

1 GENERAL

- 1.1 The work of this section includes the provision of all design, labour, materials, equipment and services required to fabricate and install site development elements as required for a complete project. The work includes, but is not necessarily limited to, the items referenced herein:
- 1.1.1 Site Furnishings.
 - 1.1.2 Exterior Signage.
 - 1.1.3 Bollards and Guards.
- 1.2 References, selection of materials, preparation, and quality of work standards shall be as listed in the Painting Specification Manual published by the Canadian Painting Contractors Association (CPCA).
- 1.3 Qualifications:
- 1.3.1 Manufacturers, fabricators, and installers shall have a minimum of 5 years experience in the successful installation of the systems specified in this section.
 - 1.3.2 Companies shall be certified to [CSA W47.2] for fusion welding of aluminum.

2 DESIGN

- 2.1 Provide site furnishings, which complement the building, design, each other, other site installations, adjacent site and resist unauthorized removal.
- 2.2 Provide the following site furnishings:
- 2.2.1 Site benches each capable of comfortably seating 4 persons. Minimum of two(2) at each major entrance and landscape areas adjacent to pedestrian walkway.
 - 2.2.2 Bike racks to accommodate 20 bikes. Bike rack design to permit individual locking of bike frame. Minimum of one (1), located in appropriate area.
 - 2.2.3 Waste receptacles, minimum one (1) located at each major entrance.
 - 2.2.4 Ornamental metal tree guards to match existing campus tree guards at all trees installed within paved areas.
- 2.3 Exterior Signs:
- 2.3.1 Design signage to complement building, and site design.
 - 2.3.2 Design, size, and locate signage to be clearly visible and legible at distances to suit purpose intended. Base, pole, wall, or overhead mount signage to suit application.

- 2.3.3 Design sign assembly to withstand wind velocity in any direction of 145 km/hr.
- 2.3.4 Design signage to resist warpage, delamination, fading, peeling, and cracking.
- 2.3.5 Signage requirements will be provided by Owner during project. In general, the following types of building and site signage will be required:
 - 2.3.5.1 Service entrance identification.
 - 2.3.5.2 Pedestrian and vehicular traffic control.
 - 2.3.5.3 Parking control.
 - 2.3.5.4 Barrier free accessibility.
- 2.3.6 Illuminated, building mounted exterior signage will be located at all major entrances to the building and provided by the Owner. The *[Design Builder]* is responsible for providing conduit and electrical service to locations of exterior illuminated signage. Allow for three (3) locations.
- 2.3.7 Bollards and Guards:
 - 2.3.7.1 Impact protection shall consist of bollards and guards. Provide impact protection to hydrants, utility lines, and meters, edge of vehicle entranceways in buildings, and any other structures or equipment subject to impact by vehicles.

3 MATERIALS

3.1 Site Furnishings:

- 3.1.1 Benches: Prefinished welded metal construction.
- 3.1.2 Bike Racks: Aluminum construction
- 3.1.3 Waste receptacles: Prefinished steel construction

3.2 Exterior Signs:

- 3.2.1 Roadway/Parking Area Signage:
 - 3.2.1.1 Sign supports:
 - 3.2.1.1.1 Steel posts to *[CAN/CSA-G40.21]*, hot dip galvanized to *[CAN/CSA-G164]*, minimum zinc coating 600 g/m².
 - 3.2.1.1.2 Aluminum tubular posts, and other support members to *[ASTM B210M]* and *[ASTM B211M]*.
 - 3.2.1.1.3 Fasteners: cast aluminum alloy or galvanized steel.

- 3.2.1.1.4 Anchor and connection bolts: type 304 stainless steel to *[ASTM A276]*.
- 3.2.1.1.5 Frame and casing: prefinished or anodized aluminum.
- 3.2.1.1.6 Sign board: aluminum sheet to *[ASTM B209M]*.
- 3.2.1.1.7 Background sheeting and lettering: non-reflective, vinyl film, or paint, or silk screen transparent ink

3.3 Bollards and Guards:

- 3.3.1 Galvanized HSS: to *[ASTM A53]*, 200 mm nominal outside diameter.
- 3.3.2 Galvanized steel sections to *[CAN/CSA-G40.21]*.
- 3.3.3 Welding materials to *[CSA W59]*.
- 3.3.4 Bolts to *[ASTM A307]*.
- 3.3.5 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to *[CAN/CSA-G164]*.
- 3.3.6 Concrete material to *[CSA-A23.1]*.

4 FABRICATION

- 4.1 All prefabricated components shall be manufactured by reputable Canadian companies employing the highest standards of material and workmanship. Submit itemized list of site furniture components and manufacturer to Owner for approval.
- 4.2 Protect material from damage upon delivery to site.
- 4.3 Install all components plumb, firmly supported, and at locations required.
- 4.4 Install in accordance with methods indicated in shop drawings and manufacturer's instructions.
- 4.5 For free standing signs, set posts in concrete or anchored based plate. Shop apply isolation coating on aluminum surfaces in contact with concrete.
- 4.6 Install bollards and guards in accordance with requirements of qualified Engineer engaged by the *[Design Builder]*.

End of Section