

Part 1 General

1.1 SECTION INCLUDES

- .1 Shop fabricated safety (travel) restraints, roof mounted.
- .2 Fall restraints, roof mounted.

1.2 RELATED SECTIONS

- .1 Section 07 62 00 - Sheet Metal Flashing And Trim.
- .2 Section 09 91 10 - Painting.

1.3 DEFINITIONS

- .1 Delegated Design Professional: The design professional contracted to the contractor, fabricator or manufacturer to design specific components of the project and produce Delegated Design Submittals and Shop Drawings to meet the requirements of authorities having jurisdiction, and registered or licensed in the province where the project is located.

1.4 REFERENCES

- .1 CSA-G40.20-13/G40.21-13 - General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel.
- .2 CSA-W47.1-09 - Certification of Companies for Fusion Welding of Steel.
- .3 CSA-W59-13 - Welded Steel Construction (Metal Arc Welding).
- .4 CAN/CSA-Z91-02 (2013) - Health and Safety Code for Suspended Equipment Operations.

1.5 PERFORMANCE AND DESIGN CRITERIA

- .1 Travel Restraint Assembly: Posts, rope loops, and attachments to resist lateral force of to meet standard at any point and in any direction, without damage or permanent set.
- .2 Fall Restraint Anchor Assembly: Steel loops, steel cable, and attachments to resist accelerating falling force as per standard without damage or permanent set.
- .3 Restraints to be used by Owner personnel for safety purposes when working on high roof areas near building edge.
- .4 Restraints will not be used for anchoring window washing equipment or swing stages.
- .5 Conform to CAN/CSA-Z91 for restraint load testing to criteria specified.

1.6 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 00: Project management and coordination procedures.
- .2 Coordination:
 - .1 Coordinate with other work having a direct bearing on work of this section.

- .2 Coordinate the Work with installation of roofing assembly and sheet metal work.

1.7 SUBMITTALS FOR REVIEW

- .1 Section 01 33 00: Submission procedures.
- .2 Shop Drawings:
 - .1 Indicate component profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - .2 Indicate welded connections using standard welding symbols. Indicate net weld lengths.
 - .3 Provide Shop Drawings indicating stamped and signed by the delegated design professional.

1.8 SUBMITTALS FOR INFORMATION

- .1 Section 01 33 00: Submission procedures.
- .2 Delegated Design Submittals:
 - .1 Submit documentation for roof safety restraints indicating compliance to design criteria, signed and sealed by the delegated design professional responsible for their preparation.
 - .1 Design Data: Provide design calculations for fall restraint assembly and components.

1.9 QUALITY ASSURANCE

- .1 Welders Certificates: Submit documents regarding current certification of welders employed on the Work.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years experience.
- .3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.
- .4 Delegated Design Professional Qualifications: Professional Structural Engineer experienced in design of this Work and licensed in the Province of British Columbia.

Part 2 Products

2.1 MATERIALS

- .1 Steel Sections and Plates: CSA-G40.20/G40.21.
- .2 Steel Tubing: ASTM A500/A500M, Grade B.
- .3 Steel Rings: Forged steel, ring thickness determined by imposed loads.

- .4 Steel Cable (between post travel restraints): Minimum 9 mm (3/8 inch) diameter, spiral wound multi-strand stainless steel aircraft quality cable.
- .5 Bolts, Nuts, and Washers for Stainless Steel: Stainless steel, matte finish.
- .6 Gaskets Under Anchors: Neoprene pads, compatible with roof membrane, cut to size.
- .7 Welding Materials: Type required for materials being welded.
- .8 Shop Primer: Epoxy, anti-corrosive type, two (2) coats.
- .9 Shop and Touch-Up Primer: SSPC-Paint 25, zinc oxide alkyd primer.
- .10 Touch-Up Primer for Galvanized Surfaces: SPCC-Paint 20, Type I inorganic.

