

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- .1 Comply with requirements of Division 1.

1.2 RELATED SECTIONS

- .1 Section 08 11 00: Hollow Metal Doors and Frames.
- .2 Section 08 14 00: Wood Doors.
- .3 Section 08 34 74: Sound Control Door Assemblies.

1.3 SUBMITTALS

- .1 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Submit samples of each sign type, size and colour selected.
 - .3 Submit sign list by room cross referencing construction room numbers with designation numbers assigned.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Interior door signage: surface engraved signs; signage stock 2 ply acrylic extruded sheets with cap and core sheets permanently fused, 2.50 mm thick.
 - .1 Two colours: one for stock sheet and one for core sheet to be selected by Departmental Representative from manufacturer's standard range at later date.
- .2 Sign Types:
 - .1 S-1: Surface engraved Room Name and Number as indicated on schedule; size 100 mm x 150 mm.
 - .2 S-2: Surface engraved Room Name and Number on one line and "Occupied – Unoccupied" on line below with sliding plate over room usage to show either "Occupied" or "Unoccupied".
 - .3 S-3A: Pictogram for washrooms, male or female as required; size 150 mm x 150 mm.
S-3B: Pictogram for barrier-free washrooms, male or female as required; size 150 mm x 150 mm.
 - .4 S-4: Pictogram for stairs: size 150 mm x 150 mm.

2.2 SCHEDULE

- .1 Provide interior signage for the following rooms:
 - .1 One door sign each to schedule attached.

PART 3 - EXECUTION

3.1 FABRICATION

- .1 Fabricate interior signs to numbering system provided by Departmental Representative.
- .2 Provide "Arial, bold" lettering style for door signs; letter size 30 mm high.
- .3 Center lettering in sign stock with minimum 12 mm spacing at top and bottom and 25 mm spacing at both sides.
- .4 All signage lettering to be in English and with braille designations.
- .5 Final sign description to be provided by Departmental Representative prior to fabrication.

3.2 INSTALLATION

- .1 Level and securely install signage by means of screws to doors/walls at mounting heights as directed by Departmental Representative.
- .2 Clean installed signage and replace damaged units to satisfaction of Departmental Representative.
- .3 Provide door signs as per schedule in Item 3.3 below.

3.3 SCHEDULE

Signage Type	Door Number	Door Type	Sign Description	Remarks
BASEMENT				
S-4	001		001 - STAIR No. 1	Stair pictogram
S-1	003		003 - STORAGE	
S-1	004		004 - STORAGE	seasonal storage
S-1	005		005 - JANITOR	
S-1	006		006 - RESIDENTIAL STORAGE	
S-4	007		007 - STAIR No. 2	Stair pictogram
S-1	008		008 - STORAGE	seasonal storage
S-1	009		009 - STORAGE	Administration storage
S-1	010		010 - ELECTRICAL	
S-1	011		011 - COMMUNICATIONS	Phone & Cable Room
S-1	012		012 - LAN ROOM	
S-1	013		013 - ELEVATOR	
S-1	014		014 - JANITOR	
S-1	015		015 - MECHANICAL	

Signage Type	Door Number	Door Type	Sign Description	Remarks
GROUND FLOOR				
n/a	X100		-	Main entrance door - exterior
n/a	100		-	Entrance door – interior vest.
S-1	102		102 – SECURITY OFFICE	Door to Security Office from Reception area
S-1	103		102 – SECURITY OFFICE	
S-1	104		104 – ELECTRICAL CLOSET	
n/a	X105		-	Exterior door
S-2	106		106 – INTERVIEW ROOM	“Occupied – Unoccupied” on second line
S-1	107		107 – LINEN CLOSET	
S-1	109		109 - URINALYSIS	
S-4	110		110 - STAIR No. 2	Stair pictogram
n/a	X110		-	exterior door
S-2	111		111 – PROGRAM ROOM	“Occupied – Unoccupied” on second line
S-2	112		112 – STORAGE ROOM	
S-3B	114		Pictogram for B/F WR	Women’s
S-3B	115		Pictogram for B/F WR	Men’s
S-1	116		116 - JANITOR	
S-4	118		118 - STAIR No. 1	Stair pictogram
n/a	X118		-	exterior door
S-1	A100		A100 - ADMINISTRATION	
S-1	A101		A101 - OFFICE	
S-1	A102		A102 - OFFICE	
S-1	A103		A103 - OFFICE	
S-1	A104		A104 - OFFICE	
S-1	A105		A105 - ADMINISTRATION	
n/a	X105		-	exterior door
S-1	A106		A106 – BUSINESS CENTRE	
S-1	A107		A107 - DIRECTOR	
S-1	A108		A108 – FILE ROOM	
S-1	A110		Pictogram for B/F WR	Women’s
S-1	A111		Pictogram for B/F WR	Men’s
S-2	A112		A112 – MEETING / STAFF ROOM	“Occupied – Unoccupied” on second line
S-1	A113		A113 - STORAGE	
S-1	B100		B100 - ADMINISTRATION	
S-1	B103		B103 - OFFICE	

Signage Type	Door Number	Door Type	Sign Description	Remarks
S-1	B104		B104 - OFFICE	
S-1	B105		B105 - OFFICE	
S-1	B106		B106 - OFFICE	
S-1	B107		B107 - OFFICE	
S-1	B108		B108 - OFFICE	
S-1	B109		B109 - STORAGE	
S-1	B110		B110 - BUSINESS CENTRE	
S-1	B111		B111 - OFFICE	
S-1	B112		B112 - OFFICE	
S-1	B114		Pictogram for B/F WR	Women's
S-1	B115		Pictogram for B/F WR	Men's
S-1	C100		C100 - RESIDENCE	
S-1	C103		C103	
S-1	C104		C104	
S-1	C105		C105	
S-1	C106		C106	
S-1	C107		C107	
S-1	C108		C108	
S-1	C109		C109	
S-1	C110		C110	
S-1	C111		Pictogram for B/F WR and Shower	
S-1	C112		Pictogram for WR and Shower	
S-1	C113		C113 - SERVICES	
S-1	C114		C114 - LAUNDRY	
S-1	D100		D100 - RESIDENCE	
S-1	D103		D103	
S-1	D104		D104	
S-1	D105		D105	
S-1	D106		D106	
S-1	D107		D107	
S-1	D108		D108	
S-1	D109		D109	
S-1	D110		D110	
S-1	D111		Pictogram for B/F WR and Shower	
S-1	D112		Pictogram for WR and Shower	
S-1	D113		D113 - SERVICES	
S-1	D114		D114 - LAUNDRY	

