SECTION 11 61 23
RISER & PORTABLE STAGING EQUIPMENT
SIGHTLINE COMMERCIAL SOLUTIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Riser and Portable Staging Equipment of the Following Types:

1. Platforms. (SC90®)
2. Platforms. (SC90® Clarity)
3. Platforms. (SC97)
4. Platforms. (Clima-Core®)
5. Platforms. (SC90 Trex® Deck)
6. Leg supports. (SC90®)
7. Bridge support systems. (SC9600)
8. Beam spanning support systems. (Relia)
9. Ledger Angle Support System
10. Folding frame system. (SC100)
11. Folding seat multi-level riser system. (SC2000)
12. Rolling drum riser.
13. ADA compliant ramp transitions.
14. ProRiser
15. Uplift™

B. Accessories:

1. Fixed stair units.
2. Adjustable stair units.
3. Guardrails.
4. Closure panels.
5. Stage skirting.
6. Aisle lights.
7. Chair stops.
8. VIP drink rail.
9. Crowd control barricades.
10. Courier®
11. Storage & Transport carts.

1.2 RELATED SECTION

A. Section 05 51 00 - Metal Stairs.

B. Section 05 51 33 - Metal Ladders.

C. Section 05 52 00 - Metal Railings.

D. Section 09 60 00 – Flooring.

E. Section 09 90 00 – Painting and Coating

F. Section 12 62 13 - Folding Chairs.

1.3 REFERENCES

A. American National Standards Institute (ANSI)

1. A17.1 Accessible and Usable Buildings and Facilities.

2. A21.l Safety Requirements for Floor and Wall Openings, Railings and Toe Boards.

3. A58.l Minimum Design Loads in Buildings and Other Structures.

B. American Society for Testing and Materials (ASTM)

1. A240/A240M – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

2. ASTM A283 -Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.

3. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

4. ASTM A325 - Standard Specification for High-Strength Bolts for Structural Steel Joints.

5. A554 - Standard Specification for Welded Stainless Steel Mechanical Tubing.

6. A555 - Standard Specification for General Requirements for Stainless Steel Wire and Wire Rods.

7. A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar. B26/B26M - Standard Specification for Aluminum-Alloy Sand Castings.

8. B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

9. B210 – Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes.

10. B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

11. B247 - Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings.

12. B429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.

13. E488 - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements.

14. E894 - Standard Test Method for Anchorage of Permanent Metal Railing Systems and Rails for Buildings.

C. National Association of Architectural Metal Manufacturers (NAAMM):

1. AMP 500-505 – Metal Finishes Manual.

2. AMP 521 – Pipe Railing Systems.

D. Aluminum Association (AA):

1. ASD-1 Aluminum Standards and Data.

2. DAF-45 Designation System for Aluminum Finishes.

3. SAA-46 Standards for Anodized Architectural Aluminum.

4. ADM-2015 Aluminum Design Manual

E. American Plywood Association (APA)

1. US. Product Standard PS 1 - Structural Plywood.

F. American Welding Society (AWS):

1. ANSI/AWS D1.1/D1.1M Structural Welding Code - Steel.

2. ANSI/AWS D1.2/D1.2M Structural Welding Code - Aluminum.

3. ANSI/AWS D1.6/D1.6M Structural Welding Code – Stainless Steel.

G. Americans with Disabilities Act (ADA).

H. Americans with Disabilities Act Accessibility Guidelines (ADAAG).

I. International Code Council (ICC): International Building Code (IBC).

1. ICC300 - Standard for Bleachers, Folding and Telescopic Seating, and Grandstands.

J. National Fire Protection Association (NFPA)

1. NFPA 102: Standard for Assembly Seating, Tents, and Membrane Structures.

K. Steel Structures Painting Council (SSPC):

1. SSPC SP3: Power Tool Cleaning.

1.4 PERFORMANCE REQUIREMENTS

A. General: Components shall withstand structural loading as determined by allowable design working stresses of materials.

B. Provide components capable of withstanding effects of gravity loads and the following structural loads without exceeding allowable design working stress of materials for components, anchors and connections:

C. Platforms Structural Performance:

1. Uniform Distributed Live Load (Stage): 150 lbs per sq ft (732.4 kg per sq m).

2. Uniform Distributed Live Load (Riser): 100 lbs per sq ft (488.2 kg per sq m).

3. Lateral Sway-Bracing Loads:

a. Applied Parallel: 24 lbs per ft (350 N per m)

b. Applied Perpendicular to Platforms: 10 lbs per ft (145.9 N per m)

D. Railing Structural Performance:

1. Top of Guards & Handrails:

a. Concentrated load of 200 lbf (0.89kN) applied at any point and in any direction.
b. Uniform load of 50 lbf/ft. (0.7kN/m) applied in any direction.
c. Concentrated and uniform loads need not be assumed to act concurrently.

2. Guards Infill Area:

a. Concentrated load of 50 lbf (0.22 kN) applied horizontally to a 1 sq. ft. (0.09 sq. m) at any point in system. Including panels, intermediate rails, balusters, or other elements composing infill area.
b. Infill load need not be assumed to act concurrently with other loads in determining stress on guard.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data:

1. Manufacturer's data sheets on each product to be used, including:

2. Preparation instructions and recommendations.

3. Storage and handling requirements and recommendations.

4. Installation methods.

C. Shop Drawings: Submit plan and typical section detail to depict the proper configuration, assembly, installation, and termination of each product specified in this section. Including: Section details, Mounting methods, Typical Elevations, and Key plan layout.

D. Verification Samples: Provide samples by request of the owner, architect or consultant.

E. Manufacturer's Certificates and Test Reports: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of five (5) years' experience.

1. Sightline Commercial Solutions, 7008 Northland Drive North, Minneapolis, MN 55428; Toll Free Tel: 877-215-7245; Email: info@sightlinecommercial.com.

