



SECTION 12 63 33
HINGED SEATING LIFT GATE SYSTEM
SIGHTLINE COMMERCIAL SOLUTIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Equipment of the Following Types:

1. Hinged seating lift gate system

B. Accessories:

1. Fixed stair units.
2. Guardrails.
3. Closure panels.
4. Seats.

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.
- G. Section 12 63 13 – Stadium and Arena Bench Seating.
- H. Section 12 63 23 – Stadium and Arena Seats.

1.3 REFERENCES

- A. American National Standards Institute (ANSI)
 1. A17.1 Accessible and Usable Buildings and Facilities.
 2. A21.1 Safety Requirements for Floor and Wall Openings, Railings and Toe Boards.

3. A58.I 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. American Institute of Steel Construction (AISC)

1. AISC 360 Steel Construction Manual

E. 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

- F. American Plywood Association (APA)
 - 1. US. Product Standard PS 1 - Structural Plywood.
- G. 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.
- H. Americans with Disabilities Act (ADA).
- I. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- J. International Code Council (ICC): International Building Code (IBC).
 - 1. ICC300 - Standard for Bleachers, Folding and Telescopic Seating, and Grandstands.
- K. National Fire Protection Association (NFPA)
 - 1. NFPA 102: Standard for Assembly Seating, Tents, and Membrane Structures.
- L. 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. Structural Performance:
 - 1. Uniform Distributed Live Load (Riser): 100 lbs per sq ft (4788 N per sq m) for non-fixed or bench seats, 60 lbs per sq ft if (2873 N per sq m) seats are fixed OR 120 lbs per linear foot (1751 N per m)
 - 2. 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)
 - 3. Deflection – limit vertical deflection to the L/360, where 'L' is the span length under live loads, or L/240 under the combination of dead and live loads
- 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 (25) 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 10 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. Wide flanges: ASTM A 992
3. Pipe: ASTM A 53
4. Sheet, Strip, Plate, and Flat Bar: ASTM A 36/A 36M
5. Bars and Shapes: ASTM A 29/ A 28M

2.3 HINGED SEATING LIFT GATE EQUIPMENT

A. Basis of Design: Hinged lift gate as manufactured by Sightline Commercial.

1. Rotatable, electro-mechanical gate system and seating riser.
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. W12 steel beams
 - b. In-plane bracing consisting of steel channels, hollow structural steel, or angles
 - 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
6. Support elements:
 - a. Designed to support loads determined from structural analysis
 - b. Slip connections as required
7. Electromechanical systems
 - a. Designed to lift the weight of the gate system without additional live loads to the heights specified by the architect of record
 - b. Joyce Dayton Model jack CD1125U4K-80-LI04-PIAL-B or similar depending on final design of system
 - c. Electrical components to be designed per jack manufacturer and jurisdictional requirements

8. Finish:
 - a. As per architect requirements
9. Seats, ribbon boards, or other ancillary equipment
 - a. To be coordinated with appropriate manufacturer of specific equipment if not specifically noted as being part of Lift Gate manufacturer scope

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: Aluminum Plank.
 - a. Finished Surface: Clear Anodized
 10. Exposed Fasteners: Non-corrosive.
 11. Frame Finish:
 - a. Finish: Mill or Anodize.
 - b. 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: Anodize.
 - b. Color: As determined by the Architect from the Manufacturer's standard selection.
- B. 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: Anodize.
 - c. Color: As determined by the Architect from the Manufacturer's standard selection.
- C. Basis of Design: Ornamental Guardrails as manufactured by Sightline Commercial Solutions.

1. Height:
 - a. 30 inch (762 mm)
 - b. 36 inch (914 mm)
 - c. 42 inch (1067 mm)
2. Hoop Material: 1-1/4 in (31 mm) schedule 40, 6105-T5 aluminum pipe.
3. Toe board: 4 in (102 mm) extruded aluminum where required by code.
4. 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.
 - d. Classic (picket rail)
5. Space 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: Anodize.
 - c. Color: As determined by the Architect from the Manufacturer's standard selection.

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

1. Material: 1/8" aluminum sheet substrate. Snap-on clips ("button-lock" brackets) or set screw to platform frame.
 - a. Finish: Powder coat.
 - b. Finish: Anodize.
 - c. Color: As determined by the Architect from the Manufacturer's standard selection.

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