SECOND FLOOR

S-4	202		202 - STAIR No. 2	Stair pictogram
S-1	203		203 - STORAGE	

Signage Type	Door Number	Door Type	Sign Description	Remarks
S-3B	204		Pictogram for B/F WR	Men's
S-3B	205		Pictogram for B/F WR	Women's
S-4	206		206 - STAIR No. 1	Stair pictogram
S-2	207		207 - PROGRAM ROOM	"Occupied - Unoccupied" on second line
S-1	208		208 - STORAGE	
S-1	209		209 - STORAGE	
S-2	210		210 - CULTURAL CENTRE	"Occupied - Unoccupied" on second line
S-1	211		211 - JANITOR	
S-1	B200		B200 - RESIDENCE	
S-1	B203		B203	
S-1	B204		B204	
S-1	B205		B205	
S-1	B206		B206	
S-1	B207		B207	
S-1	B208		B208	
S-1	B209		B209	
S-1	B210		B210	
S-1	B211		Pictogram for B/F WR and Shower	
S-1	B212		Pictogram for WR and Shower	
S-1	B213		B213 - SERVICES	
S-1	B214		B214 - LAUNDRY	
S-1	C200		C200 - RESIDENCE	
S-1	C203		C203	
S-1	C204		C204	
S-1	C205		C205	
S-1	C206		C206	
S-1	C207		C207	
S-1	C208		C208	
S-1	C209		C209	
S-1	C210		C210	
S-1	C211		Pictogram for B/F WR and Shower	
S-1	C212		Pictogram for WR and Shower	
S-1	C213		C213 - SERVICES	
S-1	C214		C214 - LAUNDRY	
S-1	D200		D200 - RESIDENCE	
S-1	D203		D203	
S-1	D204		D204	
S-1	D205		D205	

Signage Type	Door Number	Door Type	Sign Description	Remarks
S-1	D206		D206	
S-1	D207		D207	
S-1	D208		D208	
S-1	D209		D209	
S-1	D210		D210	
S-1	D211		Pictogram for B/F WR and Shower	
S-1	D212		Pictogram for WR and Shower	
S-1	D213		D213 - SERVICES	
S-1	D214		D214 - LAUNDRY	

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- .1 Comply with requirements of Division 1.

1.2 RELATED SECTIONS

- .1 Section 06 10 00: Rough carpentry.
- .2 Division 26 - electrical connections for hand dryers

1.3 REFERENCES

- .1 ASTM A167, Specification for Stainless and Heat-Resisting Chromium - Nickel Steel Plate, Sheet, and Strip.
- .2 ASTM A526, Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot - Dip process, Commercial Quality.
- .3 ASTM B456, Specification for Electrode posited Coating of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .4 CAN/CGSB - 12.5, Mirrors, Silvered.
- .5 CAN/CSA - B651, Barrier-Free Design.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

1.5 CLOSEOUT SUBMITTALS

- .1 Provide operations and maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 – Closeout Submittals.

1.6 EXTRA MATERIALS

- .1 Provide special tools required for accessing, assembly/disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section Submittals.
- .2 Deliver special tools to Departmental Representative.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.
- .4 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Sheet steel: commercial quality to ASTM A526M with ZF001 designation zinc coating.
- .2 Stainless steel sheet metal: to ASTM A167, Type 304, with satin finish.
- .3 Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.
- .4 Fasteners: tamper proof, concealed screw and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.

2.2 COMPONENTS

- .1 Toilet Paper Dispenser (TPD): supplied by Departmental Representative, installed by Contractor.
- .2 Soap Dispenser (SDP): supplied by Departmental Representative, installed by Contractor.
- .3 Grab bars (GBR): 32 mm dia x 1.6 mm wall tubing of stainless steel, 38 mm diameter wall flanges, concealed screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Knurl bar at area of hand grips. Grab bar material and anchorage to withstand downward pull of 2.2 kN. Grab bar types: GBR.1: 600 mm L.; GBR.2: 900 mm L., GBR.3: 650 mm L. and GBR.4: 1000 mm L.
 - .1 Acceptable products:
 - .1 B-5806 by Bobrick.
 - .2 3100-P by Watrous.
 - .3 832-2 Series by Bradley.
 - .4 1001DP by Frost Products.
 - .5 or approved equal.