2. Installer's Qualifications: Firm experienced in installation or application of systems similar in complexity to those required for this Project.

a. Acceptable to or licensed by manufacturer.
b. Not less than 3 years experience with systems.

B. Platform System:

1. System components: Pre-engineered by registered Professional Engineer licensed in the State in

which project is located.

2. Attachments to building structure: Pre-engineered by registered Professional Engineer licensed in State in which project is located.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

C. Protect from damage due to weather, excessive temperature, and construction operations. Store in a cool, dry place out of direct sunlight. Store products indoors in temperature-controlled facility.

1.8 PROJECT CONDITIONS

A. Field Measurements: Where products are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication.

B. Where field measurements cannot be made without delaying the products fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products to not delay fabrication, delivery and installation.

C. Coordinate fabrication and delivery schedule of products with construction progress and sequence to avoid delay of product installation.

D. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

A. At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

PART 2– PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Sightline Commercial Solutions, 7008 Northland Drive North, Minneapolis, MN 55428; Toll Free Tel: 877-215-7245; Email: info@sightlinecommercial.com.

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 MATERIALS

A. Aluminum:

1. Extruded Pipe: Alloy 6061-T6 or similar.

2. Extruded Bars, Shapes and Moldings: Alloy 6005A-T51 or 6061-T6 or similar.

3. Sheet: Alloy 5052-H32 or 6061-T6 or 6005A-T61 or similar

B. Stainless Steel:

1. Tubing: ASTM A 554, Type 304 or 316.

2. Pipe: ASTM A 312/A 312M, Type 304 or 316.

3. Castings: ASTM A 743/A 743M, Grade CF 8 or CF 20 or CF 8M or CF 3M.

4. Sheet, Strip, Plate, and Flat Bar: ASTM A 666 or ASTM A 240/A 240M, Type 316.

5. Bars and Shapes: ASTM A 276 - Type 316

C. Steel:

1. Tubing: ASTM A 500/A 500M, A 513

2. Pipe: ASTM A 53

3. Sheet, Strip, Plate, and Flat Bar: ASTM A 36/A 36M

4. Bars and Shapes: ASTM A 29/ A 28M

2.3 RISER AND PORTABLE STAGING EQUIPMENT

A. Basis of Design: SC90 Platform as manufactured by Sightline Commercial Solutions.

1. Single side, indoor and outdoor portable platform.

2. Fully field repairable.

3. Frame Edging: 4 in (101 mm) extruded 6105-T5 aluminum frame, including protective edge.

4. Built-in Roto-Lock system.

5. Subfloor:

a. 1 in (25 mm) thick, Structural 1 (S1) exterior grade plywood.
   i) Aluminum skin backer.
   ii) Finished Surface: High Density Polyethylene. Black.
   iii) Finished Surface: High Density Polyethylene. Gray.
   iv) Finished Surface: Carpet.
   v) Finished Surface: Plyron. Tempered hardboard.
   vi) Finished Surface: Unfinished or painted plywood.
   vii) Finished Surface: Tongue and groove wood. (For tongue and groove wood, the frame edging is 4-3/4 in (120.65 mm)).

b. 3/4 in (19 mm) thick, Structural 1 (S1) exterior grade plywood. (For 3/4 in wood, the frame edging is 3 3/4 in (120.65 mm)).
   i) Aluminum skin backer.
   ii) Finished Surface: High Density Polyethylene. Black.
   iii) Finished Surface: High Density Polyethylene. Gray.
   iv) Finished Surface: Carpet.
   v) Finished Surface: Plyron. Tempered hardboard.
   vi) Finished Surface: Unfinished or painted plywood.

6. Support beams (as required) for specific strength requirements or oversized platforms.

7. Frame edging Finish

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

8. Sound damping – IS300 Acoustical foam

    a. Color: Black
    b. 2” thick: 48”X96” sheet

B. Basis of Design: SC90 Clarity Platform as manufactured by Sightline Commercial Solutions.

1. Single side, indoor and outdoor portable platform.

2. Fully field repairable.

3. Frame Edging: 4 in (101 mm) extruded 6105-T5 aluminum frame, including protective edge.

4. Built-in Roto-Lock system.

5. Subfloor:

    a. 1 in (25 mm) thick, Acrylic, with scratch resistant surface UV protection.
        i) Clear
        ii) Opaque
        iii) Color

6. Support beams (as required) for specific strength requirements or oversized platforms.

7. Frame edging Finish

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

C. Basis of Design: SC97 Platform as manufactured by Sightline Commercial Solutions.

1. Single side, aluminum, weather resistant portable platform.

2. Fully field repairable.

3. Frame Edging: 4-3/4 in (120 mm) extruded 6105-T5 aluminum frame, including protective edge.

4. Built-in Roto-Lock system.

5. Flooring:

    a. Non-slip, ribbed extruded aluminum.
    b. Inverted "T's" on floor underside, approximately 3 in (76 mm) on center.
    c. Material thickness to meet design requirements.
    d. Flooring mechanically attached to frame.

6. Finish:

a. Finish: Mill.
b. Finish: Powder coat.
c. Finish: Anodize.
d. Color: As determined by the Architect from the Manufacturer's standard selection.

D. Basis of Design: Clima-core® Platform as manufactured by Sightline Commercial Solutions.

1. Single side, weather resistant portable platform.

2. Fully field repairable.

3. Frame Edging: 4 in (101 mm) extruded 6105-T5 aluminum frame, including protective edge.

4. Built-in Roto-Lock system.

5. Subfloor:

a. 1 in (25 mm) thick, mold, mildew, and moisture resistant foam composite core.
i) Finished Surface: High Density Polyethylene. Black. With UV inhibitor.
ii) Finished Surface: High Density Polyethylene. Gray. With UV inhibitor.
iii) Finished Surface: Carpet.

