HANDLING, STORING, AND PROTECTION OF ALUMINUM

The material must be protected against damage. The following precautions are recommended to assure early acceptance of your products and workmanship.

A. HANDLE CAREFULLY - Don't drop from the truck. Stack with adequate separation so material will not rub together. Store off the ground. Protect against elements and other construction trades. Wear hand protection to prevent injury due to sharp edges of cut extrusions.

B. KEEP MATERIAL AWAY FROM WATER, MUD AND SPRAY - Prevent cement, plaster, or other materials from damaging the finish.

C. PROTECT THE MATERIALS AFTER ERECTION - Protect by wrapping with Kraft paper or by erecting Visqueen or canvas splatter screen. Cement, plaster, terrazzo, other alkaline solutions and acid based materials used to clean masonry are very harmful to the finish and should be removed with water and mild soap IMMEDIATELY.

GENERAL INSTALLATION NOTES

The following practices are recommended for all installations:

A. CHECK SHOP DRAWINGS, INSTALLATION INSTRUCTIONS and GLAZING INSTRUCTIONS to become thoroughly familiar with the project. The SHOP DRAWINGS take precedence and include specific details for the project. The INSTALLATION INSTRUCTIONS are of a general nature and cover most common conditions.

B. All materials are to be INSTALLED PLUMB, LEVEL, AND TRUE.

C. All work should start from bench marks and/or column lines as established by the ARCHITECTURAL DRAWINGS and the GENERAL CONTRACTOR. Check mullion spacing from both ends of the masonry opening to prevent dimensional buildup of day light opening.

D. Make certain that construction which will receive your materials is in accordance with the contract documents. If not, notify the GENERAL CONTRACTOR IN WRITING and resolve differences before proceeding with your work.

E. Isolate all aluminum to be placed directly in contact with uncured masonry or incompatible materials with a heavy coat of zinc chromate or bituminous paint.

F. Check all materials on arrival for quantity and be sure you have everything required to begin installation.

G. Sealants must be compatible with all materials with which they have contact, including other sealant surfaces. Consult with sealant manufacturer for recommendations relative to joint size, shelf life, compatibility, priming, tooling, adhesion, etc.

H. FASTENING - "Fastening" means any method of securing one part to another or to adjacent materials. These instructions specify only those fasteners used within the system. Due to varying perimeter conditions and job performance requirements, anchor fasteners are not specified in these instructions. For anchor fastening, refer to the Shop Drawings or consult the fastener supplier.

I. CHECK OPENINGS - Make certain that the opening which will receive your materials is in accordance with the contract documents. If not, notify the GENERAL CONTRACTOR IN WRITING and resolve differences before proceeding with your work.

J. BUILDING CODES - Glass and glazing codes governing the design and use of products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility for these design considerations. It is the responsibility of the owner, specifier, architect, general contractor and the installer to make these selections in strict conformance with all applicable codes.

K. EXPANSION JOINTS - Expansion joints and perimeter seals shown in these instructions and in the shop drawings are shown at normal size. Actual dimensions may vary due to perimeter conditions and /or difference in metal temperature between the time of fabrication and time of installation. For example, a 12 foot unrestrained length of aluminum extrusion can expand or contract 3/32" over a 50° F temperature change. Any movement potential should be accounted for at the time of installation.

L. FIELD TESTING - It is recommended that a Water Hose Test be conducted once a sufficient portion of the framing is installed, glazed and caulked to ensure proper installation. The Water Hose Test shall be conducted in accordance with AAMA 501.2. In addition, larger projects should have periodic Water Hose Tests as additional precautionary measures.

1600 SS NOTES

1600 SS is available with 1" framing members which accept both 1" and 1/4" infills.

Glass bite is 1/2" at verticals and horizontals. Glass sizes must be calculated from approved shop drawings.

Unless otherwise specified, it is recommended that silicone sealant be used for all internal seals.

Sealant must be applied per the sealant manufacturer's recommendations and pass all adhesion and compatibility testing. At all joint seals, sealant must adhere to metal, gaskets, thermal separator and joint plug materials. Clean all surfaces prior to application of sealant and prime where necessary to achieve proper adhesion.

CHECK OPENINGS

Elevations and slabs must be within adjustment of anchoring system. See approved shop drawings for allowable adjustment.

