SECTION 08630-01

VINYL WINDOWS

MHFA Product and System Performance Criteria with Technical Commentary

PART 1 ADMINISTRATIVE

1.1 OVERVIEW

A. These product and system performance criteria establish the minimum level of performance acceptable to the Minnesota Housing Finance Agency (MHFA), where Agency loan proceeds or Agency administered Reserve Account funds are used to partially or fully fund the work.

A. These minimum criteria are not intended to constitute comprehensive technical specifications that would be readily applicable to each and every project. Rather, they are intended to serve only as a minimum basic starting point, upon which Owners, Consultants, and Contractors develop more detailed project-specific plans, specifications, proposals, and eventually contracts that ensure economical, yet high performance products or systems yielding maximum durability and life expectancy that available resources will allow.

A. MHFA recognizes that no universal specifications can sufficiently address each and every situation. Owners (or their designated Agents) are strongly encouraged to evaluate their particular project conditions, and alert MHFA staff at the earliest possible time that it becomes apparent that these minimum criteria may not be appropriate to the situation at hand; whereupon MHFA staff will assist the Owner in formulating alternative minimum criteria applicable to their situation.

A. Use of imperative or command language herein is directed to the Owner or the Owner's designated Agent, and constitutes a minimum product or system performance criteria acceptable to MHFA.

A. In addition to the minimum performance criteria specified herein, additional recommendations or consideration for the Owner's benefit are clearly noted as a "recommendation" or "consideration".

1.2 OWNER'S RESPONSIBILITIES

A. The Owner may delegate its responsibilities, as appropriate, or as directed herein, to an Agent such as Property Manager, Architect/Engineer, Construction Manager, Contractor, or other suitably qualified entity. However, the Owner retains ultimate responsibility of ensuring that these minimum performance criteria are achieved.

A. Use of expert consultants is required (recommended).

1.3 SUBMITTALS REQUIRING MHFA APPROVAL

A. Submit manufacturer's product literature, clear egress formula, and installation instructions for all products and accessories furnished.

A. Submit letter from third party testing laboratory and/or certification organization confirming product meets/exceeds all MHFA 08630-01 performance requirements.

A. Submit test reports.

1.4 MINIMUM PRODUCT/SYSTEM WARRANTIES REQUIRED

A. Workmanship and materials: 1 year

A. Insulating glass: Years 0 through 10 – 100% of replacement cost.

1.5 QUALITY ASSURANCE

A. All vinyl (PVC) windows shall be certified to AAMA/NWWDA 101/I.S.2-97 and conform to these minimum requirements in accordance with AAMA/NWWDA 101/I.S.2-97. The testing laboratory or certification organization must be accredited by HUD, NVLAP, ANSI, CABO, or A2LA. Minimum test size must comply with AAMA/NWWDA Residential Gateway Performance requirements.

A. Window manufacturer is responsible for extrusion of vinyl frame and sash members, assembly of insulating glass, and assembly of all sash frames.

A. Installer must have at least three (3) years experience and/or be company licensed or franchised by window manufacturer if applicable.

PART 2 PRODUCTS AND PRODUCT PERFORMANCE CRITERIA

2.1 MHFA APPROVED WINDOWS (See MHFA 08630-AAW for a complete list)

2.2 PRODUCT PERFORMANCE CRITERIA

A. Air infiltration: ASTM E 283 (maximum air infiltration rate: 0.15 c.f./min./s.f.).

A. Thermal Properties: NFRC 100 (maximum U-value shall not exceed U-0.37). Thermal properties must be determined according to the NFRC Standard by an accredited, independent laboratory, and labeled and certified by the manufacturer. Such certified and labeled values shall be site verifiable and used for the purposes of determining compliance with current Model Energy Code.

A. Water Resistance: ASTM E 547 (no leakage at 4.5 lb./s.f. test pressure).

A. Uniform Load Structural: No member shall have permanent deformation of any mainframe, sash, panel or sash member in excess of 0.4% of its span from a minimum uniform structural test pressure of 37.5 (psf). Test shall be conducted in accordance with ASTM E 330. In addition there shall be no glass breakage, or permanent damage to fasteners, hardware parts, support arms, actuating mechanisms or any other damage which causes the window to be inoperable. Uniform load structural test shall include negative and positive loads.