2.2 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 Continuously seal joined members by intermittent welds and plastic filler.
- .4 Grind exposed joints flush and smooth with adjacent finish surface.
 - .1 Make exposed joints butt tight, flush, and hairline.
 - .2 Ease exposed edges to small uniform radius.
- .5 Exposed Mechanical Fastenings: Screws or bolts; consistent with design of component.
- .6 Supply components required for anchorage of fabrications.
- .7 Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.3 FINISHES

- .1 Prepare uncoated steel restraint post surfaces to SSPC-Paint 20 no more than 4 hours before applying epoxy primer.
- .2 Concealed steel anchors, clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- .3 Do not prime surfaces in direct contact with concrete or where field welding is required.
- .4 Concealed Structural Components and Anchors: Galvanize after fabrication to ASTM A123/A123M, zinc coating thickness appropriate grade for type and size of steel material indicated.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify dimensions, tolerances, and method of attachment with other work.

3.2 PREPARATION

- .1 Supply steel items required to be attached to steel framing as clean uncoated metal, 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. Perform field welding.
- .4 Obtain approval prior to site cutting or making adjustments not scheduled.
- .5 After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.
- .6 Thread aircraft cable through eye-lets at top of post, to linear roof coverage of post restraints; pressure crimp cable ends.

3.4 PROTECTION OF FINISHED WORK

- .1 Section 01 78 40: Protecting installed work.
- .2 Protect finished Work from damage.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Miscellaneous rough carpentry, including:
 - .1 Rooftop equipment curbs and bases.
 - .2 Wood blocking and nailers.
- .2 Fasteners.

1.2 REFERENCES

- .1 CANPLY (Canadian Plywood Association) - Canadian Plywood Handbook.
- .2 CSA-O121-08 (R2013) - Douglas Fir Plywood.
- .3 NLGA (National Lumber Grades Authority) - Standard Grading Rules for Canadian Lumber, 2010 edition.

1.3 SUBMITTALS FOR REVIEW

- .1 Section 01 33 00: Submission procedures.

1.4 SUBMITTALS FOR INFORMATION

- .1 Section 01 33 00: Submission procedures.

1.5 CLOSEOUT SUBMITTALS

- .1 Section 01 78 10: Submission procedures.

1.6 QUALITY ASSURANCE

- .1 Perform Work in accordance with the following agencies:
 - .1 Lumber Grading Agency: Certified by NLGA.
 - .2 Plywood Grading Agency: Certified by CANPLY.
 - .3 Wood Based Panel Products: Marked with a recognized, visible grade stamp showing Grade or span rating as required.

1.7 DELIVERY, STORAGE, AND PROTECTION

- .1 Store plywood panels flat and level.
- .2 Keep finish faces inward and cover stacks to protect from bumping and abrasion.
- .3 Protect tongue and groove plywood panel edges and corners.
- .4 Protect panels from sunlight, water or excessive humidity.
- .5 Store materials off the ground, covered with weatherproof tarps.

Part 2 Products

2.1 LUMBER MATERIALS

- .1 Dimension Lumber: CSA-O141, softwood lumber unless indicated otherwise, No. 2 Grade, Spruce-Pine-Fir, maximum moisture content 19%; graded to NLGA Standard Grading Rules for Lumber.

2.2 PANEL MATERIALS

- .1 Plywood: CSA-O121 as indicated in schedule below, CANPLY certified and graded, meeting the requirements of CSA-O325.
 - .1 Roof Sheathing: CSA-O121 Douglas Fir Plywood, 16 mm (5/8 inch) nominal thickness.

2.3 FASTENERS AND ANCHORS

- .1 Screws and Nails: Corrosion resistant; type and size suitable for application.
- .2 Steel decking screws: Corrosion resistant; Hilti S-MD 12-24 x 1 5/8 M HWH5, or approved equivalent.

2.4 CONNECTORS AND PLATES

- .1 Steel Plate Connectors: 300W/ ASTM A572, as specified in drawings.

2.5 MISCELLANEOUS ACCESSORIES

- .1 Adhesives: Waterproof adhesive, approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify that site conditions are ready to receive work and opening dimensions are as instructed by the manufacturer specifications.

3.2 FRAMING

- .1 Coordinate installation of wood decking installation with covered entrance contractor.
- .2 Curb roof openings as per architect.
- .3 Coordinate curb installation with installation of decking and support of deck openings.
- .4 Existing steel decking screws on top of flute to be removed, and replaced on either side. Any existing fasteners in poor condition are to be replaced.

3.3 SHEATHING

- .1 By others.

3.4 FLEXIBLE FLASHING

- .1 Install flexible flashing to architectural and manufacturer's written instructions.

3.5 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Framing Members: 6 mm (1/4 inch) from true position, maximum.

END OF SECTION