Anchoring surfaces of perimeter construction must be level and plumb within the adjustment limits of the head, sill and jamb. See approved shop drawings for allowable adjustment.

LAYOUT ANCHOR AND MULLIONS CENTERLINES

Use wall lines established by the general contractor. On each floor lay out a reference line to establish in and out wall locations.

Use column center lines established by the general contractor. On each floor lay out mullion center lines and anchor center lines.



See approved shop drawings for anchor lay outs.

These instructions show the 6" system. The 7 1/2" system is similar.

169970 (SHT 1 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005

INSTALL OPTIONAL 027-493 VERTICAL AIR SEAL

Install 027-493 air seal into reglet of mullion full length as shown. Stake into reglet after the gasket is centered in the correct position.

AIR SEAL ONLY REQUIRED WHEN PERIMETER SEAL IS MADE AT FACE OF MULLION TUBES



INSTALL 162-310 THERMAL BREAK AT HORIZONTALS

DO NOT STRETCH WHEN REMOVING FROM COIL, CARTON AND DURING INSTALLATION

Do not install thermal break into verticals at this time.



"RTS" refers to the reversed thermal separator application. Typical throughout these instructions.

DO NOT STRETCH WHEN REMOVING FROM COIL, CARTON AND DURING INSTALLATION

The optional 169-200 can be pre-installed into the horizontal and vertical RTS pressure plates when specified. The thermal separator is to be the same length as horizontal and vertical RTS pressure plates. The 162-310 thermal separator may be required at special applications.



FRAME ASSEMBLY - Bottom Units

Assemble verticals to horizontals using 128-509 #12 x 1" Hex Washer Head Type AB. Install stop screws as noted.

Frame is shown in the upright position, but may be assembled in any desirable position.

For both horizontal ends apply sealant as shown below and tool sealant after assembly.

NOTE: FACE SEALING JOINTS AT ALL 4 CORNERS MAY BE DONE IN LIEU OF SEALING HORIZONTAL ENDS PRIOR TO INSTALLING GLAZING GASKETS. REFER TO PAGE 5 OF THE INSTALLATION INSTRUCTIONS.







Assembled Unit

128-509

Screws

Female

128-509

Screws





FRAME ASSEMBLY - Intermediate Units



169970 (SHT 3 OF 12)

FRAME ASSEMBLY - Top Units

Assemble verticals to horizontals using 128-509 #12 x 1" Hex Washer Head Type AB. Install splice sleeve at mullion bottom as noted.

Frame is shown in the upright position, but may be assembled in any desirable position.

For both horizontal ends apply sealant as shown below and tool sealant after assembly.

NOTE: FACE SEALING JOINTS AT ALL 4 CORNERS MAY BE DONE IN LIEU OF SEALING HORIZONTAL ENDS PRIOR TO INSTALLING GLAZING GASKETS. REFER TO PAGE 5 OF THE INSTALLATION INSTRUCTIONS.



 (\mathcal{O})

Horizontal





169970 (SHT 5 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005

INSTALL SPANDREL ADAPTERS WHERE APPLICABLE



NOTE: Do not install perimeter fillers at this time if perimeter seal in located at the face of the mullion tube. Reference approved shop drawings.



INSTALL INTERIOR GLAZING GASKETS

Prior to installing gaskets, make sure all gasket grooves and pockets should be clean.

Gaskets can become deformed during storage in cartons. They should be removed from cartons several hours prior to installation and laid flat or hung to allow recovery of correct shape. Temperatures should be at least 50° F to allow this.

Gasket installed length to be daylite opening. Gaskets to be cut long for some "crowd in". Gaskets should never be "stretched to fit".

"Crowd in" to be 1/8" per foot up to 5'-0", 3/16" per foot up to 8'-0", 1/4" per foot over 8'-0".

169970 (SHT 5 OF 12)

| KAWNEER | | 1600 SS |
|-----------------------------------|--|------------------------------|
| Product Engineering & Development | | INSTALLATION INSTRUCTIONS |
| 95505-17 | | |

05/18/12

INSTALL INTERIOR GLAZING GASKETS

NOTE: IN TEMPERATURES COLDER THAN 50° F, GASKETS SHOULD BE WARMED AND INSTALLED JUST PRIOR TO GLAZING. THIS WILL PREVENT EXCESSIVE GLAZING PRESSURE ON THE GLASS DUE TO COLD, STIFF RUBBER GASKETS.

