SECTION 08 4423

POINT SUPPORT FITTINGS

USE THIS SECTION WHEN SPECIFYING POINT SUPPORT FITTINGS, AND SPIDER FITTINGS USED FOR ALL-GLASS RAILINGS, ENTRANCES, AWNINGS, OR CURTAIN WALL ASSEMBLIES.

THIS SECTION CAN BE USED AS WRITTEN WHEN THE SCOPE IS LIMITED TO PROVIDING THE POINT SUPPORT FITTINGS FOR INSTALLATION BY OTHER TRADES, OR COMBINED WITH OTHER SECTIONS; SECTION 05 73 13 SECTION 08 42 26 ALL-GLASS ENTRANCES, SECTION 08 43 26 ALL-GLASS STOREFRONTS, OR SECTION 08 44 26 STRUCTURAL GLASS CURTAIN WALL.

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass Railing fittings
B. Spider fittings for glass awnings
C. Spider fittings for structural glass curtain wall.

1.02 DEFINITIONS

1.03 REFERENCE STANDARDS

A. AAMA 501.4 - Recommended Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Induced Interstory Drifts; 2009.
B. AAMA 501.6 - Recommended Dynamic Test Method For Determining The Seismic Drift Causing Glass Fallout From A Wall System
C. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 2010.
D. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2003.

1.04 SUBMITTALS

A. Product Data:
   1. LEED: Completed “LEED Criteria Worksheet,” for each product, or assembly.
      a. Credit MR 4.1 and Credit MR 4.2, Recycled Content: For products having recycled content, documentation indicating percentages by weight of post-consumer and pre-consumer recycled content. Include a statement indicating costs for each product or assembly having recycled content.
   2. Shop Drawings:
      a. Plans, sections, elevations, and details with point support fittings identified by manufacturer's part numbers, dimensions, materials, finishes, connections, method of anchorage to structure and glass thickness and type.
   3. Manufacturer's Qualification Statement.
   4. Test Reports: Submit results of full-size mock-up testing. Reports of tests previously performed on glass curtain wall supported by CRL FMH [____], [____], [____] series
point load fittings are acceptable. Test reports for testing performed on a glass curtain wall supported by CRL FMH series point load fittings with half mounted to glass buttress fins and half to tubular steel posts are available from CRL upon request. Test reports include tests performed in accord with ASTM E330, AAMA501.4, and AAMA 501.6.

5. Manufacturer's Instructions: Indicate ____________.

1.05 QUALITY ASSURANCE

A. Field Measurements: Verify actual dimensions by field measurement before fabrication; show recorded measurements on shop drawings.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than 5 years of documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years of documented experience.

D. Provide point support fittings from a single source.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. C.R. Laurence Co, Inc., 2200 E. 55th St., Los Angeles, CA 90058-3488; Tel: (800) 421-6144 or (323) 588-1281 Ext. 7770; Fax: (866) 921-0532 or (323) 581-6522; Email: archmetals@crlaurence.com.

2.02 POINT SUPPORT FITTINGS

A. General: Fittings are stainless steel 316 Alloy; in brushed (BS suffix), or polished (PS suffix) finish. Heavy Duty Spider Fittings can accommodate glass thickness from 1/2 inch to 1-1/16 inch. Regular Duty Spider Fittings can accommodate glass thickness from 3/8 inch to 1/2 inch. Mini Spider Fittings are reduced in size for interior dividers, displays, and hand railing applications. Glass must be tempered glass (do not use with annealed, float, or raw glass).

2.03 SPIDER FITTINGS FOR STRUCTURAL GLASS CURTAIN WALL

A. Heavy Duty Spider Fittings.
   1. Post Mount
      a. Single Arm Fitting used to attach a single glass panel to a structural end post.
         1) PMH1BS
         2) PMH1PS
      b. Double Arm Fitting used to attach two in-line glass panels to a structural center post.
         1) PMH2BS
         2) PMH2PS
      c. Single Long Arm Fitting used to attach a single glass panel to a structural end post and match over "V" fittings arms.
         1) PMH1LBS
         2) PMH1LPS
      d. Double Arm "V" Fitting used to attach a single glass panel to a structural end post, or two in-line glass panels to a structural center post.
         1) PMH2VBS
         2) PMH2VPS
      e. 3-Way Arm Fitting used to attach 3 in-line glass panels to a structural center post where they abut to a soffit corner.
         1) PMH3BS
         2) PMH3PS
      f. 4-Way Arm Fitting used to attach 2 in-line glass panels to a structural center post.
         1) PMH4BS
         2) PMH4PS
      g. Double Arm "V" 90 Degree Fitting used to attach two 90 degree glass panels at the top
or bottom of a structural corner post.
1) PMH2V90BS
2) PMH2V90PS
h. 4-Way Arm 90 Degree Fitting used to attach two 90 degree glass panels in the middle
to a structural corner post.
1) PMH490BS
2) PMH490PS