- .4 Sanitary Napkin Disposal (SND): stainless steel, surface mounted disposal unit with hinged stainless steel self-closing door, door embossed with "push", locking. Unit approximately 270 mm wide, 500 mm high, 115 mm deep, #4 Satin finish.
 - .1 Acceptable products:
 - .1 B-270 by Bobrick
 - .2 0852 by Watrous-American Specialties Inc.
 - .3 4781-15 by Bradley
 - .4 or approved equal.
- .5 Robe Hook (RBH):
 - .1 For installation in single occupant washrooms and where indicated - robe hook, type 304 stainless steel, satin finish with 50 mm projection:
 - .1 B-6717 by Bobrick.
 - .2 7340-S by Watrous.
 - .3 9114 by Bradley.
 - .4 or approved equal.
- .6 Mirror (MIR): stainless steel angle framed mirror, 6 mm float glass, triple silvered, sealed, concealed secure fastening:
 - .1 MIR: Size: 600 x 915 mm.
 - .2 Acceptable products:
 - .1 B-290 by Bobrick.
 - .2 0600-A by Watrous.
 - .3 780 by Bradley.
 - .4 941 by Frost Products.
 - .5 or approved equal.
- .7 Hand Dryer (HD): listed under re-examination service of ULC and CSA approved.
 - .1 Electrical input voltage: 120 V AC, single phase 60Hz, rated power: 1400 W. Motor type: Dyson digital motor, switched reluctance brush less motor speed: 81,000 rpm. Heater type: none; Standby power consumption: 1w, energy consumption per dry: 0.00467 kWh.
 - .2 Construction: die-cast aluminium casing with anti-microbial resistant lacquer coating on exterior surfaces. Colour finish: metallic silver, glass lacquer. Anti-microbially impregnated external plastics and seals, galvanized steel backplate / mounting bracket. Tamper proof T30 type exterior screws, water ingress protection to PIX5.
 - .3 Filtration anti-microbial HEPA filter particulate removal tested to 99.95% at 0.3 microns according to ASTM 1977 Bacteria removal less than 99.9%, operation touch-free infra-red activation.
 - .4 Hand dry time: 12 seconds (measured to method defined within National Sanitation Foundation protocol P335) Operation lock-out period: 30 seconds, Airspeed at nozzle: 640 km/h. Operating airflow: 31.151 l/s / 66.1 CFM. Rated operating noise power: 85 dB(A).

- .8 Shower Curtain, Curtain Hooks and Rod (SC/R):
 - .1 Shower Curtain: 1830 mm high x opening width + 150 mm minimum, .31 mm (8 gauge), vinyl fabric, flame resistant, anti-bacterial with clear anodized aluminium grommets.
 - .2 Shower curtain hooks: 2 mm dia. solid formed type 304 stainless steel wire hooks for 32 mm dia. shower rod:
 - .1 204-2 Curtain / 204-1 Hooks by Bobrick.
 - .2 1200-V Curtain / 1200-SHU Hooks by Watrous.
 - .3 9537 Curtain / 9536 Hooks by Bradley.
 - .4 or approved equal.
 - .3 Shower Rod: 32mm dia., 1.2 (18 gauge) x length to suit opening, with 76 mm dia. (20 gauge) type 304 stainless steel concealed flanges:
 - .1 B-6047 by Bobrick.
 - .2 1204 Extra Heavy Duty Rod by Watrous.
 - .3 9531 by Bradley.
 - .4 or approved equal.
- .9 Towel Bar (TB): 610 mm long x 32 mm dia., 1.2 mm (18 gauge), type 304 stainless steel, satin finish, with 76 mm dia. flange, concealed screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories:
 - .1 Acceptable products:
 - .1 B-5806 by Bobrick.
 - .2 3100 Series by Watrous.
 - .3 832-4 Series by Bradley.
 - .4 or approved equal.
- .10 Solid Phenolic Folding Shower Seat: all metal support mechanism fabricated of 18-8 alloy type 302 stainless steel. Seat support and support legs shall be 25mm and 32mm sq. x 18 Ga. with stainless finish with 4.8 thick mounting flanges and 16 Ga. guide bracket support. Seat shall be 8mm thick solid phenolic with beige colour top and bottom surfaces. Support arm shall fold up when in retracted position. Note: General Contractor to coordinate solid blocking in wall for seat securement.

2.3 FABRICATION

- .1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
- .2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.
- .3 Brake form sheet metal work with 1.5 mm radius bends.
- .4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- .5 Back paint components where contact is made with building finishes to prevent electrolysis.
- .6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CSA G164.

- .7 Shop assemble components and package complete with anchors and fittings.
- .8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
- .9 Provide steel anchor plates and components for installation on studding and building framing.

2.4 FINISHES

- .1 Stainless steel satin finish to ASTM-A167.
- .2 Chrome and nickel plating: to ASTM B456, satin finish.
- .3 Baked enamel: condition metal by applying one coat of metal conditioner to CGSB 31-GP -107Ma, apply one coat Type 2 primer to CAN/CGSB-1.81 and bake, apply two coats Type 2 enamel to CGSB -1-GP - 88M and bake to hard, durable finish. Sand between final coats. Colour selected from manufacturers standard range by Departmental Representative.
- .4 Manufacturer's or brand names on face of units not acceptable.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Provide mounting and anchorage devices to be built into walls and other construction elements as required to securely anchor components in place. Do not install items unless back-up surfaces are adequately reinforced to support the item.
- .2 Securely anchor components in place. Mount items securely with non-corrosive, concealed or tamper-proof fastenings. Method of fastening shall ensure that components will be capable of withstanding expected loads without movement. Repair construction voids produced by the work of this section to match existing surfaces.
- .3 Strictly adhere to manufacturer's instructions. Ensure guarantee conditions are met. Obtain Departmental Representative's and manufacturer's approvals prior to deviations from manufacturer's procedures.
- .4 Provide mounting and anchorage devices to be built into walls and other construction elements as required to securely anchor components in place.
- .5 Install framed mirrors with concealed wall hangers and lock in place with theft-proof screws.
- .6 Insulate accessory surfaces to prevent electrolysis due to contact with dissimilar metal surfaces. Use bituminous paint or other approved means.

