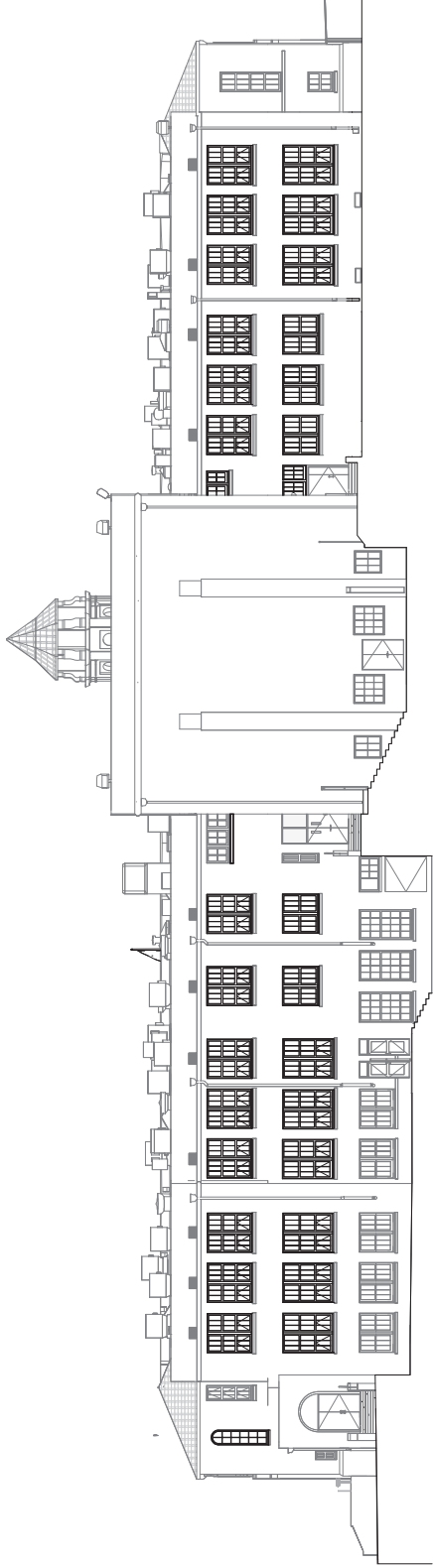
NORTH ELEVATION



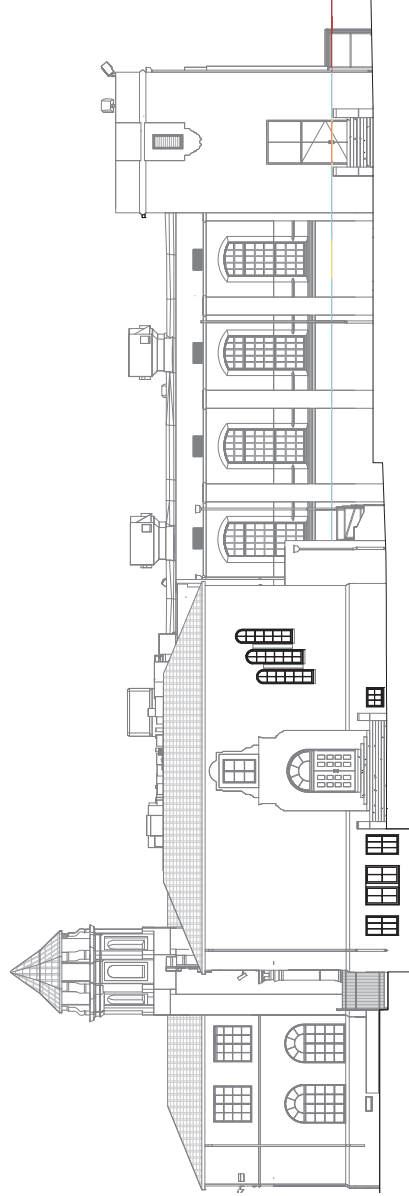
EAST ELEVATION

WINDOW TYPES AND QUANTITIES

Wood windows	113	(28 types)
Metal windows	18	(5 types)
Total	131	



SOUTH ELEVATION



WEST ELEVATION

WINDOW TYPES AND QUANTITIES

Wood windows	115	(28 types)
Metal windows	18	(5 types)
Total	133	