6. Support beams (as required) for specific strength requirements or oversized platforms.

7. Frame edging Finish:

a. Finish: Mill.
b. Finish: Powder coat.
c. Finish: Anodize.
d. Color: As determined by the Architect from the Manufacturer's standard selection.

8. Sound damping – IS300 Acoustical foam

a. Color: Black
b. 2” thick: 48”X96” sheet

E. Basis of Design: SC90 Trex® Platform as manufactured by Sightline Commercial Solutions.

1. Single side, weather resistant portable platform.

2. Fully field repairable.

3. Frame Edging: 4 in (101 mm) extruded 6105-T5 aluminum frame, including protective edge.

4. Built-in Roto-Lock system.

5. Subfloor:

a. 1 in (25 mm) thick, mold, mildew, and moisture resistant Trex Enhance® Series decking.
i) Decking Surface: Beach Dune
ii) Decking Surface: Clam Shell
iii) Decking Surface: Saddle
iv) Decking Surface: Foggy Wharf
v) Decking Surface: Rocky Harbor
vi) Decking Surface: Toasted Sand
vii) Decking Surface: Coastal Bluff

6. Support beams (as required) for specific strength requirements or oversized platforms.

7. Decking installed with manufacturers recommended attachment to frame and 1/4 in (6mm) tolerance gaps between deck boards, and between deck boards and frame.

8. Frame edging Finish

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

F. Basis of Design: SC90 Leg Supports as manufactured by Sightline Commercial Solutions. For use with SC90 and SC97 decks. Design support system to the following:

1. Capable of being erected without use of tools. Join leg to platform in a compression loading condition.

2. Fixed Legs: 1-1/4 in (31 mm) Schedule 40, 6105-T5 aluminum pipe.

    a. Hold in place by a 3/8 in (10 mm)-16 eyebolt.
    b. Fixed Height (in/mm): _____.
    c. Fixed Height: As shown on the Drawings.
    d. Fixed Height: As determined by the Architect.
    e. Stabilizer Bracing: When leg height of 30 in (762 mm) and over.

3. Adjustable Legs: 1-1/4 in (31 mm) Schedule 40, 6105-T5 aluminum outer pipe. 1.37 in (34.8 mm) 6105-T5 aluminum inner round tube.

    a. Adjustable Heights: 8 to 12 in (203 to 304 mm).
    b. Adjustable Heights: 12 to 16 in (304 to 406 mm).
    c. Adjustable Heights: 16 to 24 in (406 to 609 mm).
    d. Adjustable Heights: 24 to 36 in (609 to 914 mm) (stabilizer bracing required).
        i) Stabilizer Bracing: When leg height of 30 in (762 mm) and over.
    e. Adjustable Heights: 36 to 48 in (914 to 1219 mm) (stabilizer bracing required).
        i) Stabilizer Bracing: When leg height of 30 in (762 mm) and over.
    f. Adjustable Heights (in/mm): _____.
    g. Adjustable Heights: As shown on the Drawings.
    h. Adjustable Heights: As determined by the Architect.

4. Leg Finish:

    a. Finish: Mill.
    b. Finish: Powder coat. (Fixed height only.)
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

5. Footing for Legs:

    a. Non-marring leveling foot, fabricated from molded skid resistant PVC pad.
        i) Additional Fine Height Adjustment: 2 in (50 mm).
    b. Zinc-plated baseplate with adjustable rod. Baseplate contains anchoring holes.

6. Stabilizer Bracing: 1-1/4 in (31 mm) Schedule 40 6105-T5 aluminum pipe. Connect to leg supports with slip-on structural fitting.

G. Basis of Design: SC9600 Bridge Support Systems as manufactured by Sightline Commercial Solutions. For use with SC90 and SC97 decks.

1. Permit bridging of platforms between units.
2. Capable of being erected without use of tools.
3. Fixed Height (in/mm): _____.
4. Fixed Height: As shown on the Drawings.
5. Fixed Height: As determined by the Architect.
6. Adjustable Heights: 24 to 36 in (609 to 914 mm).
7. Adjustable Heights: 32 to 48 in (812 to 1219 mm).
8. Adjustable Heights: 36 to 54 in (914 to 1371 mm).
9. Adjustable Heights: 48 to 76 in (1219 to 1930 mm).
10. Adjustable Heights (in/mm): _____.
11. Adjustable Heights: As shown on the Drawings.
12. Adjustable Heights: As determined by the Architect.
13. Adjustable Height Increments:
    a. Course Adjustment: 4 in (101 mm) increments using a 5/8 in (15 mm) locking pin.
    b. Fine Adjustment: 3 in (76 mm) additional adjustment with integral ACME thread adjustable screw foot mounted to bottom of main vertical member.
        i) Bottom of Foot: Non-marring plastic.
14. Main Vertical Members: 2-1/2 in (63 mm) IPS, Schedule 40, 6105-T5 aluminum pipe.
15. Main Horizontal Members: 2 in (50 mm) OD by 1/8 in (3 mm) wall, 6105-T5 aluminum tubing.
16. Telescoping Columns: 2 in (50 mm) IPS Schedule 80, 6105-T5 aluminum pipe.
    a. Utilizes inner sleeve that telescopes from the bottom for use on uneven terrain.
17. Cross-Bracing: 2 in (50 mm) OD by 1/8 in (3 mm) wall, 6105-T5 aluminum tubing.
    a. Manually operated quick release structural fitting welded to each end.
18. Frame & Bracing Finish:
    a. Finish: Mill.
    b. Finish: Powder coat. (Fixed height only.)
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.
19. Top and Locator Plate Finish:
    a. Finish: Yellow or Clear Zinc (as determined by manufacturer).