NOTE: IF HORIZONTAL ENDS WERE SEALED DURING FRAME ASSEMBLY, FACE SEALING JOINTS AT ALL 4 CORNERS NOT REQUIRED.



ANCHORING OPTIONS

Where aluminum angle head and sill anchors are required, prep for perimeter fasteners per approved shop drawings.



NOTE: Head and sill horizontals will require access holes to install perimeter fasteners.



INSTALL UNITS

Install assembled frames according to erection drawings.

Install anchors into top and bottom of mullions as shown below.

Bring first unit into place and measure opening to make sure you will have a minimum of 1/2" shim space at terminating jamb before anchoring.



INSTALL UNITS

Reference approved shop drawings for anchoring.

All steel anchors must be separated from aluminum mullions. Use 027-477 separators.

Units must be installed level, plumb and square.

Secure frame with clamps and apply 128-402 $1/4-14 \times 1$ " HWHSD to temporarily fix frame in place. Install next frame prior to match drilling mullion and applying thru bolts.

Note: Temporary fastener must be removed after thru bolting mullions at all wind load anchors.



Install the next unit into place per approved shop drawings. Straps applied to units for hoisting should not interfere with mullion engagement.

NOTE: CHECK OVERALL FRAME DIMENSIONS ABOUT EVERY FIVE UNITS ON LONG RUNS TO AVOID DIMENSIONAL BUILD-UP.



169970 (SHT 6 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005

INSTALL UNITS

Secure frame with clamps and apply 128-402 1/4-14 x 1" HWHSD to temporarily fix frame in place. Install next frame prior to match drilling mullion and applying thru bolts.

Note: Temporary fastener must be removed after thru bolting mullions at all wind load anchors.



INSTALL UNITS USING BACK ANCHORS

Reference approved shop drawings for anchoring.

All steel anchors must be separated from aluminum mullions. Use 027-477 separators.

Units must be installed level, plumb and square.

Apply 128-935 1/2-13 x 3" Grade 5 HHMS to 169-204 back anchor lug and crimp into place.

 Install unit into place. Apply 169-204 back anchor lug inside mullion half and fasten back to anchor per approved shop drawings.
When next unit is being installed, secure installed unit and loosen back anchor lug enough to engage next unit as shown. Notch in next unit should align with back anchor lug.

3. Tighten back anchor lug securing both units in place.







Insert thermal break (162-310) along the full length of the vertical mullion tongue and trim flush at top and bottom of part.

The 162-310 thermal separator is not required at mullions where the 169-200 thermal separator has been applied to the corresponding vertical pressure plate as noted on sheet 2.



169970 (SHT 7 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005

INSTALL HEAD AND SILL END CAPS WHERE APPLICABLE



 International internatinternational international international inter

SPLICE JOINT SEAL

All surfaces and grooves must be cleaned and sealant applied per the sealant manufacturer's recommendations. Tool sealant.



1) Interior sleeve (2) Stop screw and set screw 2 Apply bond breaker tape (3) to sleeves Seal face of interior (4) 1 sleeves and gaskets (5) Seal tongue 3 ໌ 3ີ joint Seal spandrel (6) adapter joints 6



PERIMETER SEAL AT FACE OF MULLION TUBES OPTIONAL

Apply backer rod and primary perimeter seal as shown where specified. This application requires the 027-493 air seal gasket between mullion halves.

All surfaces and grooves must be cleaned and sealant applied per the sealant manufacturer's recommendations. Tool sealant.

Prior to glazing, inspect all seals and repair any that may be suspect.

Perimeter seals required at pressure plates will be completed on a later step.



PERIMETER FILLERS

NOTE: Install perimeter fillers after perimeter seal at the face of the mullion tube has been applied. Reference sheet 5 and approved shop drawings.

PERIMETER FILLER











MAXIMUM TEMPORARY SPACING IS 30". IF WINDS GREATER THAN 50 MPH (80KPH) ARE EXPECTED, ADDITIONAL TEMPORARIES MAY BE REQUIRED. CONSULT YOUR SEALANT AND/OR INFILL SUPPLIER FOR SPACING RECOMMENDATIONS. INSTALL PRESSURE PLATES WHERE POSSIBLE.



169970 (SHT 9 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005



95505-17 05/18/12

169970 (SHT 9 OF 12)

INSTALL EXTERIOR PRESSURE PLATES

Recommend using torque limit tool 162-399 see note.



