

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 61 00 - Product Requirements.
- .2 Section 01 21 13 Allowances
- .3 Section 01 74 00 – Cleaning
- .4 Section 01 74 19 - Waste Management and Disposal.
- .5 Section 05 31 00 – Steel Decking.
- .6 Section 05 21 00 – Steel Joist Framing
- .7 Section 09 90 00 – Painting and Coating
- .8 Section 01 74 00 – Cleaning

1.2 REFERENCES

- .1 ASTM International Inc.
 - .1 ASTM A36/A36M-08, Standard Specification for Carbon Structural Steel.
 - .2 ASTM A193/A193M-08, Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature or High-Pressure Service and Other Special Purpose Applications.
 - .3 ASTM A307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - .4 ASTM A325-07a, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - .5 ASTM A325M-08, Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength Metric.
 - .6 ASTM A490M-04ae, Standard Specification for High-Strength Steel Structural Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints Metric.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-85.10-99, Protective Coatings for Metals.
- .3 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturers Association (CPMA).
 - .1 Handbook of the Canadian Institute of Steel Construction.
 - .2 CISC/CPMA Standard 2-75, Quick-Drying Primer for use on Structural Steel.
- .4 Canadian Standards Association (CSA International)
 - .1 CSA G40.20/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

- .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA-S16-01(R2007), Limit States Design of Steel Structures.
- .4 CAN/CSA-S136-07, North American Specifications for the Design of Cold Formed Steel Structural Members.
- .5 CSA W47.1-03, Certification of Companies for Fusion Welding of Steel.
- .6 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding.
- .7 CSA W55.3-1965(R2003), Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
- .8 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .5 Master Painters Institute
 - .1 MPI-INT 5.1-08, Structural Steel and Metal Fabrications.
 - .2 MPI-EXT 5.1-08, Structural Steel and Metal Fabrications.
- .6 The Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE) International
 - .1 NACE No. 3/SSPC SP-6-06, Commercial Blast Cleaning.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals.
- .2 Shop Drawings:
 - .1 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.
- .3 Erection drawings:
 - .1 Submit erection drawings indicating details and information necessary for assembly and erection purposes including:
 - .1 Description of methods.
 - .2 Sequence of erection.
 - .3 Type of equipment used in erection.
 - .4 Temporary bracings.
- .4 Fabrication drawings:
 - .1 Submit fabrication drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in the Province of Manitoba, Canada.
- .5 Source Quality Control Submittals:
 - .1 Upon request submit 4 copies of mill test reports 4 weeks prior to fabrication of structural steel.
 - .1 Mill test reports to show chemical and physical properties and other details of steel to be incorporated in project.
 - .2 Provide mill test reports certified by metallurgists qualified to practice in the Province of Manitoba, Canada.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Product Requirements.
- .2 Deliver materials in manufacturer's original, undamaged containers with identification labels intact.
- .3 Waste Management in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 DESIGN REQUIREMENTS

- .1 Design details and connections in accordance with requirements of CAN/CSA-S16 and CAN/CSA-S136 with CSA-S136.1 to resist forces, moments, shears and allow for movements indicated.
- .2 Shear connections:
 - .1 Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction" when connection for shear only (standard connection) is required.
 - .2 Select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam, when shears are not indicated.
- .3 For composite construction select or design minimum end connection to resist reaction resulting from factored movement resistance as tabulated in the "Handbook of the Canadian Institute of Steel Construction" assuming 100% shear connection with depth of steel deck and/or slab shown on drawings.
- .4 Submit sketches and design calculations stamped and signed by qualified professional engineer licensed in the Province of Manitoba, Canada for non standard connections.

2.2 MATERIALS

- .1 Structural steel: to CSA-G40.20/G40.21 Grade 350W. HSS members to ASTM A-500 Grade 50.
- .2 Anchor bolts: to CSA-G40.20/G40.21, Grade 300W ASTM A36/A36M.
- .3 Bolts, nuts and washers: to ASTM A307 ASTM A325 ASTM A325M ASTM A490/A490M.
- .4 Welding materials: to CSA W48 Series CSA W59 and certified by Canadian Welding Bureau.
- .5 Shop paint primer: to CISC/CPMA2-75 solvent reducible alkyd, red oxide grey.
- .6 Hot dip galvanizing: galvanize steel, where indicated, to CAN/CSA-G164, minimum zinc coating of 600 g/m².