H. Basis of Design: Relia Beam Spanning Support System as manufactured by Sightline Commercial Solutions. For use with SC90 and SC97 decks. Compatible with SC9600 Bridge Support System.
    1. Used for improved access below decks and larger opening spans.

2. Main Support Beams: Extruded 6105-T5 aluminum bridging beams.

    a. Adjustable Node Plates: For panel to beam connection.
    b. Adjustable Top Plates: For column to beam connections.
    c. Connection Plates: Attach using threaded inserts and 3/8 in (9.5 mm) diameter threaded locking device requiring no tools.
    d. Span Unsupported Intermediately: 16 ft (4877 mm) maximum.

3. Beam Supports

    a. SC9600 Bridge Support
    b. Relia Column: 3 in (77 mm) SCH 40 aluminum pipe 6105-T5.
    c. Fixed Height (in/mm): _____.
    d. Adjustable Height (in/mm): _____.

4. Knee and Cross Bracing: Extruded 6105-T5 aluminum.

    a. Attach to main support and cross beams with pinned connections to columns requiring no tools.

5. Adjustable Locator Nodes: Attach using 3/8 in (10 mm) washer and Nylock.

6. Beam, Support, and bracing finish:

    a. Finish: Mill.
    b. Finish: Powder coat. (Fixed height only.)
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

7. Top and Locator Plate Finish:

    a. Finish: Yellow or Clear Zinc (as determined by manufacturer).

I. Basis of design: Ledger Angle Support System as manufactured by Sightline Commercial Solutions. For use with SC90 and SC97 decks.

1. Continuous Steel Ledger Angle.

2. Steel Wall Anchor Bracket

3. Locator Nodes: Attach using 3/8 in(10 mm) washer and Nylock.

4. Bridging beams (as required): Extruded aluminum bridging beams. See drawings for size and configuration to meet project requirements.

5. Beam, Support, and bracing finish:

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

6. Ledger & Wall Bracket Finish:

    a. Finish: Powder coat.
    b. Finish: Yellow or Clear Zinc (as determined by manufacturer).
    c. Finish: Field finish by others.

J. Basis of Design: SC100 Folding Frame System as manufactured by Sightline Commercial Solutions. For use with SC90 and SC97 decks

1. Permit bridging of platforms between units using DOM or ERW steel tubing.

2. Capable of being erected without use of tools.

3. Fixed Height: 18 in (457 mm)

4. Fixed Height: 24 in (609 mm).

5. Fixed Height: 32 in (812 mm).

6. Fixed Height: 36 in (914 mm).

7. Fixed Height: 42 in (1066 mm).

8. Fixed Height: 48 in (1219 mm).

9. Fixed Height (in/mm): _____.

10. Fixed Height: As shown on the Drawings.

11. Fixed Height: As determined by the Architect.

12. Adjustable Heights: 16 to 22 in (406 mm to 558 mm)

13. Adjustable Heights: 18 to 24 in (457 mm to 609 mm)

14. Adjustable Heights: 24 to 32 in (609 mm to 812 mm)

15. Adjustable Heights: 24 to 36 in (609 mm to 914 mm)

16. Adjustable Heights: 32 to 42 in (812 mm to 1066 mm)

17. Adjustable Heights: 36 to 48 in (914 mm to 1219 mm).

18. Adjustable Custom Heights (in/mm): _____.

19. Adjustable Custom Heights: As shown on the Drawings.

20. Adjustable Custom Heights: As determined by the Architect.

21. Adjust Height Increments:

    a. Course Adjustment: 2 in (50 mm) increments using a 3/8 in (9 mm) locking pin.
    b. Fine Adjustment: 2 in (50 mm) additional adjustment with integral ACME thread adjustable screw foot mounted to bottom of main vertical member.
        i) Bottom of Foot: Non-marring plastic.

22. Main Vertical Members: 12 gauge steel tube, 2 in (50 mm) OD.

23. Telescoping Columns: 12 gauge steel tube, 1-3/4 in (44 mm) OD.

24. Cross-Bracing: 14 gauge steel tube, 1 x 2 in (25 x 50 mm)

25. Frame Finish:

a. Finish: Powder coat Black

26. Top and Locator Plate Finish:

    a. Finish: Yellow or Clear Zinc (as determined by manufacturer).

K. Basis of Design: SC2000 Folding Seat Multi-Level Riser System as manufactured by Sightline Commercial Solutions. For use with SC90 and SC97 decks.

1. Support systems permiting bridging of decks between units.

    a. Capable of being erected by 2 people without use of tools.
    b. Fine Height Adjustment: 2 in (51 mm) by integral ACME thread adjustable screw foot mounted to bottom of main vertical member.

2. Main Vertical Members: Square steel tubing per ASTM A500B.

3. Main Horizontal Members: Square steel tubing per ASTM A500B.

4. Cross Bracing: Low carbon hot rolled steel flat bar per ASTM A36.

5. Main Pivot Connection: Formed steel sheet.

6. Casters: Attach to system base easing the extension, closure and transport of systems.

    a. Engage and disengage using a lever handle attached to the system.
        i) Disengaging casters allows full support of seating riser on main vertical columns.
    b. Maximum Lever Handle Force: Meet OSHA requirements. Force up to 60 lbs (27.2 kg) applied at end of lever arm.

1. Frame Finish:

    a. Finish: Powder coat Black

L. Basis of Design: Rolling Drum Riser as manufactured by Sightline Commercial Solutions. For use with SC90 Platforms.

1. Mobile, foldable unit with casters.

2. Operable by two persons for folding, unfolding and rolling.

3. Performance Dimensions (LxW): 8 x 8 ft (2438 x 2438 mm).

4. Material: HREW 14 gauge steel tubing.

5. Finish: Powder coat. Black.

    a. Height: 16 in (406 mm). Weight: 45 lbs (20.4 kg).
    b. Height: 18 in (457 mm). Weight: 48 lbs (21.8 kg).
    c. Height: 24 in (610 mm). Weight: 50 lbs (22.7 kg).
    d. Height: 30 in (762 mm). Weight: 55 lbs (24.9 kg).

