SEALCRAFT
Architectural Window Systems

STANDARD PROCEDURE

No. I-160

Window Installation Instructions:
Blast Resistant - Hung Window Systems without Accessories

Examined, Accepted and Approved

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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 into construction, which has been designed 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 It should be noted that Seal Craft considers this one of the most difficult forms of installation that can be executed. It requires a higher level of attention to detail than other installation methods and much care must be exercised to achieve a waterproof and workmanlike installation.

1.4 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 <u>and</u> installation meet certain criterion concerning the potential for high wind loads and the pressure wave of blast loads.

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 caulk, fasteners, shims, backer rod and machinery etc. 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 INSTALLATION PROCEDURES:

5.1 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.

5.2 Inspect all openings scheduled for window installation for accuracy of dimension and squareness. All windows are to be anchored into openings plumb, square and without rack or warp - plan for shims as required.

5.3 Plan for installation fasteners to penetrate the cased opening, structural stud framing or into adjacent construction material.

5.4 Set windows into the openings and shim as required ensuring that the new window is centered square and plumb in the opening (4 sides).

5.5 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.

5.6 Blast resistant window installations, with no accessories, typically require that a higher quality of and frequency of fastener penetrate the windows' frame. Therefore, care must be taken to ensure that the tightening of these fasteners does not pull the frame out of plumb and/or twist the frame. Allowing fasteners to torque the frame can set up pressures, which can cause cracking of the structurally glazed laminated glass. Proper blocking and/or shims must be used to ensure that this is prevented.

5.7 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.

5.8 Seal any screw heads that penetrate the window's sill with 100% silicone. Special care must be taken to ensure that the screw head and surrounding area to be sealed is clean and dry. Follow sealant manufacturer's application instructions.

5.9 Check sash operation and make any adjustments as may be required per 6.0.

6.0 ADJUSTMENTS:

6.1 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.

6.2 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.

6.3 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.

6.4 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.

6.5 Remove all labels or stickers from glass surface, DO NOT remove any gold AAMA labels that may have been required.

7.0 INSTALLATION TIPS:

7.1 When fasteners are applied through mainframe members and into the structure ensure that excessive tightening of the fastener does not pull or 'bow' the frame member out of plumb or level. Proper use of shims at the fastener location may allow for the proper seating of fasteners without frame 'bow'.

7.2 Where fasteners are used at window header locations; if conditions require penetrating steel lentil - ensure that masonry flashing above is not penetrated.

7.3 The installer may wish to ensure that all adjustments are made prior to application of perimeter sealants to ensure that the seal is not broken during adjustment and that there is no sealant smeared by workmen while making final adjustments.

8.0 MANUFACTURERS DISCLAIMER:

8.1 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.

8.2 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.

8.3 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.

8.4 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.

8.5 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.

8.6 Seal Craft assumes no responsibility for any liability on account 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.

8.7 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.

8.8 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.

8.9 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.