SEALCRAFT
Architectural Window Systems

STANDARD PROCEDURE

No. I-200

Window Installation Instructions
Lockwood Greene Historic Subframe System

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 window systems utilizing Lockwood Greene Historic Subframe Systems into prepared openings in brick masonry wall constructions.

1.2 The guidelines set forth herein are based on standard industry practices AAMA Publication IPCB-08 which can be located at www.seal-craft.com and Seal Craft specific recommendations coupled with our understanding of typical 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. This responsibility extends only to the dimensional accuracy and apparent structural integrity of the masonry openings. Determination as to whether historic masonry walls and window openings are capable of withstanding water intrusion shall be the obligation of the owner’s architect and/or waterproofing consultant.

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.

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 submittals, shop drawings, working construction drawings, project 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, and pursuant with and including OSHA and Prime Contractor safety requirements.

3.3 Window installation subcontractor shall ensure that a qualified window installation superintendent is designated and 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 of the type and quality required for this Project and that they are safely stored and protected prior to and during 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 on the freight Bill of Laden.

4.4 General Contractor is responsible to ensure that rough openings are dimensionally accurate, plumb, square, true and not obstructed, allowing window installer free access to each opening.

5.0 ASSEMBLY PROCEDURES:

5.1 Lockwood Greene sub frame systems are shipped to the job site fully fabricated and K.D. Subframe assembly is the job site responsibility of the window installer.

5.2 Arrange the receptor members on a worktable or other suitable surface with head, sill

and jambs oriented per the installation detail.

5.3 When design calls for stretch formed (curved) subframe heads; the installer shall insert one bulb weather seal in an extruded track in each sub head. NOTE: when vertical mullions are required a ¼" x 3" x 3 ¾" mullion anchor plate shall be inserted into an extruded slot in the sub head.

5.4 Install two each #8 x 1" assembly screws, as provided, through the pre-drilled assembly holes located at the head end of the jambs and into the extruded screw port of both the head; 2 screws at each head to jamb connection.

5.5 Subsill to jamb connection is accomplished with the use of pre-fabricated corner gussets. The subsill acts to divert any water to the exterior of the building through pre-drilled weep holes. The corner gussets act as end dams for the subsill and must be sealed to the subsill ends. Application of sealant prior to gusset to subsill connection is recommended. Install corner gussets utilizing four each #8 x 1" assembly screws at each end of the subsill. Slide the upstanding tab of each corner gusset into extruded slots in each subframe jamb. Attach subsill corner gusset to jambs with four each #8 x ½" sheet metal screws through pre-punched holes in the corner gusset tab.

5.6 Apply an ample back seal of the specified sealant to subframe corner connections. Special attention should be given to sealant application at the jamb to subsill connections since any failure at this location will result in water intrusion into the building.

5.7 Vertical mullions are pre-cut and pre-fabricated to fit within the subframe and are installed by using brackets which are provided. Slide one 3" x 3" x 1" bracket into extruded slots into each end of the mullion. Position the vertical mullion into the subframe. Ensure that the mullion is centered right to left within the subframe and secure with the provided fasteners.

5.8 The mullion bracket at the sill end of the mullion should be placed into a bed of sealant prior to the installation of fasteners. This may require that installation holes into the substrate be drilled first and the area cleaned prior to sealant being applied, the mullion being set and fasteners installed. Seal around the mullion bracket and also seal the screw heads that penetrate the mullion bracket and into the subsill.

5.9 At this point the subframe system is assembled and sealed with the vertical mullion in place and is ready for installation into the masonry opening. Workmen can pre-assemble as many subframe sets as desired prior to setting the frames or a few men can do assembly operations while others continually set subframes and proceed with window installations.

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 Inspect all openings scheduled for window installation for accuracy of dimension and squareness. 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. Utilize shims at fastener locations as may be required and/or as depicted on Shop Drawings.

6.3 Fastener types and frequencies shall be according to the project specific engineer stamped fastener calculations. In the absence of such calculations; subframe to masonry fasteners shall be ¼" masonry screws with a minimum 2 ½" embedment into the masonry and at 16" on center maximum spacing.

6.4 Orient the subframe 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 in 6.3 above. Note that historic tax credit authorities require the new window installation to be at the same set back into the masonry as the original windows.

6.5 Install backer rod as necessary at shim space at perimeter (head, jambs and sill) locations and apply continuous caulk bead at full perimeter. Sealants to be as specified by architect or equal and applied around the full exterior perimeter of newly installed subframes. Follow sealant manufacturer's application instructions.

6.6 Seal all screw heads from interior of subframe and back-seal head to jamb and sill to jamb corner areas.

6.7 If applying fasteners through subsills;

6.7.1 Pre-drill and clean installation fastener holes.

6.7.2 Pump sealant into the drilled hole ensuring contact with the substrate below and filling the hole and on top of the surface the fastener will penetrate.

6.7.3 Apply the fastener.

6.7.4 Seal over the fastener making sure to encapsulate the fastener head completely.

6.7.5 Tool the sealant into place to fill in any voids and to promote adhesion.

6.7.6 Seal all screw heads and around any mullion anchors, etc. that may be present.

6.8 Ensure that the provided exterior sub-sill weep holes 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 into the sub-frame. Equalize the left to right tolerance to and ensure that mullion and subframe members have adequate purchase or overlap onto the window frame.

6.10 Install pre-fabricated stack mullion onto head of the hung window. Seal top exterior portion of stack mullion to mullion and sub jamb.

6.11 Set transom window's sill into stack mullion and tilt top of window into the sub-frame. Ensure that the exterior snap leg of the window sill snaps to the upstanding snap leg of the stack mullion. Equalize the left to right tolerance to and ensure that mullion and subframe members have adequate purchase or overlap onto the window frame.

6.12 Install interior trim clips with sheet metal screws through the trim clip and into the subframe and window frame as detailed on shop drawings. While installing trim clips ensure that hung window jambs are plum and not bowed. To do this; measure distance between jambs at the sill and make sure you achieve the same dimension at the meeting rail area.

6.13 During this critical step ensure that the trim clip is anchored tightly enough to provide complete compression of the weather seal of the subframe and the exterior of the window frames. Failure to ensure compression of this weather seal may lead to water intrusion issues.

6.14 Cut trim covers to length and snap to trim clip with a mallet.

6.15 Install mullion pressure plate (mill finish) by installing the provided fastener through pre punched holes in the pressure plate and into the body of the mullion. You will have to drill a pilot hole through the mullion body before installing screws because the wall thickness is greater than a typical self-tapping sheet metal screw will penetrate. Install fasteners through the pressure plate and into the jamb of each window as depicted in shop drawings. Stitching the mullion to the windows in this way will greatly enhance the structural performance of the window system and will minimize deflection when under full wind load. An impact type screw gun can be used to ensure full compression of the weather-seals of the mullion.

6.16 Measure and cut the interior mullion cover to length and install. Use a mallet and block of wood applying pressure that the extreme edge of the mullion cover to reduce the occurrence of dents.

6.17 If desired or called for on the approved Shop Drawings, a cap bead caulk seal may be applied to the entire window to sub-frame joinery and/or window to mullion connections to further ensure against water intrusion.

6.18 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.

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.

7.3 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.

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.