6. Casters: 4 in (102 mm) dual locking casters keeping risers in place during performances.

M. Basis of Design: ADA Compliant Ramp transition plate as manufactured by Sightline Commercial Solutions.

1. Material: Lightweight aluminum construction.

2. Integrated hand holds.

3. Built-in Roto-Lock system.

4. Transition surface: 1/4 in (6 mm) sheet aluminum with non-skid tape.

5. Main Substrate: 1 in (25 mm) structural 1 (S1) exterior grade plywood.

    a. Finished Surface: High Density Polyethylene. Black.
    b. Finished Surface: High Density Polyethylene. Gray.
    c. Finished Surface: Carpet.
    d. Finished Surface: Unfinished or painted plywood.

6. Handrail:

    a. Removable from transition plate via sleeved cups and set screws.
    b. 12 in (305 mm) return extension to meet ADA requirements.

7. Frame Finish:

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

8. Handrail Finish:

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

N. Basis of Design: ProRiser as manufactured by Trex Commercial.

1. Mobile, fork-liftable riser unit with casters permit bridging between support towers

2. Fully field repairable.

3. Dynamic performance

    a. System capable of resisting loads resulting from dynamic load cases created by simultaneous fan jumping and sporting event spectator activity as described in AISC Design Guide 11. Load densities based on actual system usage shall be considered.
    b. Natural frequency of 6 Hz or greater when considering primarily vertical vibration.

4. Walking surface area – SC97 Plank:

    a. Non-slip ribbed extruded aluminum.
    b. Inverted "T's" on floor underside, approximately 3 in (76 mm) on center.
    c. Material thickness to meet design requirements.
    d. Flooring mechanically attached to frame.

5. Framing (member sizes vary per engineering calculations):

    a. 5 inch (127 mm) square x 3/16 inch (5 mm) wall 6061-T6 aluminum tube
    b. 4 inch (102mm) square x 1/4 inch (6 mm) wall 6061-T6 aluminum tube
    c. 2 inch (51 mm) square x 1/4 inch (6 mm) wall 6061-T6 aluminum tube bracing

6. Tower Support System (member sizes vary per engineering calculations):

    a. Aluminum tube towers. 6 inch (152 mm) square x 3/8 inch (10 mm) wall 6061-T6 Frames
    b. 5 inch (127 mm) square x 1/4 inch (6 mm) wall 6061-T6 aluminum tube bracing
    c. Leveling Feet as indicated on the drawings
    d. 12 inch (305 mm) square x 1 inch (25 mm) A572 GR50 base plates anchored to concrete

7. Spanning Beam System (member sizes vary per engineering calculations):

    a. Aluminum tube frames 8 inch (203 mm) x 4 inch (102mm) x 1/2 inch (13 mm) wall 6061-T6

8. Casters: Design casters for loads and serviceability

9. Riser to Tower connection:

    a. Bolted connections with A325 hardware
    b. PTFE slip connections as required

10. Finish:

    a. Finish: Mill.

O. Basis of Design: Uplift as manufactured by Sightline Commercial Solutions.

1. Single side, indoor semi-portable platform with manual scissor lifting mechanism.

2. Self contained, manually adjustable support system with variable height adjustment.

    a. Adjustable heights 11 in up to 47 in (0.3 meters up to 1.2 meters).

3. Fully field repairable.

4. Frame Edging: 4 in (101 mm) extruded aluminum frame, including protective edge.

5. Built-in Roto-Lock system.

6. Subfloor:

    a. 1 in (25 mm) thick, Structural 1 (S1) exterior grade plywood.
        i) Aluminum skin backer.
        ii) Finished Surface: High Density Polyethylene. Black.
        iii) Finished Surface: High Density Polyethylene. Gray.
        iv) Finished Surface: Carpet.
        v) Finished Surface: Plyron. Tempered hardboard.
        vi) Finished Surface: Unfinished or painted plywood.
        vii) Finished Surface: Tongue and groove wood. (For tongue and groove wood, the frame edging is 4-3/4 in (120.65 mm)).

7. Materials:

    a. Base assembly members: Extruded Aluminum channels.
    b. Leveling shims
    c. Main support members: ¾ inch (18 mm) 6061-T6 aluminum flat bar and 3x2x1/4 inch 6061-T6 aluminum rectangular tube.
    d. Cross brace members: 1/8 inch (3 mm) 6061-T6 aluminum formed plates and ¾ inch (18 mm) 6061-T6 aluminum flat bar.

8. Height adjustements achive with:

a. Threaded rod assembly: Consists of 1-1/2 inch diameter (38.1 mm) steel rod with left-hand and right-hand threads, and A36 steel threaded left-hand and right-hand bars.
b. The threaded rod assembly is operated by the output shaft of the gear reducer and coupler assembly. Rotional force applied with the use of hex head wrench or electrical drill equipped with hex key bit.
c. Recommended drills for smooth operation:
    i) Hilti SFC 22-A Electric Drill
    ii) DeWalt 20V Max XR Lithium Ion Brushless Premium 3-speed drill/driver kit.

2.4 ACCESSORIES

A. Basis of Design: Fixed Stair Units as manufactured by Sightline Commercial Solutions.

1. Equip stair unit with locking mechanism to allow for easy attachment to platform. (Not applicable to Simple Step.)

2. Material: aluminum extrusion and formed sheet metal.

3. Tread Depth: 11 in (279 mm)

4. Tread Width: 36 in (914 mm).

5. Tread Width: 48 in (1219 mm).

6. Tread Width (in/mm): _____.

7. Tread Width: As specified on the Drawings.

8. Rise: as required.

9. Tread Substrate: 1 in (25 mm) structural 1 (S1) exterior grade plywood.

    a. Finished Surface: High Density Polyethylene. Black.
    b. Finished Surface: High Density Polyethylene. Gray.
    c. Finished Surface: Carpet.
    d. Finished Surface: Painted hardboard.
    e. Finished Surface: Unfinished or painted plywood.