3.2 CLEANING AND ADJUSTMENT

- .1 Test mechanisms, hinges, locks and latches and where necessary, adjust and lubricate and ensure that accessories are in perfect working order.
- .2 Clean, dust units in accordance with Section 01 74 11 – Cleaning.
- .3 At completion of work remove all protective coverings and clean all finished surfaces. Surfaces to be free of imperfections and defects in workmanship.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

3.3 SCHEDULE

- .1 Locate accessories where indicated, exact locations to be determined on site by Departmental Representative.
- .2 Toilet tissue holders: install one beside each water closet in all washrooms and Urinalysis Room.
- .3 Sanitary napkin disposal bin: install one beside water closet in Washrooms A110, 114, B114 and 205.
- .4 Hand dryers: in all washrooms and Urinalysis Room. Locations as shown on drawings. Maximum height of operating part 1200 AFF.
- .5 Grab bars:
 - .1 Two per water closet, in Washrooms 109, A110, A111, 114, 115, B114, B115, C111, D111, 204 and 205, B211, C211, D211.
 - .1 Height of bar from floor 750mm.
 - .2 Side grab bar: maximum distance from rear wall 300mm, minimum distance beyond front edge of toilet 450mm.
 - .2 Three per BF shower, in Washrooms C111, D111, B211, C211, and D211
 - .1 Height of bar from floor varies.
- .6 Shower rod and curtains: in all shower compartments. Washrooms C111, C112, D111, D112, B211, B212, C211, C212, D211, D212.
- .7 Soap dispensers: install one beside each wash basin in all washrooms and Urinalysis Room.
- .8 Mirrors: one above each wash basin in all washrooms.
- .9 Robe Hooks: one in each washroom. Location as shown on drawings.
- .10 Towel bar: one in each shower compartment in Washrooms C111, C112, D111, D112, B211, B212, C211, C212, D211, D212.
- .11 Solid phenolic folding shower seat: one in each BF washroom C111, D111 B211, C211 and D211. Location as shown on drawings.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 21 05 01 - Mechanical General Requirements

1.2 REFERENCES

- .1 ANSI/NFPA 10-2013, Portable Fire Extinguishers.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 Submit shop drawings and product data in accordance with Section 01 33 00.

1.4 MAINTENANCE DATA

- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00.

PART 2 - PRODUCTS

2.1 MULTI-PURPOSE AMMONIUM PHOSPHATE DRY CHEMICAL EXTINGUISHERS (FE)

- .1 Stored pressure rechargeable type with hose and shut-off nozzle, ULC labelled for A, B, C class protection. Rating: 4.5kg (6A, 80- B,C). Red paint finish, squeeze grip operation, pull pin safety lock, waterproof s.s. pressure gauge, anodized aluminum valve.
- .2 Acceptable Material: Flag, Diamond, Amerex.

2.2 KITCHEN EXTINGUISHER (TYPE K)

- .1 Stored pressure type, stainless steel cylinder, stainless steel valve, class 2A rated, with hose and shut-off nozzle.

2.3 CARBON DIOXIDE EXTINGUISHER

- .1 Stored pressure, all metal valve construction, aluminum cylinder.

2.4 EXTINGUISHER BRACKETS

- .1 Type recommended by extinguisher manufacturer.

2.5 CABINETS

- .1 Semi-recessed type as indicated, constructed of nominal 1.519mm (16 ga.) steel, 180° opening door of nominal 1.897mm (14 ga.) steel with latching device. Cabinet depth 100 mm (semi-recessed). Door equipped with full height piano hinge.
- .2 Cabinet door: metal frame and transparent canopy.
- .3 Finish:
 - .1 Tub: prime coated.
 - .2 Door and frame: prime coated; red paint finish coat by G.C.
- .4 Acceptable Material: National Fire Equipment Model CE-950-1; Wilson and Cousins; CFH Industries.

2.6 IDENTIFICATION

- .1 Identify extinguishers in accordance with recommendations of NFPA 10.
- .2 Attach bilingual tag or label to extinguishers, indicating month and year of installation. Provide space for service dates.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Install or mount extinguishers in cabinets or on brackets as indicated; top of cabinet or extinguisher shall not exceed 1500 mm AFF.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- .1 Comply with requirements of Division 1.

1.2 RELATED SECTIONS

- .1 Section 06 10 00: Rough Carpentry.
- .2 Section 09 21 16: Gypsum Board Assemblies.

1.3 REFERENCES

- .1 CAN/CGSB-44.40, Steel Clothing Locker.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Indicate type and class of locker, thicknesses of metal, fabricating and assembly methods, assembled banks of lockers, tops, hooks, shelves, bases, trim, numbering, filler panels, end/back panels, doors, handles, locking method, ventilation method and finishes.
- .3 Submit locker numbering system for approval by Consultant.

1.5 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit duplicate 50 x 50 mm samples of colour and finish on actual base metal.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction Waste Management And Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal materials from landfill to metal recycling facility as approved by Consultant.
- .5 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Personal effects lockers: to CAN/CGSB-44.40, Four Tier, and Six Tier small compartment lockers, Class 2 banks of freestanding, steel lockers where indicated.
 - .1 Size:
 - .1 Type 1: Four (4) tier locker; 457 mm wide x 305 mm deep x 1829 mm high; prefinished steel frame.
 - .2 Type 2: Six (6) tier locker; 305 mm wide x 305 mm deep x 1829 mm high; prefinished steel frame.
 - .2 Assembly: welded construction.
 - .3 Top: sloped.
 - .4 Doors: one piece swing door, double walled envelope construction, door thickness 1.52 mm (16 gauge) outer panel, .76 mm (22 Gauge) inner door panel, door flush with frame with 1.52 mm (16 gauge) continuous hinge.
 - .5 Door handle: recessed handle with hasp, bright metal finish.
 - .6 Locking system: Built in keyed lock.
 - .7 Base: 100mm high, prefinished steel, 1.52 mm (16 gauge).
 - .8 Accessories: wall trim filler panels.
 - .9 Finish: doors, frames, sloped tops end panels, base, trims and cross bars to be baked enamel finish.
 - .1 Two-tone door/frame colour combination (with up to two separate colours for doors and 2 separate colours for frames) to be selected at later date by Consultant from manufacturer's standard colour range.
 - .10 Acceptable products and manufacturers:
 - .1 "Decor Tri-Lok" Series by GSS.
 - .2 50 Series "Nova" by Lincora Canada Inc.
 - .3 "Emperor" by Hadrian Manufacturing Inc.
 - .4 SML Delux Lockers by Shanahan's Manufacturing Ltd.
 - .5 or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Assemble and install lockers in accordance with manufacturer's written instructions. Install lockers in true alignment, plumb and level.
- .2 Securely fasten lockers to grounds and nailing strips. Use concealed fasteners.
- .3 Provide trim, fillers and closures on profile acceptable to Departmental Representation. Install in longest possible lengths.
- .4 Install filler panels where required.