2.3 FABRICATION

- .1 Fabricate structural steel in accordance with CAN/CSA-S16 CAN/CSA-S136 and in accordance with approved reviewed shop drawings.
- .2 Continuously seal members by continuous welds intermittent welds and plastic filler where indicated. Grind smooth.

2.4 SHOP PAINTING

- .1 Clean, prepare surfaces and shop prime structural steel in accordance with CAN/CSA-S16 CAN/CSA-S136 MPI INT 5.1 EXT 5.1 except where members to be encased in concrete.
- .2 Clean members, remove loose mill scale, rust, oil, dirt and foreign matter. Prepare surface according to NACE No.3/SSPC-SP-6.
- .3 Apply one coat of CSIC/CPMA 2 primer in shop to steel surfaces to achieve maximum dry film thickness of 0.065 mm to 0.080 mm except:
 - .1 Surfaces to be encased in concrete.
 - .2 Surfaces to receive field installed stud shear connections.
 - .3 Surfaces and edges to be field welded.
 - .4 Faying surfaces of slip-critical connections.
 - .5 Below grade surfaces in contact with soil.
- .4 Apply paint under cover, on dry surfaces when surface and air temperatures are above 5 degrees C.
- .5 Maintain dry condition and 5 degrees C minimum temperature until paint is thoroughly dry.
- .6 Strip paint from bolts, nuts, sharp edges and corners before prime coat is dry.

Part 3 Execution

3.1 APPLICATION

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 GENERAL

- .1 Structural steel work: in accordance with CAN/CSA-S16 CAN/CSA-S136.
- .2 Welding: in accordance with CSA W59.
- .3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.

3.3 CONNECTION TO EXISTING WORK

- .1 Verify dimensions and condition of existing work, report discrepancies and potential problem areas to Contract Administrator for direction before commencing fabrication.

3.4 MARKING

- .1 Mark materials in accordance with CSA G40.20/G40.21. Do not use die stamping. When steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.
- .2 Match marking: shop mark bearing assemblies and splices for fit and match.

3.5 ERECTION

- .1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16 CAN/CSA-S136 and in accordance with approved reviewed erection drawings.
- .2 Field cutting or altering structural members: to approval of Contract Administrator.
- .3 Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.
- .4 Continuously seal members by continuous welds where indicated. Grind smooth.

3.6 FIELD QUALITY CONTROL

- .1 Inspection of materials and workmanship will be carried out by testing laboratory designated by Contract Administrator.
- .2 Submit test reports to Contract Administrator within two weeks of completion of inspection.
- .3 Cost of inspection to be paid by Section 01 21 13 Allowances.

3.7 FIELD PAINTING

- .1 Paint in accordance with Section 09 91 23 - Interior Painting.
 - .1 Touch up damaged surfaces and surfaces without shop coat with primer to NACE No.3/SSPC-SP-6 except as specified otherwise. Apply in accordance: MPI Architectural Painting Specification Manual.

3.8 CLEANING

- .1 Clean in accordance with Section 01 74 00 – Cleaning.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19- Construction/Demolition Waste Management and Disposal

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittals.
- .2 Section 01 74 19 - Waste Management and Disposal.
- .3 Section 09 90 00 – Painting and Coating.
- .4 Section 05 12 23 - Structural Steel for Buildings .

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A653/A653M-01a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM A792/A792M-01a, Specification for Steel Sheet, 55%Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA C22.2 No.79-1978(R1999), Cellular Metal and Cellular Concrete Floor Raceways and Fittings.
 - .2 CAN/CSA-S16.1-94(R2000), Limit States Design of Steel Structures.
 - .3 CSA-S136-94(R2001), Cold Formed Steel Structural Members.
 - .4 CSA W47.1-92(R2001), Certification of Companies for Fusion Welding of Steel Structures.
 - .5 CSA W55.3-1965(R1998), Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
 - .6 CSA W59-M1989(R2001), Welded Steel Construction, (Metal Arc Welding) Metric.
- .4 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI 10M-96, Standard for Steel Roof Deck.
 - .2 CSSBI 12M-96, Standard for Composite Steel Deck.