10. Exposed Fasteners: Non-corrosive.

11. Frame Finish:

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

12. Handrail:

    a. Material: 1-1/4 in (31 mm) schedule 40, 6105-T5 aluminum pipe.
    b. Removable from main stair units via sleeved cups and set screws.

13. Handrail Finish:

    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

B. Basis of Design: Adjustable Stair Units as manufactured by Sightline Commercial Solutions.

1. Equip stair unit with locking mechanism to allow for easy attachment to platform.
2. Material: 6105-T5 aluminum extrusion.
3. Tread Depth: 11 in (279 mm).
4. Tread Width: 36 in (914 mm).
5. Tread Width (in/mm): _____.
6. Tread Width: As specified on the Drawings.
7. Adjustable Rise: 16 to 24 in (406 to 609 mm).
8. Adjustable Rise: 24 to 36 in (609 to 914 mm).
9. Adjustable Rise: 30 to 40 in (762 to 1016 mm).
10. Adjustable Rise: 32 to 48 in (812 to 1219 mm).
11. Adjustable Rise: 36 to 56 in (914 to 1422 mm).
12. Adjustable Rise: 48 to 72 in (1219 to 1828 mm).
13. Tread Substrate: 1 in (25 mm) structural 1 (S1) exterior grade plywood.
    a. Finished Surface: High Density Polyethylene. Black.
    b. Finished Surface: High Density Polyethylene. Gray.
    c. Finished Surface: Carpet.
    d. Finished Surface: Painted hardboard.
    e. Finished Surface: Unfinished or painted plywood.
14. Exposed Fasteners: Non-corrosive.
15. Frame Finish:
    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.
16. Handrail:
    a. Material: 1-1/4 in (31 mm) schedule 40, 6105-T5 aluminum pipe.
    b. Adjustable to match stair pitch without the use of additional tools.
    c. Removable from main stair units via sleeved cups and set screws.
17. Handrail Finish:
    a. Finish: Mill.
    b. Finish: Powder coat.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

C. Basis of Design: SC90 Guardrails as manufactured by Sightline Commercial Solutions.

1. Equip guardrail with locking mechanism to allow for easy attachment to platform.

2. Height:

    a. 30 inch (762 mm)
    b. 36 inch (914 mm)
    c. 42 inch (1067 mm) - IBC compliant

3. Hoop Material: 1-1/4 in (31 mm) schedule 40, 6105-T5 aluminum pipe.

4. Toe board: 4 in (102 mm) extruded aluminum where required by code.

5. Infill:

    a. 2-Line- Single horizontal midrail: 1-1/4 in (31 mm) schedule 40, 6105-T5 aluminum pipe
    b. IBC - Vertical Picket: 1" OD tube. Space vertical members so no sphere of 4 in (102 mm) diameter may pass through.

6. Exposed Fasteners: Non-corrosive.

7. Unit to unit clamps – as required to meet manufacturers requirements.

8. Finish:

    a. Finish: Powder coat.
    b. Finish: Mill.
    c. Finish: Anodize.
    d. Color: As determined by the Architect from the Manufacturer's standard selection.

D. Basis of Design: Ornament Guardrails as manufactured by Sightline Commercial Solutions.

1. Equip guardrail with locking mechanism to allow for easy attachment to platform.

2. Height:

    a. 30 inch (762 mm)
    b. 36 inch (914 mm)
    c. 42 inch (1067 mm) - IBC compliant

3. Hoop Material: 1-1/4 in (31 mm) schedule 40, 6105-T5 aluminum pipe.

4. Toe board: 4 in (102 mm) extruded aluminum where required by code.

5. Infill:

    a. Gridguard (mesh): 1/4 in (6.4 mm) diameter 2 x 2 in (50 x 50 mm) crimped aluminum wire mesh or 1/8 in (3.2 mm) perforated sheet with 3/8 in (9.5 mm) diameter staggers holes.
    b. Invisirail (acrylic): 1/2 in (12 mm) thick acrylic sheet attached to perimeter with tabs and bolts.
    c. Tensiline (cable): 3/16 inc (4.8 mm) stainless steel cable with crimped ends.
        i) Outer frame must be mitered/welded corners ILO hoop for Tensiline.

6. Space members so no sphere of 4 in (102 mm) diameter may pass through.

7. Exposed Fasteners: Non-corrosive.

8. Unit to unit clamps – as required to meet manufacturers requirements.

9. Finish:

a. Finish: Powder coat.
b. Finish: Mill.
c. Finish: Anodize.
d. Color: As determined by the Architect from the Manufacturer's standard selection.

E. Basis of Design: Closure Panels as manufactured by Sightline Commercial Solutions.

1. Attach without tools and easily removable.

2. Material: Plywood substrate. High Density Polyethylene tee-molding at top. Snap-on clips ("button-lock" brackets) or set screw to platform frame.

a. Finish: Match deck surface.

3. Material: 1/8” aluminum sheet substrate. Snap-on clips ("button-lock" brackets) or set screw to platform frame.

a. Finish: Mill
b. Finish: Powder coat.
c. Finish: Anodize.
d. Color: As determined by the Architect from the Manufacturer's standard selection.

