

DESIGN AND CONSTRUCTION GUIDELINES AND STANDARDS

DIVISION 8 • DOORS AND WINDOWS

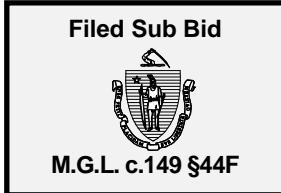
08 50 00 • WINDOWS

SECTION INCLUDES

Metal Windows
Vinyl/Aluminum Clad Wood Windows
Solid Fiberglass and Vinyl Windows
Wood Windows (Historic Preservation only)

RELATED SECTIONS

02 83 00 Lead Paint Remediation
06 10 00 Rough Carpentry
06 20 00 Finish Carpentry
07 20 00 Building Insulation and Moisture Protection
07 40 00 Siding
07 62 00 Sheet Metal Trim and Flashing
07 90 00 Sealants
09 90 00 Painting



Metal Windows is a stipulated filed sub-bid category under M.G.L. Chapter 149, §44F. If the project total cost is \$100,000.00 or greater and the cumulative estimated value of the work in this section exceeds \$20,000, it triggers the filed sub-bid requirement. The one exception would be if windows are the predominant work, in this case the DCAM category can be doors and windows and a filed sub-bid for metal windows is not necessary.

Wood, Fiberglass and Vinyl windows are not required filed sub-bid categories.

CODES AND STANDARDS

REFER TO AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION FOR LATEST VERSION OF THE NORTH AMERICAN FENESTRATION STANDARD.

WWW.AAMANET.ORG

Window performance grade ratings must be in accordance with North American Fenestration Standard NAFS 08 (or latest version) as follows:

- Low Rise for one to three stories R 40
- Mid rise for four to eight stories LC50
- High- rise for nine stories and above AW60

Consider higher ratings for coastal sites

Consider pan flashing for all windows above three stories

Windows should meet all Massachusetts Building Code (latest edition and/or stretch code) requirements including labeling by the **NATIONAL FENESTRATION RATING COUNCIL NFRC** WWW.NFRC.ORG

Windows should also:

- Meet forced entry level 10
- Meet Insulated glass construction Class CBA rating (ASTM E 2188)
- Meet Energy Star requirements www.energystar.gov



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DESIGN

Double-hung windows are strongly preferred for new construction. When replacing windows, sliding and casement windows should be replaced with double hung units if possible. Operating force measured after the application of all trim and insulation should be:

- Families 35lb in either direction
- Elderly or barrier-free 15lb in either direction with a minimum breakaway force of 15 lb.

Installed windows requiring greater force for operating must be field adjusted to comply with operating force limits as directed by the Designer.

Windows will also be subject to field testing of breakaway force as directed by the Designer.

Avoid sliding windows. They have typically been energy inefficient and difficult to operate. Also, avoid casement windows, especially for families. Both sliding and casement windows are high maintenance items.

To ensure easy operation in elderly and barrier-free units, the window stool for double-hung windows should be no deeper than 6 inches wherever possible.

Half screens are preferred, but in some rare instances, full screens will be more convenient.

Heavy duty security screens may be required at selective urban developments.

Air conditioner wall sleeves should be avoided. However, they might be considered for a window replacement project where the number of existing windows does not allow for at least one window to open if the a/c unit is installed in the window opening.

Storm windows are not necessary unless single pane windows are retained as part of a historic rehabilitation project or needed for noise abatement.

Integral lift rails are preferred.

Provide performance specifications defining optimum thermal characteristics (U value & SHGC), air infiltration and moisture resistance for the specific application.

Window assembly must have a minimum 10 year warranty.



INVESTIGATION AND RESEARCH

When replacing windows, check for weight pockets. Insulate voids and weight pockets around windows with fiberglass or foam insulation, backer rods, and caulk, or with backer rods and acoustic caulk. This requirement

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must be clearly spelled out in the specifications. Foam insulation has a better seal, however the correct foam insulation must be utilized or it can have a detrimental effect. See the guidelines on building insulation for more specifics.