1.3 DESIGN REQUIREMENTS

- .1 Design steel deck using limit states design in accordance with CSA S136 and , CSSBI 10M and CSSBI 12M.
- .2 Steel deck and connections to steel framing to carry dead, live and other loads including lateral loads, diaphragm action, composite deck action, and uplift as indicated.
- .3 Deflection under specified live load not to exceed 1/360 of span.

- .4 Where vibration effects are to be controlled as indicated, dynamic characteristics of decking system to be designed to be in accordance with CAN/CSA-S16.1, Appendix 'G'.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings erection and shoring drawings in accordance with Section 01 33 00 - Submittals.
- .2 Submit drawings stamped and signed by qualified professional engineer registered or licensed in Provinces of Manitoba, Canada.
- .3 Submit design calculations if requested by Contract Administrator.
- .4 Indicate deck plan, profile, dimensions, base steel thickness, metallic coating designation, connections to supports and spacings, projections, openings, reinforcement details and accessories.
- .5 Indicate details of temporary shoring of steel deck, such as location, time and duration of placement and removal of shoring for concrete fill decks.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management and Disposal.
- .2 Divert unused metal from landfill to metal recycling facility approved by Contract Administrator.
- .3 Dispose of unused paint material at official hazardous material collections site approved by Contract Administrator.
- .4 Do not dispose of unused paint material into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.
- .5 Dispose of unused caulking material at official hazardous material collections site approved by Contract Administrator.

Part 2 Products

2.1 MATERIALS

- .1 Zinc-iron Alloy (ZF) coated steel sheet: to ASTM A653/A653M structural quality Grade 230, with Z275 coating, for interior surfaces not exposed to weather, painted unpainted finish, 0.76 mm minimum base steel thickness.
- .2 Decks to be painted: zinc-iron alloy coated decks suitable for finish painting.
- .3 Closures: as indicated in accordance with manufacturer's recommendations.
- .4 Cover plates, cell closures and flashings: steel sheet with minimum base steel thickness of 0.76 mm. Metallic coating same as deck material.

- .5 Primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.2 TYPES OF DECKING

- .1 Roof deck: 0.76 mm minimum base steel thickness, 38 mm deep profile, non-cellular, interlocking side laps.

Part 3 EXECUTION GENERAL

- .1 Structural steel work: in accordance with CAN/CSA-S136 and CSSBI 10M and CSSBI 12M.
- .2 Welding: in accordance with CSA W59, except where specified otherwise.
- .3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel and/or CSA W55.3 for resistance welding.

3.2 ERECTION

- .1 Erect steel deck as indicated and in accordance with CSA S136 CSSBI 10M and CSSBI 12M and in accordance with approved reviewed erection drawings.
- .2 Butt ends: to 1.5 to 3 mm gap. Install steel cover plates over gaps wider than 3 mm.
- .3 Lap ends: to 50 mm minimum.
- .4 Weld and test stud shear connectors through steel deck to steel joists/beams below in accordance with CSA W59.
- .5 Immediately after deck is permanently secured in place, touch up metallic coated top surface with compatible primer where burned by welding.
- .6 Prior to concrete placement, steel deck to be free of soil, debris, standing water, loose mill scale and other foreign matter.
- .7 Place and support reinforcing steel as indicated.

3.3 CLOSURES

- .1 Install closures in accordance with approved details.

3.4 OPENINGS AND AREAS OF CONCENTRATED LOADS

- .1 No reinforcement required for openings cut in deck which are smaller than 150 mm square.
- .2 Frame deck openings with any one dimension between 150 to 300 mm as recommended by manufacturer, except as otherwise indicated.
- .3 For deck openings with any one dimension greater than 300 mm and for areas of concentrated load, reinforce in accordance with structural framing details, except as otherwise indicated.

3.5 CONNECTIONS

- .1 Install connections in accordance with CSSBI recommendations as indicated.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Shop fabricated ferrous metal items galvanized and prime painted.
- .2 Shop fabricated stainless steel items.
- .3 Steel stair frame of structural sections, with risers, stair treads and landings.