HOW TO SET TORQUE LIMIT

1. Attach any calibrated torque indicator to output stub (1) and determine present torque setting while holding the body (5), or vice-versa.

2. Remove snap ring (2) and locking plate (3).

3. Adjust nut (4) with open-end wrench : clockwise to increase torque, counter-clockwise to decrease torque.

4. Obtain new torque reading with the calibrated torque indicator. repeat preceding step if more adjustment is necessary to reach desired limit.

5. Replace locking plate into notches and install snap ring. If locking plate does not "seat", move the adjusting nut slightly until it drops in place. the direction is best determined by whether a minimum torque application or a maximum one is desired.



Install pressure plates using screws 128-406 1/4-14 x 1" hex washer head type AB.

Note: Install 128-249 1/4 x 1 1/4" hex washer head thread forming type AB screws at pressure plates with pre-installed thermal separator.



Screws are to be located 9" on center. Always locate a screw as close as possible to a horizontal joint. This will provide maximum pressure for the critical joint seals.

Install horizontal pressure plates with the weep holes towards the top of the horizontal.

At each horizontal and vertical pressure plate install two screws part way, then install the third screw all the way and then tighten the first two screws. This eliminates lateral walking of the pressure plate position.

Torque all screws to 95 to 100 inch pounds. During cold weather torque screws to 50 inch pounds until all 4 sides have been clamped. Then torque screws to 95 to 100 inch pounds.

INSTALL EXTERIOR PRESSURE PLATES





Just before installing vertical pressure plates apply a generous amount of sealant to the joint plug face filling joints as shown.

CLEAN JOINT PER SEALANT



INSTALL EXTERIOR PRESSURE PLATES

Install vertical pressure plates

Note - The torgue limit tool was designed to be used with a hand driven device. The tool can be adapted to a drill motor if used at a maximum speed of approx. 300 rpm. Higher speeds can cause overheating and affect the accuracy. After approx. 1 hour of tool usage check torque settings with a torque wrench.

Intermediate horizontal vision over spandrel



169970 (SHT 10 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005

INSTALL EXTERIOR PRESSURE PLATES







INSTALL PERIMETER SEALS AT PRESSURE PLATE

Perimeter weather seals are installed at the pressure plate location as detailed below. (This seal should be installed before covers are applied when covers deeper than 3/4" are used) Exterior cosmetic seals at the cover may be applied at the head and jambs only. Sill covers must remain open to allow water drainage to the exterior.



169970 (SHT 11 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005

INSTALL EXTERIOR COVERS

Care must be taken to avoid damage to covers during installation. Use a 18" long piece of 2 x 4 wood along with a hammer or mallet to seat the cover.



INSTALL EXTERIOR COVERS

Care must be taken to avoid damage to covers during installation. Use a 18" long piece of 2 x 4 wood along with a hammer or mallet to seat the cover.



horizontal closest to the cover height center. (ONE SIDE ONLY AT JAMBS) 128-920 5/16" #6 SCREWS INSTALL HORIZONTAL COVERS WITH THE WEEP HOLES DOWN EQUAL SPACE BOTH ENDS OF HORIZONTAL COVER VERTICAL COVER HORIZONTAL COVER **GREATER THAN** 1-1/4" PROJECTION 9/16" 128-920 ۲6 ج For horizontal covers with a #6 SCREWS projection deeper than 1 1/4", the covers are to be pinned as shown at the center of the 162-358 cover width. PRESSURE PLATE 🗲

Pinning of all vertical covers is required for both sides.

screws #6 x 3/8" pan head type b locate pinning at a

Drill a .106 dia. hole (#36 drill) and install 128-920

INSTALL EXTERIOR COVERS

REMOVING COVERS



169970 (SHT 12 OF 12)

CONFIDENTIAL AND PROPRIETARY INFORMATION KAWNEER COMPANY INC.

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF KAWNEER AND CONTAIN SENSITIVE, PRIVILEGED OR CONFIDENTIAL INFORMATION WHICH MAY BE USED ONLY FOR ITS BENEFIT. THE DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON DEMAND. © COPYRIGHT KAWNEER COMPANY, INC., 2005



1600 SS

INSTALLATION

Product Engineering & Development INSTRUCTIONS

95505-17 05/18/12

169970 (SHT 12 OF 12)