2. Attachment Options
   a. Rigid Head Combination Glass Attachment Fitting provides a secure attachment and
      minimize deflection of glass panel. Typically for interior use only. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
      1) HRF14BS
      2) HRF14PS
   b. Head Combination Glass Attachment Fitting provides up to 6 degrees in any direction
      on its ball and socket joint. Use in conditions where the glass is subject to live loads.
      Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
      1) HSF14BS
      2) HSF14PS

3. Wall/Fin Mount
   a. Single Arm Wall/Fin Fitting used to attach a single glass panel to a wall or structural fin.
      1) FMH1BS
      2) FMH1PS
   b. Left Hand Single Arm Wall/Fin Fitting used to attach a single glass panel to a wall or
      structural glass fin.
      1) FMH1LHBS
      2) FMH1LHPS
   c. Right Hand Single Arm Wall/Fin Fitting used to attach a single glass panel to a wall or
      structural glass fin.
      1) FMH1RHBS
      2) FMH1RHP5
   d. Double Arm Wall/Fin Fitting used to attach two in-line glass panels to a structural fin.
      1) FMH2BS
      2) FMH2PS
   e. Double Arm "V" Wall/Fin Fitting used to attach a single glass panel to a wall or
      structural fin.
      1) FMH2VBS
      2) FMH2VPS
   f. Four Arm "V" Wall/Fin Fitting used to attach two in-line glass panels to a structural
      center fin.
      1) FMH4BS
      2) FMH4PS

4. Attachment Options
   a. Rigid Head Combination Glass Attachments allow for a secure attachment and
      minimize the deflection of the glass panels. Flush (countersunk hole in glass) or cap
      (standard hole in glass) mount.
      1) HRF14BS
      2) HRF14PS
b. Swivel Head Combination Glass Attachment can tilt up to 6 degrees in any direction on its ball and socket joint. Use in conditions where the glass is subject to live loads. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
   1) HSF14BS
   2) HSF14PS

B. Regular Duty Spider Fittings
   1. Post Mount
      a. Single Arm Fitting used to attach a single glass panel to a structural end post.
         1) PMR1BS
         2) PMR1PS
      b. Double Arm Fitting used to attach two in-line glass panels to a structural center post.
         1) PMR2BS
         2) PMR2PS
      c. Single Long Arm Fitting used to attach a single glass panel to a structural end post and match over "V" fittings arms.
         1) PMR1LBS
         2) PMR1LPS
      d. Double Arm "V" Fitting used to attach a single glass panel to a structural end post, or two in-line glass panels to a structural center post.
         1) PMR2VBS
         2) PMR2VPS
      e. 3-Way Arm Fitting used to attach 3 in-line glass panels to a structural center post where they abut to a soffit corner.
         1) PMR3BS
         2) PMR3PS
      f. 4-Way Arm Fitting used to attach 2 in-line glass panels to a structural center post.
         1) PMR4BS
         2) PMR4PS
      g. Double Arm "V" 90 Degree Fitting used to attach two 90 degree glass panels at the top or bottom of a structural corner post.
         1) PMR2V90BS
         2) PMR2V90PS
      h. 4-Way Arm 90 Degree Fitting used to attach two 90 degree glass panels in the middle to a structural corner post.
         1) PMR490BS
         2) PMR490PS
   2. Attachment Options
      a. Rigid Head Combination Glass Attachment Fitting provides a secure attachment and minimize deflection of glass panel. Typically for interior use only. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
         1) RRF10BS
         2) RRF10PS
      b. Swivel Head Combination Glass Attachment can tilt up to 6 degrees in any direction on its ball and socket joint. Use in conditions where the glass is subject to live loads. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
         1) RSF10BS
         2) RSF10PS
   3. Wall/Fin Mount
      a. Single Arm Wall/Fin Fitting used to attach a single glass panel to a wall or structural fin.
         1) FMR1BS
         2) FMR1PS
b. Left Hand Single Arm Wall/Fin Fitting used to attach a single glass panel to a wall or structural glass fin.
   1) FMR1LHBS
   2) FMR1LHPS

c. Right Hand Single Arm Wall/Fin Fitting used to attach a single glass panel to a wall or structural glass fin.
   1) FMR1RHBS
   2) FMR1RHPS

d. Double Arm Wall/Fin Fitting used to attach two in-line glass panels to a structural fin.
   1) FMR2BS
   2) FMR2PS

e. Double Arm "V" Wall/Fin Fitting used to attach a single glass panel to a wall or structural fin.
   1) FMR2VBS
   2) FMR2VPS

f. Four Arm "V" Wall/Fin Fitting used to attach two in-line glass panels to a structural center fin.
   1) FMR4BS
   2) FMR4PS

4. Attachment Options
   a. Rigid Head Combination Glass Attachment Fitting provides a secure attachment and minimize deflection of glass panel. Interior use only. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
      1) RRF10BS
      2) RRF10PS

   b. Swivel Head Combination Glass Attachment can tilt up to 6 degrees in any direction on its ball and socket joint. Use in conditions where the glass is subject to live loads. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
      1) RSF10BS
      2) RSF10PS

C. Mini Spider Fittings
   1. Post Mount
      a. Single Arm Fitting used to attach a single glass panel to a structural end post.
         1) GRP1BS
         2) GRP1PS

      b. Double Arm Fitting used to attach two in-line glass panels to a structural center post.
         1) GRP2BS
         2) GRP2PS

      c. Single Long Arm Fitting used to attach a single glass panel to a structural end post and match over "V" fittings arms.
         1) GRP1LBS
         2) GRP1LPS

      d. Double Arm "V" Fitting used to attach a single glass panel to a structural end post, or two inline glass panels to structural center post.
         1) GRP2VBS
         2) GRP2VPS

      e. 4 Arm "V" Fitting used to attach a single 2 in-line glass panels to a structural center post.
         1) GRP4BS
         2) GRP4PS

   2. Attachment Options
a. Rigid Head Combination Glass Attachment Fitting provides a secure attachment and minimize deflection of glass panel. Interior use only. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
   1) GRF1BS
   2) GRF1PS
b. Swivel Head Combination Glass Attachment can tilt up to 6 degrees in any direction on its ball and socket joint. Use in conditions where the glass is subject to live loads. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
   1) GRF2BS
   2) GRF2PS
c. Double Arm "V" Fitting used to attach a single glass panel to a wall or structural fin.
   1) GRF2VBS
   2) GRF2VPS
d. Four Arm "V" Fitting used to attach two in-line glass panels to a structural center fin.
   1) GRF4BS
   2) GRF4PS

3. Wall/Fin Mount
   a. Single Arm Fitting used to attach a single glass panel to a wall or structural fin.
      1) GRF1BS
      2) GRF1PS
   b. Double Arm Fitting used to attach two in-line glass panels to a structural fin.
      1) GRF2BS
      2) GRF2PS
   c. Double Arm "V" Fitting used to attach a single glass panel to a wall or structural fin.
      1) GRF2VBS
      2) GRF2VPS
   d. Four Arm "V" Fitting used to attach two in-line glass panels to a structural center fin.
      1) GRF4BS
      2) GRF4PS

4. Attachment Options
   a. Rigid Head Combination Glass Attachment Fitting provides a secure attachment and minimize deflection of glass panel. Interior use only. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
      1) GRF1BS
      2) GRF1PS
   b. Swivel Head Combination Glass Attachment can tilt up to 6 degrees in any direction on its ball and socket joint. Use in conditions where the glass is subject to live loads. Flush (countersunk hole in glass) or cap (standard hole in glass) mount.
      1) GRF2BS
      2) GRF2PS

D. Spider Fitting Accessories
   1. Fin Top/Bottom Shoe Fitting for 3/4 inch glass used to connect the glass fins to the structure.
      a. FTF12BS; 12 inch fin.
      b. FTF12PS; 12 inch fin.
      c. FTF16BS; 16 inch fin.
      d. FTF16PS; 16 inch fin.
      e. FTF20BS; 20 inch fin.
      f. FTF20PS; 20 inch fin.
      g. FTF24BS; 24 inch fin.
      h. FTF24PS; 24 inch fin.
   2. Fin Suspension Fittings used to hang the glass fins from the structure of the ceiling by the Fin Top/Bottom Shoe Fittings. No glass fabrication required.
      a. FSU12BS
      b. FSU12PS
      c. FSU24BS
      d. FSU24PS
   3. Post Adapters custom length to specifications available for round or flat posts.
      a. AMSOB112CBS; 1 1/2 inches.
      b. AMSOB112CPS; 1 1/2 inches.
c. AMSOB2CBS; 2 inches.
d. AMSOB2CPS; 2 inches.