Check for prior water infiltration or insect damage around windows and include work to repair any possible hidden structural damage under other specification sections. Conduct destructive testing if required.

Refer to the latest edition of the building code for code compliance of replacement windows. Review applicable codes for egress requirements.

CLAD WOOD WINDOWS

MATERIALS

Acceptable windows include vinyl clad Andersen Corporation, Perma-Shield Double-Hung, Pella aluminum clad windows and Marvin Clad windows.

Factory pre-finishing of the interior of sash is preferred. Pre-finishing is a special order that must be included in the specifications. Coordinate with the painting specifications.

Specify aluminum framed insect screens (for durability). Charcoal colored aluminum mesh is generally the most aesthetically pleasing.

Vinyl Replacement Sash - Andersen Window Corporation has replacement sash kits available for projects with their Andersen Narrowline windows that were manufactured before 1970. These sash replacement kits can be provided in Pre-finished units and have accessories such as finger pulls available for ease of window operation. These replacement units can be ordered as part of a total project replacement or in quantities that can be installed by LHA maintenance staff.

METAL WINDOWS

DESIGN

Limit the use of metal windows to situations where oversized or structural concerns are a major factor or for storefront applications.

Aside from storefront applications, double-hung windows are preferred; sliding windows should be avoided.

Design a metal flashing pan and head and jamb flashing system to minimize the possibility of water infiltration. This is especially necessary in applications near the ocean or other buildings subject to higher winds, such as buildings over 3 stories. Thoroughly review manufacturer's details including but not limited to receptors, frame components, flashing details and installation details.

Specify adequate thermal breaks and require that air and water infiltration standards to be met.

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MATERIALS

When specifying metal windows, give serious consideration to AW60 or better rated window.

Use the manufacturer's recommended weatherstripping.

If painted, specify a durable paint finish. (Kynar or equal)

EXECUTION

Insulate around windows with fiberglass or foam insulation, backer rod, and caulk, or with backer rod and acoustic caulk. This requirement must be clearly spelled out in the specifications.

Refer to Sections 07 90 00 Sealants and 07 20 00 Building Insulation.

FIBERGLASS AND VINYL WINDOWS

MATERIALS

GENERAL ISSUES

Windows meeting AAMA performance standards are required.

All extrusions shall be fiberglass or 100% virgin PVC.

Nailing fin installation is preferred in new construction and where applicable on replacement windows.

FRAME:

Overall depth 3 ¼" minimum

Minimum vinyl extrusion thickness of .065"

Welded frame

Sloped sill preferred - pocket sill discouraged unless required for Grade 60 rating.

Provide shim blocks to support A/C units to avoid window frame damage.

SASH:

4 point welded sash preferred

Minimum vinyl extrusion thickness of .065"

Metal reinforcing at meeting rails

Adjustable cam locks (Minimum of 2 per sash if sash is over 36" wide)

Interlocking Sash

Double weatherstripping is preferred at meeting rail and base.

Tilt-in sash with two spring loaded sash releases, latches on each sash

BALANCES:

Block and tackle or ¾" constant force balances preferred - Spiral balances are not acceptable.

GLAZING

IGMA certified construction class CBA www.IGMAonline.org

Minimum 7/8" thickness

Warm edge technology preferred

Window grids should be between the glass.

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☐ SCREEN

Aluminum framed half screen

Charcoal finish aluminum

When using locking clips, aluminum is required. Avoid plastic clips.

FLASHING

All windows in new construction and in retrofits, where feasible, should be flashed with a flashing tape type product similar to Dupont FlexWrap and StraightFlash, Carlisle Window & Door Flashing, or W.R. Grace Vycor or Vycor Plus. Install per manufacturer's recommendations.

Windows installed in masonry buildings should always have a pan flashing system installed prior to installing the new window.