A. Compliance with AAMA 303 for Poly (Vinyl Chloride)(PVC) extrusions.

A. Operating force shall not exceed 20 lb. after sash is in motion in either direction.

A. Glazing shall be Low E Sealed double pane units with Argon Gas Fill. Shall conform to ASTM E 744 level C or higher. Shall have a maximum NFRC U-value of U-0.37. Pane thickness to be determined by size of unit, wind loads, and suction loads. Glass furnished by manufacturer shall meet or exceed the values given in ASTM E 1300 for the design pressure rating of the project.

2.3 ACCESSORY PRODUCTS

A. Weather Stripping:

1. Full perimeter and shall be of high quality materials proven to be capable of meeting the environmental exposure and performance requirements

1. Pile weather stripping with vinyl inter-leaf shall confirm to AAMA 701.

B. Hardware:

1. Hardware shall be of aluminum, stainless steel or other corrosion-resistant base material compatible with PVC. Steel, other than stainless steel, if used, shall be plated with either cadmium, zinc, or nickel and chrome.

1. All windows shall be lockable and tested according to ASTM F 588 (Performance Level 10). Locks shall provide security against forced entry. Local code requirements may exceed performance requirements listed above. In this event, the local code shall govern.

C. Screens:

1. Venting sash shall be provided with an insect screen consisting of formed aluminum frames with baked-on acrylic coating and 18x14 aluminum mesh or fiberglass mesh.

2.4 FABRICATION

A. Sash members and frame members shall be manufactured from non-plastic rigid polyvinyl chloride (PVC). Frame corners shall be fusion welded in a rigid jig and cleaned. Supplement frame sections with internal reinforcement where required for structural rigidity.

A. Provide internal drainage weep holes and channels to migrate moisture to exterior as necessary.

A. Size window units to allow tolerances of rough framed openings, clearances, and shim spacing around perimeter of assemblies.

A. Size window units to meet current egress codes in sleeping rooms.

2.5 SURPLUS MATERIALS, SPARE PARTS, SPECIAL TOOLS (as appropriate)

PART 3 WORKMANSHIP, EXPECTATION, SYSTEM PERFORMANCE, FINISHED PRODUCT

3.1 INSTALLATION

A. Prepare opening to permit correct installation of window unit. Fill all voids with insulation as required for complete installation. Do not use expansive foam insulators unless approved by window manufacturer.

A. Install windows according to the manufacturer's instructions and approved shop drawings to ensure proper installation and operation.

A. Install window units plumb, level, and square with no distortion of frame members.

A. Apply approved sealant as required to seal gaps. Gaps in excess of ½" are not acceptable.

3.2 ADJUSTING AND CLEANING

A. Adjust operating sash and hardware to provide tight fit at contact points and at weather stripping for smooth operation.

A. Clean glass surfaces promptly after installation removing any labels and excess sealant materials.

PART 4 TECHNICAL COMMENTARY

4.1 MHFA APPROVAL

A. Window units must be approved by MHFA when Agency loan proceeds or Agency administered Reserve Account funds are used to partially or fully fund the work.

A. These product performance criteria are intended for vinyl window products. Other window products such as wood, fiberglass, and aluminum may be acceptable as long as they meet all of the Agency's product performance criteria and receives Agency approval prior to use.

A. Contact Agency staff architect for additional information about window product approval process or to receive most updated list of Agency approved windows (08630-AAW). This information is also located on the Agency's website. www.mhfa.state.mn.us

Contact: Jerry Narlock @ 651-215-6239 (Telephone) or gerald.narlock@state.mn.us (E-mail)

4.2 TECHNICAL TIPS

A. Have manufacturer's representative visit the site just prior to starting window installation to review and approve proposed installation method.

A. Recommend using batt insulation in lieu of expansive foam insulators to fill perimeter frame to wall opening cavity. Expansive foam insulators shall not be used without approval of window manufacturer.

END OF SECTION