- .5 Install sloping dust top.
- .6 Install steel locker base.
- .7 Install finished end and back panels to exposed ends and backs of locker banks.
- .8 Install locker numbers to approved numbering system.
- .9 Upon completion, test doors and locks, and adjust, if required, for proper functions. Touch up minor surface scratches and imperfections. Replace damaged components.

3.2 CLEANING AND ADJUSTMENT

- .1 Proceed in accordance with Section 01 74 11 – Cleaning.
- .2 At completion of work remove all protective coverings and clean all finished surfaces. Surfaces to be free of imperfections and defects in workmanship.
- .3 Test hinges, latches and where necessary, adjust and lubricate and ensure that all are in perfect working order.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A490M-ae1, Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints Metric.
 - .2 ASTM A653/A653M-06a, Standard Specification for Steel Sheet, Zinc-Coated, (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.81-M90(R1990), Air Drying and Baking Alkyd Primer for Vehicles and Equipment.
 - .2 CAN/CGSB-1.88-92, Gloss Alkyd Enamel, Air Drying and Baking.
 - .3 CGSB 31-GP-107Ma-90, Non-inhibited Phosphoric Acid Base Metal Conditioner and Rust Remover.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .5 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - February 2004.
 - .1 MPI # 76, Quick Dry Alkyd Metal Primer.
 - .2 MPI # 96, Q.D. Alkyd Enamel Gloss.

1.3 DESIGN REQUIREMENTS

- .1 Design and construct metal storage shelving to support uniform load of 210 lbs / lineal foot span and to support maximum load of 630 lbs. per bay.
- .2 Design shelving to accommodate vertical adjustment of shelves in 50 mm increments and to permit easy assembly, expansion, dismantling and re-use of shelving component parts.

1.4 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings:
 - .1 Indicate shelving layouts, number of bays, number of shelves, number and size of drawers, bins, number of dividers, system of bracing and anchoring devices.
- .3 Product data and samples:
 - .1 Submit manufacturer's printed product literature showing shelving system components and accessories.
 - .2 Submit duplicate colour chips showing finish colour selected for this project.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements .
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction Waste Management and Disposal.

1.6 EXTRA MATERIALS

- .1 Provide maintenance materials, special tools and spare parts in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide five (5) spare shelves and end panel components for maintenance use.
 - .1 Store where directed.
 - .2 Identify each box.
 - .3 Provide tools for assembly and disassembly, standard with metal storage shelving manufacturer.

PART 2 - - PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: to CSA-G40.20/G40.21, Type 400 W.
- .2 Steel bolts, nuts and washers: to ASTM A490M.
- .3 Welding materials: to CSA W59.
- .4 Shelving: sizes as noted on drawings.

2.2 COMPONENTS

- .1 Uprights:
 - .1 Roll formed steel angles or tees with perforations to accommodate shelves and other components.
 - .2 Size and thickness of angles or tees to support specified total load.
- .2 Shelves:
 - .1 Brake formed sheet metal, reinforced to carry specified loads.
 - .2 Punch holes in shelves to accommodate dividers and other components.
- .3 Kickplates: formed sheet metal to close opening between bottom shelf and floor on front and on sides of shelving bay.
- .4 Back: 0.6 mm core thickness steel sheet to enclose shelving bay extending from bottom shelf to top shelf.
- .5 Side panels: 0.6 mm core thickness steel sheet panels to close ends of shelving bays or sections and as partitions between adjacent bays.
- .6 Dividers:
 - .1 Reinforced sheet metal plates for subdividing shelves into bins.
 - .2 Provide for attachment of dividers to shelves immediately above and below dividers.
- .7 Bin fronts: formed sheet metal, attached to front edge of shelf to prevent small parts from falling over edge of shelf.
- .8 Gusset plates: heavy gauge metal plates to reinforce corner connections of shelving components.
- .9 Braces:
 - .1 Provide sway braces for open type shelving.
 - .2 Use side sway braces on two exposed sides of each rack and at alternate bays.
 - .3 Use back sway braces on two end sections of each bank and on alternate bays.
- .10 Label holders: attachable to front edge of shelf with provision to hold paper or plastic label.
- .11 Base plates: metal or plastic plates to take uprights and to protect floor surfaces.

2.3 FINISH

- .1 Finish shelving system factory finished baked enamel in colour selected by Departmental at later date from manufacturer's standard colour line.
- .2 Manufacturers or brand names on face of units are not acceptable.

PART 3 - - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

- .1 Do metal storage shelving work except where specified otherwise.
- .2 Install metal storage shelving in accordance with reviewed layout.
- .3 Brace, secure and anchor shelving units in place.
- .4 Make good baked enamel surfaces damaged during shipment or installation.

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Comply with requirements of Division 1.