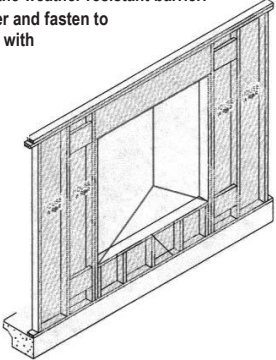
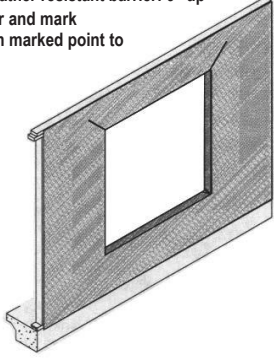
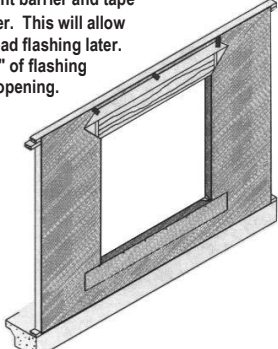
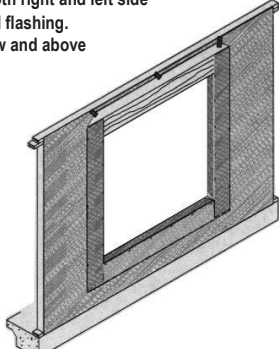
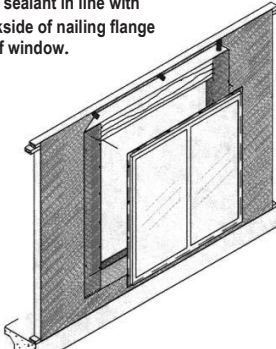
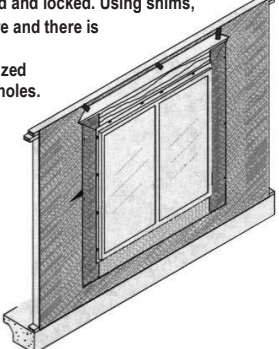
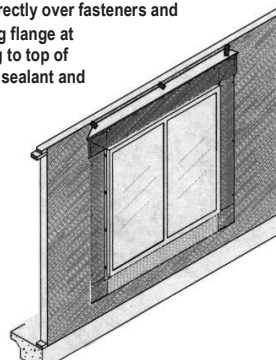
Typical Flashing Detail for installation of flanged windows in wood framed construction can be found on the next page.

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TYPICAL FLASHING DETAIL IN WOOD FRAMING

<p>1. Make a modified "I-cut" in the weather resistant barrier. Fold bottom and side flaps over and fasten to interior side of rough opening with staples set 12" to 18" apart.</p> 	<p>2. Measure for diagonal cuts in weather resistant barrier: 9" up from corner and 9" over from corner and mark (45° diagonal). Cut on diagonal from marked point to rough opening corner.</p> 
<p>3. Gently raise weather resistant barrier and tape temporarily at corners and center. This will allow for the installation of window head flashing later. Apply flashing at sill allowing 9" of flashing material on either side of rough opening.</p> 	<p>4. Next, apply jamb flashing on both right and left side over-lapping previously applied sill flashing. Flashing should extend 8-1/2" below and above rough opening.</p> 
<p>5. Apply 3/8" nominal bead of sealant in line with pre-punched nail slots on backside of nailing flange around the entire perimeter of window.</p> 	<p>6. Be sure window sash are closed and locked. Using shims, be sure window is plumb and square and there is an equal reveal around the unit. Secure window using 1-3/4" galvanized roofing nails through pre-punched holes. Nail every hole.</p> 
<p>7. Apply a bead of sealant directly over fasteners and pre-punched holes in mounting flange at top of window. Apply flashing to top of window pressing flashing into sealant and letting flashing extend 10" on left and right side of rough opening.</p> 	<p>8. Remove temporary tape applied in step 3 and allow weather resistant barrier to lie flat over the head flashing. Apply new sheathing tape over the entire diagonal cut made in the weather resistant barrier as shown.</p> 