1.2 RELATED SECTIONS

- .1 Section 03 31 00 - Cast-In-Place Concrete: concrete filled pan treads.
- .2 Section 05 12 00 - Structural Steel.
- .3 Section 06 20 00 - Finish Carpentry
- .4 Section 09 90 00 - Painting: Paint finish.

1.3 REFERENCES

- .1 ANSI A14.3 - Ladders, Fixed, Safety Requirements.
- .2 ASTM A36 - Structural Steel.
- .3 ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- .4 ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .5 ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- .6 ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .7 ASTM A283 - Carbon Steel Plates, Shapes, and Bars.
- .8 ASTM A307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

1.4 SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
- .3 Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.5 QUALIFICATIONS

- .1 Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the place where the Project is located.

Part 2 Products

2.1 MATERIALS - STEEL

- .1 Steel Sections: ASTM A36. .
- .2 Plates: ASTM A283 .
- .3 Pipe: ASTM A53, Grade B Schedule 40 .
- .4 Bolts, Nuts, and Washers: ASTM A307.
- .5 Welding Materials: Type required for materials being welded.
- .6 Ladders: ANSI A14.3.
- .7 Shop and Touch-Up Primer: red oxide.

2.2 MATERIALS - STAINLESS STEEL

- .1 Stainless Steel: ASTM A167, Type 304 commercial grade, No. 4 finish.

2.3 FABRICATION

- .1 Fit and shop assemble items in largest practical sections, for delivery to site.
- .2 Fabricate items with joints tightly fitted and secured.
- .3 Delete the following paragraph if noted on drawings.
- .4 Continuously seal joined members by continuous welds.
- .5 Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- .6 Weld and form edges, ends, and joints smooth. Grind welds of stainless steel smooth and flush; polish to match adjacent surfaces.
- .7 Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- .8 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.4 FABRICATION - PAN STAIRS AND LANDINGS

- .1 Fabricate stairs and landings with closed risers and treads of metal pan construction, ready to receive concrete.
- .2 Form treads and risers with minimum 3.4 mm thick sheet steel stock.
- .3 Secure reinforced tread pans to stringers with clip angles ; welded bolted in place.

- .4 Form stringers with rolled steel channels.
- .5 Form landings with minimum 3.4 mm thick sheet stock. Reinforce underside with angles to attain design load requirements.
- .6 Form balusters as noted on drawings welded to stringers.
- .7 Prime paint components.

2.5 FABRICATION TOLERANCES

- .1 Squareness: 3 mm maximum difference in diagonal measurements.
- .2 Maximum Offset Between Faces: 1.5 mm.
- .3 Maximum Misalignment of Adjacent Members: 1.5 mm.
- .4 Maximum Bow: 3 mm in 1.2 m.
- .5 Maximum Deviation From Plane: 1.5 mm in 1.2 m.

2.6 FINISHES - STEEL

- .1 Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- .2 Do not prime surfaces in direct contact with concrete or where field welding is required.
- .3 Prime paint items with one coat.
- .4 Structural Steel Members: Galvanize after fabrication to ASTM A123. Provide minimum 380 g/sq m galvanized coating.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

- .1 Clean and strip primed steel items to bare metal and aluminum where site welding is required.
- .2 Do not embed aluminum products into cementitious materials due to inevitable corrosion deterioration.
- .3 Supply steel items required to be cast into concrete or embedded in masonry with setting templates to appropriate sections.

3.3 INSTALLATION

- .1 Install items plumb and level, accurately fitted, free from distortion or defects.

- .2 Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- .3 Field weld components indicated on shop drawings.
- .4 Obtain approval prior to site cutting or making adjustments not scheduled.
- .5 After erection, prime welds, abrasions, and surfaces not shop primed except surfaces to be in contact with concrete.

3.4 ERECTION TOLERANCES

- .1 Maximum Variation From Plumb: 6 mm per story, non-cumulative.
- .2 Maximum Offset From True Alignment: 6 mm.
- .3 Maximum Out-of-Position: 6 mm.