F. Basis of Design: Stage Skirting as manufactured by Sightline Commercial Solutions.

1. Attach to platforms without tools and easily removable. Velcro and extruded plastic clips.

2. Material: Flame retardant Wyndham fabric.

3. Thread Color: Match fabric.

4. Pleat skirts with 50 percent fullness.

5. Style: Shirred or box pleat.

6. Reinforce top hem with continuous webbing.

G. Basis of Design: Aisle Lights as manufactured by Trex Commercial.

1. Attach without tools and easily removable.

a. Daisy chain stair units together with barrel plug jumper connections

2. Lighting: Fully enclosed, UL approved in mill finish aluminum aisle strip with clear plastic lens that attaches to top of closure panel or nose on the step unit. Design aluminum aisle strip to cast light downward to highlight stair tread in front of it.

a. Bulb Type: LED
i) 1.5 Watts per foot
ii) 12V Power supply required
iii) Color Temperature: 2800K-3200K
iv) Dimmable
v) Attachment: 3M self-adhesive tape

3. Transformer and Wiring: Install hidden below platforms.

a. 12V, 60-Watt Driver
i) Hard wired power source for single use application.

ii) Dimmable
iii) 120V AC

b. 12V, 60-Watt Adapter
i) Barrel plug connection for ease of daisy chain connections between aisle lights
ii) Dimmable
iii) 120V AC

4. Exposed Fasteners: Non-corrosive.

H. Basis of Design: Chair Stops as manufactured by Sightline Commercial Solutions.

1. Attach without tools and easily removable.

a. Attach to platform along outer edge of platform frame.

2. Material: 2 x 1 x 1/8 in (50 x 25 x 3 mm) tube, 6105-T5 aluminum extrusion.

3. Exposed Fasteners: Non-corrosive.

4. Finish:

a. Finish: Powder coat.
b. Finish: Mill.
c. Color: As determined by the Architect from the Manufacturer's standard selection.

I. Basis of Design: VIP Drink Rail as manufactured by Sightline Commercial Solutions.

1. Add-on component that fits all styles of Sightline Commercial Solutions guardrail lines.

2. Attachment Uses Include:

a. Concession stand items.
b. Rail to set beverages or food.
c. Workspace for laptops, tablets or other media.
d. Writing surface for notepads.

3. Fits over guardrail. The bottom of the drink rail sits flush on top of the guardrail and is secured with eyebolts.

a. Tray depth: 7 in (178 mm).
b. Material: 1/8" 5052-T52 Aluminum formed sheet.

4. Dimensions and Weight: 8 ft (24378 mm) long. 20 lbs

5. Dimensions and Weight: 4 ft (1219 mm) long. 11 lbs

6. Finish:

a. Finish: Mill.
b. Finish: Anodized.
c. Finish: Powder coat. Black.
d. Finish: Powder coat. Silver.
e. Color: As determined by the Architect from the Manufacturer's standard selection.

J. Basis of Design: Crowd Control Barricades; Aluminum and Steel Barricades as manufactured by Sightline Commercial Solutions.

1. Heavy-duty modular crowd control barricades made to withstand the most demanding

circumstances of any venue.

2. Barricades lock together side-by-side to prevent crowd from breaking barricade wall.

    a. Safety: Step-on for security personnel to stand on and control the crowd.

3. Requires only two people for assembly, setup and take down regardless of wall size.

    a. Efficiency: Setup within minutes.

4. Equipped with simple effective locking mechanism. Each section folds compactly into storage position with one quick motion.

5. Materials: HREW 14 gauge steel tubing, steel plate, and steel mesh face panels.

    a. Weight: 162 lbs (73.4 kg).

6. Materials: Aluminum tubing, aluminum plate, and aluminum mesh face panels.

    a. Weight: 122 lbs (55.3 kg).

7. Set up Dimensions (LxWxH): 54.85 x 48 x 48 in (1393 x 1219 x 1219 mm).

8. Folded Down Dimensions (LxWxH): 55.3 x 48 x 4 in (1405 x 1219 x 102 mm).

9. Finish: Steel: Powder coat. Black.

10. Finish: Aluminum: Corrosion resistant clear coat. Option: Powder Coat.

11. Inside corner pieces and outside corner pieces available.

    a. The Versa-Corner: Allows configuration of barricades at nearly any angle.
    b. Swivel Connection: Allows for use as an access gate or cable pass through.
    c. Material: Steel and aluminum.

K. Basis of Design: The Courier® as manufactured by Sightline Commercial Solutions.

1. A lightweight, compact, and convenient solution for transporting and storing of platforms. Safe and easy to maneuver.

2. No tools required to assemble. Easily attach to SC90 Platform aluminum rail with the simple tightening of a hand knob.

3. Allows storage of SC90 Platforms in an upright position.

4. Locks into place with a simple, locking caster.

5. Product Weight: 6 lbs (96.1 kg).

L. Basis of Design: Storage & Transport Carts as manufactured by Sightline Commercial Solutions.

1. Arena (Horizontal) Cart:

    a. Size (WxL): 48 in x 100 in (1219 x 2540 mm) – includes handle.
    b. Size (WxL): 36 in x 100 in (914 x 2540 mm) – includes handle.
    c. Capacity: (12) SC90 platforms maximum.
    d. Material: Tubular steel frame with plywood surface.
    e. Removable tube push handle.

f. (2x) Ratcheting hold down straps.
g. Fork guides (optional)
h. Casters:
    i) 4 casters per cart; 2 fixed and 2 swivel.
    ii) Size: 8 in (203 mm) diameter.
    iii) Load Capacity: 900 lbs (408 kg) per caster.