1.2 REFERENCES

- .1 The Aluminum Association Inc. (AAI)
 - .1 AAI DAF-45-2003, Designation System for Aluminum Finishes - 9th Edition.
 - .1 AA-A31, Clear Anodized Finish.
 - .2 AA-A41, Clear Anodized Finish.
- .2 American National Standards Institute (ANSI)
 - .1 ANSI A208.1-99, Particleboard, Mat-Formed Wood.
- .3 American Standards for Testing and Materials International (ASTM)
 - .1 ASTM A490M-04a, Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints Metric.
 - .2 ASTM D523-89(1999), Standard Test Method for Specular Gloss.
 - .3 ASTM D968-05, Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.
- .4 Canadian Standards Association (CSA International)
 - .1 CSA-B651-04, Accessible Design for the Built Environment.
 - .2 CSA-G40.20/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.
 - .3 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .5 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.81-M90, Air Drying and Baking Alkyd Primer for Vehicles and Equipment
 - .3 CAN/CGSB-1.88-92, Gloss Alkyd Enamel, Air Drying and Baking.
 - .4 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .6 The Master Painters Institute (MPI)
 - .1 MPI ASM-February 2004, Architectural Painting Specification Manual.
 - .1 MPI # 18, Organic Zinc Rich Primer.
 - .2 MPI # 23, Oil Alkyd Primer.
 - .3 MPI # 76, Quick Dry Alkyd Metal Primer.
 - .4 MPI # 96, Q.D. Alkyd Enamel Gloss.
 - .5 MPI INT 5.1A to Z, Structural Steel and Metal Fabrications Systems.

1.3 DEFINITIONS

- .1 Bay: single shelving section of unit.
- .2 Unit: assembly of one or more bays.
- .3 Module: grouping of units with one or more access.
- .4 System: complete system including units, and track.

1.4 DESIGN REQUIREMENTS

- .1 Track/Rail system:
 - .1 Design track to carry minimum 1491 kg per linear m of carriage.
 - .2 Design track/rail system flush with floor for barrier free access with no visible gaps between track and adjacent flooring.
- .2 Carriage:
 - .1 Design carriage of steel to support minimum 1491 kg per m. double gear reduction to allow carriage to move with 0.45 kg of effort at turn handle.
 - .2 Provide manual safety lock to prevent carriages from being moved while personnel access open aisle
- .3 Shelving:
 - .1 Four post, wedge-locking design, consisting of uprights, shelves and shelf supports, assembled without nuts, bolts, studs, clips, sway braces or gussets.
 - .2 No holes on exposed surfaces of assembled shelving: not allowed.
 - .3 Shelves and backs: flush with outside post.
 - .4 Provide sheet metal gables and back between each bay of shelves to prevent tampering.
 - .5 Design individual shelves to support uniform load of 128 kg per m of span.
 - .6 Adjustment: provide with vertical adjustment of shelves in 38 mm increments.

1.5 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS MSDS - Material Safety Data Sheets.

- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of New Brunswick, Canada for track type, track installation detail, track and deck assembly, stationary tie down detail, rubber bumpers, drive upright detail, handle detail, crank, carriage detail including splice, and accessories.
 - .2 Indicate dimensions, layout, number of bays, number of shelves, number and size of drawers and bins, number of dividers, system of bracing against tipping and anchoring devices.
- .4 Samples:
 - .1 Submit representative sample bay of specified shelving showing finish colour and accessories.
 - .2 Samples to be returned to Contractor for inclusion in Work.
- .5 Quality Assurance Submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Design Data:
 - .1 Submit floor loading calculations including floor loading diagram.
 - .2 Provide installation details.
 - .2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 - .3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.
- .6 Closeout Submittals:
 - .1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.6 QUALITY ASSURANCE

- .1 Qualifications: installation by factory trained, authorized installer.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Store shipped materials on site only after arrival of installation crew.
- .2 Installation personnel to arrange delivery of components on site as required to avoid storing components on site.
- .3 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction Waste Management and Disposal.

PART 2 - - PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: to CSA-G40.21, type 400W.
- .2 Steel: to CSA-G40.20/G40.21, Grade 300W.
- .3 Hollow Structural Sections (HSS): to CSA-G40.20/G40.21, Grade 350W, Class H.
- .4 Alkyd primer: oil type to MPI # 23.
- .5 Zinc rich primer for galvanized surfaces: zinc rich, ready mix to MPI # 18.
- .6 Steel bolts, nuts and washers: to ASTM A490M.
- .7 Welding materials: to CSAW59.
- .8 Aluminum : extrusions to AA DAF-45 AA-1 31 41 clear.
- .9 Anchoring and grouting mortar: quick setting hydraulic cement.
- .10 Prefinished laminated plastic panels: panels consisting of [0.178] mm thick [melamine] resin impregnated decorative sheet thermally fused to rigid particleboard substrate.
 - .1 Particleboard substrate to ANSI A208.1.

2.2 FABRICATION

- .1 Track and raised floor:
 - .1 Type: provide aluminum extrusion 'T' style tracks with 25 mm x cold rolled bar stock insert.
 - .1 Mould shoulders of aluminum track to accept neoprene insert on either side of bar stock to accommodate flanged wheels without gaps or protrusions.
 - .2 Supply track with lap joints to provide continuous structure along entire length of track.
 - .3 Subfloor: to Section 06 10 00 - Rough Carpentry.
- .2 Carriages:
 - .1 Type: C-channel steel frame, 2.68 mm.
 - .1 Provide integral unit by welding main transverse framing section of same material to main support members.
- .3 Wheels:
 - .1 Type: minimum 127 mm diameter, precision machined [steel], supported on dual sealed bearings with double flanges for proper guiding on track.