3.5 SCHEDULE

- .1 The following Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.
- .2 Schedule each fabrication separately. Describe items, size, shape, materials, finish, and other relevant information.
- .3 Elevator Pit Ladder: Steel, as detailed; prime paint finish.
- .4 Sump pit ladder and cover – as detailed; galvanized finish.
- .5 Guard Rails: As detailed; prime paint finish.
- .6 Ledge and Shelf Angles, Not Attached to Structural Framing: For support of masonry ; galvanized finish.
- .7 Lintels: As detailed; galvanized finish.
- .8 Custom roof equipment perforated metal screen surround.
- .9 Vanity Brackets: as detailed – prime paint.
- .10 Skate change bench brackets: prime paint.
- .11 Custom sliding door: type 304 stainless steel with No.4 finish; Architectural Metal Cloth manufactured by CR Laurence, model No, CRL DT1011 Pattern, with stainless steel U channels and plates bolted together as detailed. Refer to Drawing A4.4.
 - .1 Track: Hafele Series no 941.07.xx top hung system c/w Flatec II stainless steel running gear, upper track, length to suit opening width, wall mounts, door stoppers, floor guide and hanger bolts, provide all miscellaneous parts for complete installation. Finish to be stainless steel, brushed finish.
 - .2 Cylinder lock keyed to building keying system.

- .12 Metal roof equipment screen.
 - .1 Refer to drawing A5.5.
 - .2 Perforated metal screen: Unalloy IWRC perforated steel panels; 1/4" holes on a 3/8" staggered pattern on 20 ga. steel. Panels to be powder coat finish, colour to be selected by Contract Administrator. Attach panels to structural support with colour matching fasteners.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Stainless Steel and Aluminum handrails, balusters, and fittings.

1.2 RELATED SECTIONS

- .1 Section 05 50 00 -Metal Fabrication.
- .2 Section 08 80 00 - Glazing: Glass baluster infill.

1.3 REFERENCES

- .1 ASTM A123/A123M - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM B211 - Aluminum and Aluminum-Alloy Bar, Rod, and Wire.
- .3 ASTM B221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.4 DESIGN REQUIREMENTS

- .1 Fabricate railing assembly, wall rails, and attachments to ASTM E985.

1.5 SUBMITTALS FOR REVIEW

- .1 Section 01 33 00: Submission procedures.
- .2 Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
- .3 Samples: Submit two, 12 inch long samples of handrail. Submit two samples, of elbow, wall bracket escutcheon end stop and stainless steel cladding.

Part 2 Products

2.1 PRODUCTS

- .1 Glass Base Shoe: C.R. Lawrence low profile square base shoe; Style CRL B5S20D Series; 14 mm hole pattern 305 mm C.T.C.; glass wedge dry glaze system for use with 16 mm glass; 4" x 2 1/2" mm x length to suit. Contact: 1-800-421-6144.
 - .1 Cladding: BSC BS10, 18 gauge, brushed stainless steel B5SWCBS welded end cap.
- .2 Handrail: 1 1/2" Dia. Hand rail Model No. HR15 BS. Finish - brushed stainless steel. Provide fastening to suit substrate.
- .3 Handrail brackets:

- .4 CRL Coastal Series stainless steel handrail bracket, brushed finish; for glass mounting and wall mounting as required

2.2 FABRICATION

- .1 Fit and shop assemble components in largest practical sizes for delivery to site.
- .2 Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- .3 Provide anchors, plates required for connecting railings to structure.
- .4 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- .5 Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- .6 Accurately form components to suit stairs and landings, to each other and to building structure.
- .7 Accommodate for expansion and contraction of members and building movement without damage to connections or members.
- .8 Coordinate installation of glass panels.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that field conditions are acceptable and are ready to receive work.

3.2 INSTALLATION

- .1 Install in accordance with manufacturer's instructions.
- .2 Install components plumb and level, accurately fitted, free from distortion or defects.
- .3 Anchor railings to structure.
- .4 Conceal bolts and screws whenever possible.

3.3 ERECTION TOLERANCES

- .1 Maximum Variation From Plumb: 1/4 inch.
- .2 Maximum Offset From True Alignment: 1/4 inch.
- .3 Maximum Out-of-Position: 1/4 inch.

END OF SECTION