2. Vertical Platform Cart:

    a. 6 Deck Size (WxL): 29 in x 100 in (737 x 2540 mm).
    b. 8 Deck Size (WxL): 39 in x 100 in (991 x 2540 mm).
    c. 10 Deck Size (WxL): 47 in x 100 in (1194 x 2540 mm).
    d. Capacity: see above for maximum number of SC90 platforms.
    e. Material: Tubular steel frame with plywood surface.
    f. Removable retention tubes on either end.
    g. Fork guides (optional)
    h. Casters:
        i) 4 casters per cart; 2 fixed and 2 swivel.
        ii) Size: 8 in (203 mm) diameter.
        iii) Load Capacity: 900 lbs (408 kg) per caster

3. Vertical Stacking Platform Cart:

    a. 8 Deck Size (WxL): 39 in x 100 in (991 x 2540 mm).
    b. 10 Deck Size (WxL): 47 in x 100 in (1194 x 2540 mm).
    c. Capacity: see above for maximum number of SC90 platforms.
    d. Material: Tubular steel frame with plywood surface.
    e. Removable retention tubes on one side
    f. Fork guides on all four sides
    g. Casters:
        i) 4 casters per cart; 2 fixed and 2 swivel.
        ii) Size: 4 in (203 mm) diameter.
        iii) Load Capacity: 900 lbs (408 kg) per caster

4. SC9600 Storage Cart:

    a. Size (WxL): 48 in x 100 in (1219 x 2540 mm).
    b. Size (WxL): 36 in x 100 in (914 x 2540 mm).
    c. Capacity: see drawings for configurations.
    d. Material: Tubular steel frame.
    e. Vertical holding “trees” with non-marring pads.
    f. Plywood accessories holding box
    g. Fork guides (optional)
    h. Casters:
        i) 4 casters per cart; 2 fixed and 2 swivel.
        ii) Size: 8 in (203 mm) diameter.
        iii) Load Capacity: 900 lbs (408 kg) per caster.

5. SC100 Storage Cart:

    a. Size (WxL): 48 in x 98 in (1219 x 2489 mm).
    b. Size (WxL): 36 in x 98 in (914 x 2489 mm).
    c. Capacity: see drawings for configurations.
    d. Material: Tubular steel frame.
    e. Vertical holding “trees” with non-marring pads.
    f. Plywood accessories holding box (optional)
    g. Fork guides (optional)
    h. Casters:
        i) 4 casters per cart; 2 fixed and 2 swivel.

ii) Size: 8 in (203 mm) diameter.
iii) Load Capacity: 900 lbs (408 kg) per caster.

6. Guardrail Storage Cart:

a. Size (WxL): 48 in x 96 in (1219 x 2438mm).
b. Size (WxL): 36 in x 96 in (914 x 2438 mm).
c. Capacity: see drawings for configurations.
d. Material: Tubular steel frame.
e. Vertical holding “trees” with non-marring pads.
f. Plywood accessories holding box (optional)
g. Fork guides (optional)
h. Casters:
i) 4 casters per cart; 2 fixed and 2 swivel.
ii) Size: 8 in (203 mm) diameter.
iii) Load Capacity: 900 lbs (408 kg) per caster.

7. Barricade Storage Cart:

a. 5 unit Size (WxL): 48 3/4 in x 35 in (1238 x 889 mm).
b. 8 unit Size (WxL): 48 3/4 in x 57 1/2 in (1238 x 1461 mm).
c. 10 unit Size (WxL): 48 3/4 in x 67 3/4 in (1238 x 1721 mm).
d. Capacity: see above.
e. Material: Tubular steel frame.
f. Welded tube push bar vertical end.
g. Ratcheting hold down strap.
h. Fork guides (optional)
i. Casters:
i) 4 casters per cart; 2 fixed and 2 swivel.
ii) Size: 8 in (203 mm) diameter.
iii) Load Capacity: 900 lbs (408 kg) per caster.
iv)

8. Exposed Fasteners: Non-corrosive.

9. Finish:

a. Finish: Powder coat black.

2.5 FASTENERS

A. Anchors: Select fasteners of type, grade and class required to produce connections suitable for anchoring system to other types of construction indicated.

B. Component Hardware: Type best suited to application. Do not use metals that are corrosive or incompatible with materials joined.

1. Provide concealed fasteners for interconnecting components and for attaching them to other work, unless exposed fasteners are unavoidable or are a standard fastening method for products indicated.

2.6 FABRICATION

A. Assemble components in shop to greatest extent possible to minimize field work and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

B. Mechanical Connections: Fabricate by connecting members with manufacturer's standard mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

C. Fabricate components in accordance with approved Shop Drawings.

D. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

E. Cut, reinforce, drill and tap components as indicated on drawings to receive finish hardware, screws and similar items.

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for applying and designating finishes.

1. Aluminum: AA DAF-45.

2. Stainless Steel: NAAMM AMP 503.

B. Appearance of Finished Work:

1. Variations in appearance of abutting or adjacent units are acceptable if they are within one-half of the range of approved samples. Noticeable variations in the same unit are not acceptable.

2. Variations in appearance of other components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

C. Finish: Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with manufacturer's written instructions. All unexposed metals to be mill finish.

1. Anodize: Clear Anodize AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker unless indicated otherwise.

2. No. 4 Brushed (Stainless Steel)

a. Circumferential on all round pipe and tube.
b. Linear running the length of the rail on all other materials.

3. Powder coat:

a. Material: AAMA 2603 - Polyester powder coating, 3 mil average film thickness

PART 3 – EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages. These include items such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete and masonry construction.

1. Coordinate delivery of anchorages to project site.

2. Coordinate that blocking is in place for all mounting fasteners.

B. Clean debris and dust from surfaces and holes thoroughly prior to installation.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install systems in accordance with manufacturer’s approved Shop Drawings and instructions.

B. Install components plumb and level, accurately fitted, free from distortion and defects.

C. Provide anchors for connecting components to supporting construction.

D. Perform cutting, drilling, and fitting required for installation of components. Accurately set in location, alignment, and elevation, measured from established lines and levels.

E. Fit exposed connections accurately together to form tight joints except as necessary for expansion.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

B. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.

3.5 CLEANING AND PROTECTION

A. Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

B. Clean products in accordance with the manufacturer's recommendations.

C. Protect installed products until completion of project.

D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION