

SEALCRAFT

Architectural Window Systems

STANDARD PROCEDURE

No. I-190

Window Installation Instructions
Blast Resistant Hung Window w/Frame Master Sub-Frames

Examined, Accepted and Approved

By: D. Ray VanNess

Title: President

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1.0 INTRODUCTION:

- 1.1 The purpose of this standard procedure is to establish the procedures required for the successful installation of Seal Craft's Blast Resistant window systems utilizing receptor systems into construction that incorporates metal or wood framing, masonry walls and/or various exterior construction elements, which has been design or deemed by others to be suitable.
- 1.2 The guidelines set forth herein are based on standard industry practices and Seal Craft specific recommendations coupled with our understanding of job site conditions and requirements.
- 1.3 This procedure does not purport to address all of the safety problems that may be associated with its use. It is the responsibility of whoever uses this procedure to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2.0 INSTALLER QUALIFICATIONS AND RESPONSIBILITY:

- 2.1 The window installation subcontractor should be an experienced mechanic in the field with at least five continuous years of successful experience installing similar window systems into projects of similar scope, magnitude and design.
- 2.2 The basic function of the window installation subcontractor is to ensure that all windows are installed per the approved manufacturers written instructions and job specific Shop Drawings as approved by the Architect or Owner's Representative.
- 2.3 The window installation subcontractor shall be responsible to ensure that all openings are correctly prepared and ready to accept new window units. Any problems found should be reported to the General Contractor or approving authority promptly and the window installation should not be initiated until all opening deficiencies are corrected.
- 2.4 The window installation subcontractor shall then be responsible to ensure that all windows are properly installed, adjusted and ready for use by the Owner, with the exception of final glass washing, which is to be preformed by the pre-occupancy clean-up subcontractor.
- 2.5 Window installation subcontractor must understand that this Project is a special use facility requiring that the windows and installation meet certain criterion concerning elevated pressures and should afford a predetermined level of blast resistance.

3.0 RESPONSIBILITIES:

- 3.1 The window installation subcontractor is responsible to gain a full and complete understanding of pertinent information relating to his/her scope of work including but not limited to this document, approved shop drawings, working construction drawings, specifications, and job site requirements.
- 3.2 The window installation subcontractor is responsible to train his/her workforce in proper material handling, erection and safety procedures including OSHA and Prime Contractor safety requirements.
- 3.3 To ensure that a qualified window installation superintendent is on site during all window installation activities.
- 3.4 To provide all sealants, caulk, fasteners, shims, backer rod, bond breaker and/or machinery as required by this Project and sufficient qualified workmen to perform the installation professionally, safely and on time
- 3.5 To ensure that all materials are stored and protected prior to installation.

4.0 DUTIES:

- 4.1 The window installation subcontractor shall attend all required job site progress and safety meetings.
- 4.2 Maintain open communication and foster a harmonious relationship with General Contractor and other related trades.
- 4.3 Receive all window material shipments, verifying quality and quantity and that those products are fit for installation, immediately reporting any deficiencies directly to Seal Craft as well clearly listing any such problems the Bill of Laden.
- 4.4 General Contractor is responsible to ensure that rough openings in new construction are dimensionally accurate, plumb, square, true and not obstructed, allowing window installer free access to each opening.

5.0 ASSEMBLY PROCEDURES:

- 5.1 Frame-master receptor systems are shipped to the job site K.D. and cannot be successfully shipped or stored, when assembled, without damage. The assembly of each receptor takes less than five minutes and is the job site responsibility of the window installer.
- 5.2 Arrange the receptor members on a suitable worktable with the head, sill and pre-punched jambs oriented per the installation detail.

- 5.3 Install two each #8 x 1" assembly screws, as provided, through the pre-punched assembly holes located at each end of the jambs and into the extruded screw port of both the head and sill, 2 screws at each of all four corners.
- 5.4 Apply an ample back seal of the specified sealant to the unexposed (back side) of the receptor frame corner connections.

6.0 INSTALLATION PROCEDURES:

- 6.1 Ensure that all windows are installed in accordance with ASTM E 2112. The following step-by-step instructional procedure is provided for the convenience of the installing subcontractor.
- 6.2 All sub-frame members shall be anchored into openings plumb, square and without rack or warp, using anchors of sufficient diameter and length to meet required design pressure. Refer to stamped Engineers' calculations on the type and frequency of anchor to be used. Utilize treated wood blocking and/or shims as may be required and/or as depicted on Shop Drawings.
- 6.3 Strap anchors (if required) should be applied to the Frame Master system prior to installation and at the same frequency as required for anchors.
- 6.4 Fastener types and frequencies shall be according to the project specific engineer stamped fastener calculations. The AAMA 2501-06 Voluntary Guideline for Engineering Analysis of Window and Sliding Glass Door Anchorage Systems is the appropriate standard for fastener calculations.
- 6.5 Orient the Frame Master into the opening as depicted on the approved project drawings, centered left to right and top to bottom, allowing for shim tolerance. Ensure that the system is oriented with the sill draining to the exterior. Shim as required and anchor as detailed.
- 6.6 Install backer rod as necessary at shim space at perimeter (head, jambs and sill) locations and apply continuous caulk bead at full interior and exterior perimeter. Sealants to be as specified by architect or equal and applied around the full exterior and interior perimeter of newly installed windows. Follow sealant manufacturer's application instructions.
- 6.7 Seal all screw heads from interior of Frame Master and back-seal head to jamb and sill to jamb corner areas. Special care must be taken at sill to jamb connection to gun a sufficient amount of caulk to form the end dam seal between sill and jamb sections. Likewise, take extra care in sealing any penetrations of the sub-sill. Seal all screw heads and around any mullion anchors, etc. that may be present.

- 6.8 Ensure that the provided exterior sub-sill weep covers and baffles are installed, are unobstructed and functioning properly.
 - 6.9 Set windows (from interior) into sub-frames: set window's sill into sub-frame sill, rotating (tilting) top of window outward against sub-frame's head.
 - 6.10 Install interior portion of head receptor, the snap-lock (cut same length as sub-frame head) by seating it with block of wood and mallet / hammer, until it locks in place.
 - 6.11 Install interior jamb receptor snap-locks (cut between head receptor snap and sill).
 - 6.12 Install three piece mullions (cut between head receptor and subsill) in accordance with I-50 "Structural Mullion Installation". Ensure that any mullion clip fasteners that penetrate subsills are fully sealed (around the perimeter of the clip and at the head of the fasteners). Fastener type and frequency shall be as per 6.4.
 - 6.13 Install interior trims' continuous anchor plate (mill finish) at head and jambs, placing it tightly against the frame-master receptor and securing to adjacent construction with the fastener type and frequency called out type in the Engineer's report. This interior trim is required for the system to withstand the calculated blast load for the project and must overlap the receptor's interior snap lock. It is not necessary to anchor the trim clip to the window system / receptor system. After securely anchoring interior trim anchor plate, install pre-finished interior cover profile by seating it with block of wood and mallet / hammer, until it locks in place.
 - 6.14 If desired or called for on the approved Shop Drawings, a cap bead seal may be applied to the entire window to sub-frame joinery and/or window to mullion connections.
 - 6.15 Check sash operation and make any adjustments as may be required per 7.0 below.
- 7.0 ADJUSTMENTS:
- 7.1 Ensure that all sash travel (open) to their full height without undue pressure, scrape or noise. Check jamb track for any debris, dents or obstructions that impede proper travel, correct as necessary. In the event that a sash balance has failed, notify Seal Craft immediately for replacement part, offering the unit size and Mark number, after confirming that the balance required was not included within "Customer Care Kit" provided.
 - 7.2 Ensure that sash lock(s) work as intended with appropriate amount of operating force. Confirm that sash is closing fully by checking meeting rail interlocks and upstanding sill leg for construction debris or dents and correct as necessary.

- 7.3 Confirm that hung window jambs are not spread creating excessive lateral sash movement when sash is in the half open position. Measure horizontally between jambs at a point just above the sill and compare similar dimension at the midpoint of window height. Even a slight bow of the jambs (particularly on double hung windows) can cause the sash balances to lose friction and result in sash drift and poor sash operating characteristics. Jamb adjusters are located at the midpoint of each jamb (on double hung windows) and may be tightened with a Phillips head screwdriver to correct any spread at jamb conditions that may exist.
 - 7.4 Inspect all exposed finished surfaces for scratches, abrasions and dents and correct. Scratches and abrasions should be wet sanded with 400 grit emery cloth, wiped clean and painted with manufacturer provided touch up paint.
 - 7.5 Remove all labels or stickers from glass surface, DO NOT remove any gold AAMA labels that may have been required.
- 8.0 INSTALLATION TIPS:
- 8.1 Where fasteners are used at sub-frame header locations; if conditions require penetrating steel lenti - ensure that anchors do not penetrate masonry flashing above.
 - 8.2 Seal Craft suggests that sub-frames be set and caulked by a two-man crew, which should be ahead of window installers' sufficiently to allow enough time for caulk to cure. This will further stabilize the sub-frame and reduce any "bounce" or movement when applying receptor's interior snap lock sections.
 - 8.3 When applying interior frame receptor snaps, mullion covers and/or interior trim covers use a dead-blow mallet and wooden block to apply pressure at the edge of part for ease of snap and to reduce the occurrence of dents.
 - 8.4 Subsills are utilized to ensure that the window system is adequately attached and sealed to the sill area of the openings construction. The integrity of the waterproofing within the subsill is perhaps the single most important element in ensuring that the system will prevent water from intruding into the wall or building. Therefore, the complete and proper sealing of end dams, fastener heads, mullion clips and all penetrations through the subsill is critical to the success of this type of installation. The installer may wish to perform a voluntary "Optional Sill Dam Test" prior to installing windows in accordance with AAMA 502-02 to ensure the quality of the installation and to mitigate financial loss since resealing leaking subsills can not be done without removal of the windows.
- 9.0 MANUFACTURERS DISCLAIMER:
- 9.1 Seal Craft is a manufacturer of quality commercial window systems and as such is compensated for the delivery of the same, per approved shop drawings, unto the job site. Seal Craft is not compensated for, and therefore assumes no responsibility for, building design, interface of its products with other building elements or any area of accountability other than the manufacture and delivery of quality window systems as

required under each contract.

- 9.2 The qualifications and procedures as set forth herein are recommendations of Seal Craft as the manufacturer and are intended as a minimum guideline for the successful installation of its products and must be adhered to in order for the Seal Craft warranty to be in effect.
- 9.3 Upon review of the contract documents, shop drawings and manufacturers installation instructions, final architectural determination should be made as to any further requirements for flashing, sealant or any other detail that may need to be added or addressed to ensure proper interface with the new fenestration and the desired performance of the same.
- 9.4 Flashing and/or an appropriate method of sealing shall be designed as part of an overall weather resistant barrier system. It is not the responsibility of Seal Craft to design or recommend a weather resistant barrier system appropriate for each job.
- 9.5 The qualifications and procedures as set forth herein must be reviewed and approved prior to commencement of installation activities by a duly authorized and accountable owner's representative or agent.
- 9.6 Seal Craft assumes no responsibility for any liability because of the presence or growth of black mold or any other bacteriological growth in any building or structure in which its window systems are installed.
- 9.7 For building construction which incorporates EIFS; the EIFS Industry Manufacturers Association (EIMA) guidelines must be adhered to in order for Seal Craft's product warranty to be valid.
- 9.8 By stamping and/or signing or by any other means affixing a 'mark' to the submittal booklet that contains these instructions, both architect and contractor demonstrate complete agreement and accept full responsibility for these installation procedures. Further, both architect and contractor agree that the manner in which the windows are installed is beyond the control of the manufacturer and as such, Seal Craft has no responsibility for any liabilities that may arise from the improper installation of its products.
- 9.9 Should field testing be a Project requirement, installing window contractor shall cooperate fully, preparing window unit(s) as requested by the Architect and/or Independent Laboratory personnel, but in no case participate in an unofficial "garden hose tests". Any field testing shall be pursuant with the current AAMA 502 Standard and Seal Craft shall be afforded the opportunity to attend any and all such testing and given a minimum of 15 work days notice in advance of any field testing.