4. 90 degree corner bracket used to secure glass at 90 degree corners.
   a. CBP90BS
   b. CBP90PS

5. 135 degree corner bracket used to secure glass at 135 degree corners.
   a. CBP135BS
   b. CBP135PS

6. 2-Way glass / 1-Way wall circular bracket used to link two in-line of glass to a fin support, or
   when split apart they can be used to connect one panel to a wall.
   a. CCB2BS
   b. CCB2PS

7. 4-Way glass / 2-Way wall circular bracket used to link two or four in-line panels of glass to a
   fin support behind.
   a. CCB4BS
   b. CCB4PS

8. Link bracket used to connect two 1/2 inch glass in-line panels together to reduce differential
   deflection.
   a. CLB1BS
   b. CLB1PS

9. Fin Splice Fitting for 3/4 inch glass used to stack multiple

10. Swivel Head Combination Glass Attachment can tilt up to 6 degrees in any direction on its
   ball and socket joint. Use in conditions where the glass is subject to live loads. Flush
   (countersunk hole in glass) or cap (standard hole in glass) mount.
   a. RSF10BS
   b. RSF10PS

2.04 GLASS ATTACHMENTS

A. Rigid Cap fittings for 1/2 inch to 5/8 inch thick tempered glass: [RCF12BS], [RCF12PS],
   [RRF10BS], [RRF10PS] rigid combination fastener for 3/8 inch to 5/8 inch thick tempered glass.

B. Countersunk fittings for "all-glass" look: [Part no. SPP0BS brushed finish, [Part no. SPP0PS
   polished finish].

C. Swivel fittings: Post-mounted, countersunk for "all-glass' look, for use with 1/2 inch to 5/8 inch
   thick tempered glass; [part no. SCF12BS], [part no. SCF12PS], [part no. SCF34BS for use with
   3/4 inch thick tempered glass], [ part no. [SCF34BS], [SCF34PS] for use with 3/4 inch thick
   tempered glass], [part no. [SCAP34BS] [SCAP34PS] for use with 1/2 inch to 1-1/16 inch thick
   tempered glass], [Part no. HS1GF14BS brushed finish, heavy duty for use with 1-1/4 inch
   Insulating Glass Unit], [Part no. HS1G14PS polished finish, heavy duty for use with 1-1/4 inch
   Insulating Glass Unit], [Part no. HSFEX14BS brushed finish, heavy duty [Part no. RSFEX10BS
   brushed finish, regular duty [Part no. RSFEX10PS polished finish, regular duty]. Can be installed
   from the exterior of the wall. Up to 6 degrees in any direction on it's wall and socket joint. This
   allows for any stress applied to the glass to be evenly distributed across the entire panel of glass,
   rather than concentrating at the hole ].

D. Combination Swivel fittings: For use with countersunk or standard hole for use with 3/8 inch to
   5/8 inch thick tempered glass. [part no. RSF10BS], [pat no. RSF10PS]

E. Combination Swivel fittings: Adjustment up to 6 degrees in any direction on its ball and socket
   joint. This allows for any stress applied to the glass to be more evenly distributed across the
   entire panel of glass rather than concentrating at the hole. These are typically used in conditions
   where the glass will be subject to live loads.
1. For use with countersunk or standard hole with tempered glass up to 1/2 inch thick (RSF10BS), (RSF10PS).
2. For use with countersunk or standard hole with tempered glass from 1/2 inch - 1-1/8 inch thick (HSF14BS), (HSF14PS).

2.05 SPIDER FITTINGS FOR GLASS AWNINGS

A. Mounting hardware:
B. Support rods:

2.06 SUSPENSION SYSTEMS FOR GLASS FINS

A.

2.07 MATERIALS

A. Austenitic Stainless Steel castings: ASTM A743; 316 Alloy, Grade CF 8 or CF 8M.
B. Fasteners: Stainless Steel bolts: ASTM F593; 316 Alloy

2.08 SPIDER FITTING HARDWARE AND ACCESSORIES

A. Tools:

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions, approved shop drawings, and engineering calculations.
B. Point support fittings to be mounted to glass fin, structural post, rod or cable structure.
C. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
D. Provide alignment attachments and shims to permanently fasten system to building structure.
E. Align assembly plumb and level, free of twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

3.03 TOLERANCES

A. Maximum Variation From True Position: [+/− 1/8 inch] maximum in 12 ft.- 0 inch runs, non-cumulative..
B. Maximum Offset From True Alignment Between Adjacent Members Butting or In-Line: +/- 1/32 inch.

END OF SECTION