- .4 Drive mechanism:
 - .1 Type: provide 3 spoked handle mechanical assist operation on carriages.
 - .1 Wheels on one side of each carriage to be driven.
 - .2 Provide built in chain tightening device to mechanical assist mechanism.
 - .3 Include push/pull aisle lock mechanism on all mobile units.
- .5 Stationary platforms:
 - .1 Type 1: provide fixed units [as indicated] to be mounted on platforms of same construction and height as carriages only anchored to track for complete homogenous system.
- .6 End panels:
 - .1 Type: provide 16 mm thick end panel with plastic laminate finish. Plastic laminate to be selected by Departmental Representative from full range of manufacturer's standard colours and patterns.
 - .1 Finish edges with 25 x 25 mm plastic corner moulding, colour as selected by Departmental Representative.
 - .2 Provide black plastic nameholders, two per double faced panel and one per single faced panel.
- .7 Shelving:
 - .1 Type: made of 0.7 mm steel with 2.03mm shelf supports for 762 mm wide bays, and 3.06mm shelf supports for 1067 mm wide bays.
 - .1 Overall system height: 2134 mm.
 - .2 Colour: beige.
 - .3 Shelf height: 1937 mm high shelf with 6 shelf openings each minimum of 286 mm high plus top shelf.
 - .4 Double sided shelves: 762 mm deep with 102 mm high centre stop to prevent boxes from being pushed through from one side to other.
 - .5 Slot shelves with centre stops every 51 mm for addition of dividers.
 - .6 Adjustable shelves on 38.1 mm centres.
- .8 System configuration: as indicated.
- .9 Accessories:
 - .1 Security key lock: provide one keylock mounted at 900-1100 mm above floor on end of modules indicated on drawings.

2.3 FINISH

- .1 Factory finished metal shelving in colour to be selected by Departmental Representative at a later date from manufacturer's standard range.

PART 3 - - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

- .1 Carry out installation by using installers certified by manufacturer. Do not sub-contract to a third party.
- .2 Install metal storage shelving in accordance with reviewed layout, installation and start-up instructions.
- .3 Install rail to tolerances of maximum 2.4mm from true level within module, maximum 1.6 mm between adjacent rails and maximum 0.8 mm in 3048 mm rail length.
- .4 Level track anchor and grout between track and floor.
- .5 Install raised plywood deck free of gaps or barriers at track locations.
 - .1 Install ramp to raised floor in accordance with CSA-B651.
 - .2 Ramp floor finish by Section 09 65 16 – Resilient Sheet Flooring.
- .6 Install components in place, plumb, straight and level.
- .7 Brace, secure and anchor components in place.
- .8 Install shelving at uniform, equal height spacing, unless instructed otherwise.
- .9 Make good finished surfaces damaged during shipment or installation.

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
 - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 03 30 00: Cast-in-Place Concrete.

1.2 REFERENCES

- .1 The Aluminum Association (AA).
 - .1 AA DAF-45-R2003, Designation System for Aluminum Finishes - 9th Edition.
- .2 ASTM International
 - .1 ASTM B241/B241M-02, Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
- .3 Canadian Standards Association (CSA International).
 - .1 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

1.3 DESIGN REQUIREMENTS

- .1 Flagpole, bases and anchorage devices to resist minimum wind velocity of 308 km/h unflagged, 188 km/h flagged.

1.4 ACTION AND INFORMATION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product data: Submit manufacturer's instructions, printed product literature and data sheets for flagpoles and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings: Submit drawings stamped and signed by professional structural engineer registered and licensed in the Province of Nova Scotia.
 - .1 Indicate dimensions, finishes, base jointing, anchoring and support systems, cleats, halyard boxes, trucks, finials and base collar for flagpoles.
 - .2 Submit copies of drawings of flagpoles and bases, showing general layout, jointing and complete anchoring and supporting systems.
- .4 Manufacturer's instructions: Submit manufacturer's installation instructions for each type of flagpole.

1.5 QUALITY ASSURANCE

- .1 Provide each flagpole as complete unit produced by single manufacturer, including fittings, accessories, bases and anchorage devices.

1.6 DELIVERY AND STORAGE

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

- .2 Delivery and acceptance requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .1 Spiral wrap each flagpole with heavy kraft paper, wood strip and steel band, or polyethylene wrap and pack in tubing for shipment to prevent marring of finish or damage to pole or components.
 - .2 Ship flagpole to installation site in one piece.
 - .3 Deliver flagpole in two pieces when more than one piece is required. Provide precision joints with self-aligning internal splicing sleeve arrangement.
- .3 Storage and Handling Requirements:
 - .1 Storage materials off ground indoors in dry locations and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area. Store and protect flagpoles from nicks, scratches and blemishes.
 - .2 Store horizontal, blocked off the ground and in a protected manner to prevent bending, sagging or twisting.
 - .3 Use soft cloth sling when hoisting to prevent marking of finish.
 - .4 Replace defective or damaged materials with new.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Aluminum:
 - .1 Aluminum Association alloy AA 6063-T5 seamless extruded aluminum tubing.
 - .2 Fabricated from seamless extruded tubing in accordance with ASTM B241, alloy 6063 T6, having minimum tensile strength not less than 20 MPa and a yield point of 17 MPa. Heat treated and age hardened after fabrication.
- .2 Isolation coating: alkali-resistant bituminous paint or epoxy resin solution.

2.2 DESIGN CRITERIA

- .1 Flagpole, bases and anchorage devices to resist minimum wind velocity of 308 km/h unflagged, 188 km/h flagged.

- .2 Description:
 - .1 Model: HCA – Architectural Cone Tapered Aluminum Flagpole
 - .2 Exposed Height: 10.7 M
 - .3 Butt Diameter: 150 mm
 - .4 Top Diameter: 91 mm
 - .5 Wall Thickness: 4.7 mm
 - .6 Options and Accessories: internal halyard, tilt base, tilt anchor cage with anchor plate assembly and hinge pin, aluminum base cover, revolving cap, single halyard, retaining weighted loop, flag extension with two flag snaps, door, lock and key.
 - .7 Flag Size: 1143 x 2286 mm
 - .8 Acceptable products:
 - .1 Model: HCA – Architectural Cone Tapered Aluminum Flagpole by Ewing Flagpole Co. Inc.
 - .2 Model: 762500 - Cone Tapered Flagpole by Flag Outlet.
 - .3 Model: EC35 - Architectural External Halyard Flagpole by Eder Flag Manufacturing.

