

# STATE UNIVERSITY CONSTRUCTION FUND

## PROGRAM DIRECTIVES

DIRECTIVE 8-4

Issue date: September 2012

### WINDOWS

1. Purpose

To define requirements for design and specifications for all windows.

2. Design Criteria

- a. All windows shall demonstrate compliance with requirements indicated in AAMA/WDMA/CSA101/I.S.2/A440-08 for operating force, air infiltration, water penetration, uniform load, forced-entry resistance and durability tests for the type and performance grade of window units required.
- b. Operating Force: For double hung windows, the amount of force required to start and to maintain the sash in motion should be reviewed with the Campus.
- c. Performance Requirements see AAMA/WDMA/CSA101/I.S.2/A440 for performance levels of window units.
- d. Consider Campus preferences for manual operation, keyed operation, power or mechanical operation for large or remote units, acoustic performance, screening, etc.

3. Design Approach

- a. In renovation projects, provide for a pilot window removal to examine and document typical jamb and head conditions. If a new window is not installed at the removal, provide for the temporary closure required to keep the building weather tight until the new work can be performed.
- b. In the specifications, require a pre-installation conference with the contractor and mock up of demolition, window installation and work area restoration.
- c. Specify field testing by reference to the type of tests and the number of tests (x% of all units, randomly selected by the consultant), when to perform tests (test one unit of the first ten installed, test one unit for each installation crew, etc.) and other services required from the contractor.
- d. In renovation projects, provide phasing plans for the groups of windows that can be removed and replaced by one set of crews (Typical sequence: removal of equipment and personal effects, work area containment,

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abatement, demolition, window installation, interior finish repair, removal of work area containment, final clean up of space, reinstallation of furniture and personal effects, etc.).

- e. Name three manufacturers and consult with manufacturers prior to bidding. Prior to advertising, it would be best to obtain the named manufacturers review of the drawings and specifications to confirm that the proposed design and details meet the requirements of each manufacturer listed.
  - 1) Hazardous Material Testing (in renovation projects):
    - i. Perform asbestos sampling and testing of all existing materials, in multiple locations, for incorporation into the schematic design report. Identify interior asbestos materials, such as sprayed-on fireproofing that may be disturbed by window work.
    - ii. Perform lead sampling and testing if painted surfaces or other suspect materials will be disturbed by construction work. Test existing caulks for PCB content.
    - iii. Refer to Fund Directives for asbestos abatement, PCB and lead contamination remediation policies.
  - 2) Existing Conditions Documentation/ Field Verification (in renovation projects):
    - i. If “as-built” drawings exist, they should be used as a starting point for documentation of field conditions. If “as built” drawings don’t exist or cannot be located, an existing conditions survey will be required.
    - ii. Field conditions should include the following:
      - Overall dimensions of window openings.
      - Identification of interior spaces served by windows.
      - Identification of and locations of all window accessories including but not limited to: operators, louvers, window AC units, concealed structural supports, conduit, etc. The survey should include material identification, dimensions, heights, etc. Include any additional site specific information that could potentially impact the design of the new work.

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- Confirm operability of existing air handling equipment, window AC units, etc.
  - Identification of perimeter condition at all areas including detailed, dimensioned sketches of all variations of edge and/or jamb profiles.
  - Identification survey should include overall exterior elevation drawings and consider the need for masonry or exterior envelope repair/rebuilding.
- iii. All existing conditions and items should be documented via photography. This should include overall images of interior and exterior work areas and close-up images of specific assemblies. Include tape measure or ruler in pictures to identify scale and to document relative size of pictured components. Quantity of photographs should be appropriate to the size and complexity of the project.
- iv. The effort required for the above Existing Conditions Documentation/ Field Verification is included in the basic design fee.
- 3) Construction Impact Investigation (in renovation projects):
- i. Investigate spaces immediately adjacent to the work and provide up-to-date plan documentation of actual conditions. Note existing interior water damage due to leaks.
  - ii. Investigate and document construction access paths, elevators, and staging areas for dumpsters, material storage units, fabrication areas, etc. Note impact to Campus operations and physical difficulties and deficiencies Contractor will have when utilizing such paths and staging areas. Account for the additional labor associated with these conditions in the cost estimates for the project.
  - iii. Document other special conditions which could impact the work, such as noise limitations (required by the Campus and local ordinances, if any, where the project is adjacent to off Campus neighbors), quiet times, fume hoods, vibration limitations, etc. required by Campus operations.

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### WINDOW PROJECT CHECKLIST

Consider the impact of the following factors or issues, if applicable:

- Air Filtration
- Asbestos
- PCB Caulk
- Flashing and Drainage Details
- Interior Blinds
- Interior Paint Finishes
- Interior Preparation
- Lintel/Sill Hidden Conditions
- Lockability and Security
- Matching Windows to Existing
- Mullin Placement (interior, exterior)
- Coating Warranty
- Patch and Repair elsewhere in space
- Window Performance Class
- Phasing
- Campus will move occupants?
- In Place Mock done in design
- Screen Requirements
- Sealant shown in details?
- Shading Co-Efficient
- State Historic Preservation Office Consultation
- Staging
- Structural Integrity
- Perform test openings at typical jambs, heads and sills
- Temporary Structural Sill Cover
- Temporary Infill
- Testing (pre/post-installation)
- Testing Payment
- Time of Year of Work
- UV Protection
- Window Sample to Campus
- Window Tint vs. clear
- Window Wall: Thermal Stress
- Window Washing Requirements
- Window/Trim Color
- Window opening provide survey measurements for custom / arched openings and required contractor to template each opening prior to fabrication.
- Concrete creep at opening
- Epoxy consolidation vs. replacement of wood with Dutchman using similar species and grain