2.3 FABRICATION

- .1 Provide one (1), 12.2 M. long flagpole as complete unit including, base, anchorage and fittings.
- .2 Cone tapered flagpole:
 - .1 Seamless, uniform, straight line tapered section above cylindrical butt section.
 - .2 Provide internal splicing, self-aligning sleeve of same material as flagpole for snug fitting, watertight field joints.
- .3 Do welding to appropriate CSA Standard, by welders certified by Canadian Welding Bureau. Finish exposed welds flush and smooth.

2.4 ACCESSORIES

- .1 Finial: revolving cap, 1.6 mm minimum thick, aluminum, anodized finish, colour to match flagpole finish.
- .2 Truck assembly: stainless steel, stainless steel ballbearing, nonfouling, revolving double truck assembly.
- .3 Halyard: internal, single continuous halyard. Retaining loop and weights for internal halyard, stainless steel, nylon covered.
- .4 Swivel snaps: two per halyard; stainless steel with neoprene or vinyl covers.
- .5 Hinged, lockable door with lock and key.

2.5 FINISHES

- .1 Finish exposed surfaces of aluminum components in accordance with AA DAF-45.
 - .1 Clear anodic finish: designation AA-M12 C22A41, Class 1 with minimum coating thickness of 0.7 mils.
 - .2 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1.

- .2 Bituminous paint: applied to anchor bolt assembly as recommended by manufacturer.

2.6 FIELD FABRICATION

- .1 Fabricate ground-set foundation assembly for manual tilt installation of flagpole as indicated. Include locking lug on tilt poles.
- .2 Fabricate mountings of galvanized steel where encased in concrete.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Verification of conditions: verify that conditions of substrate previously installed under other Sections are acceptable for flagpole installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Shop apply isolation coating to metal surfaces of flagpole and base that will be encased in concrete below grade level.
- .2 Supply anchor bolt assembly to Contractor for casting into concrete flag pole base.
- .3 Install flagpoles, base assemblies and fittings to shop drawings and manufacturer's instructions.
- .4 Provide ground stakes for positive lightning ground for each ground set flagpole installation.
- .5 Check and adjust installed fittings for smooth operation of halyards.

3.3 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent site area caused by flagpole installation.

3.4 CLEANING

- .1 Clean in accordance with Section 01 74 11 – Cleaning. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.

- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 – Construction Waste Management and Disposal.

END OF SECTION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- .1 Comply with requirements of Division 1.

1.2 RELATED SECTION

- .1 Section 06 10 00: Rough Carpentry.
- .2 Section 06 20 00: Finish Carpentry.
- .3 Section 06 40 00: Architectural Woodwork.
- .4 Section 09 21 16: Gypsum Board Assemblies.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings:
 - .1 Submit shop drawing in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Indicate fabrication details, plans, elevations, hardware, and installation details.

1.4 PRODUCT DELIVERY, STORAGE AND PROTECTION

- .1 Protect product finished surfaces during shipment and installation. Do not remove protective coverings until immediately prior to final inspection.
- .2 Protect products from dampness, humidity, heat, excessive dryness and direct sunlight. Arrange for delivery after work causing abnormal humidity has been completed.
- .3 Store products in well ventilated room, off floor, in accordance with manufacturer's recommendations. Room must be clean, dry, free of dirt and water, and protected from the elements.
- .4 Protect products from scratches, handling marks and other damage. Individually package products in scuff and water resistant wrappings. Do not remove protective coverings from units until ready for installation.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Materials: new, free from defects impairing strength, durability or appearance of best commercial quality for purpose specified.
- .2 Materials sufficient thickness and strength to produce finished work free of warping, buckling, open seams, weld marks, base fitting and other defects.

2.2 RECESSED FLOOR GRILLE

- .1 Recessed floor grille: extruded 6105 T5 alloy aluminum, tread rails, with aluminum alloy key lock bars, clear anodized finish, carpet
 - .1 Tread rails: extruded, 6105 T5 alloy aluminum, with aluminum alloy key lock bars, clear anodized finish.
 - .2 Carpet: 29 oz., colorfast, anti-static carpet fibre, fusion bonded to rigid 2-ply backing to prevent fraying, with anti-microbial additive and Scotchgard treatment. Colour to be selected by Departmental Representative at later date.
 - .3 Recessed frame: 46 mm recessed level base frame, 6105 T5 alloy aluminum with 12 mm exposed surface, 1.52 mm (16 Ga.) aluminum pan.
 - .4 Acceptable Product:
 - .1 Model # G1-C-CP-9322-LBDP by Construction Specialties Inc.
 - .2 Model # BC1 T180 by Grillage Bolar Canada Inc.
 - .3 Model ST-28 c/w ST-ANC Frame – recessed floor grates by STENA Inc. (Foot Grilles) Columbia Partitions, A Division of PSISC.
 - .4 or approved equal.

PART 3 – EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, and data sheets.

3.2 EXAMINATION

- .1 Examine completed work on which installation is dependent. Do not begin installation until substrates have been properly prepared and completed
- .2 Verify rough-in openings are properly prepared.

3.3 WORKMANSHIP AND INSTALLATION

- .1 Work under this section shall include complete installation of items specified herein. Install components and equipment in accordance with manufacturer's printed instructions.
- .2 Ensure supplementary anchorage, if required, is in place.
- .3 Secure in place rigidly as follows:
 - .1 Metal stud partitions: into wood or metal reinforcing back-up placed prior to gypsum board application.
 - .2 Hollow masonry units: use toggle bolts drilled through core of units or if solid bearing cinch anchors.

3.4 RECESSED FLOOR GRILLE

- .1 Install recessed floor grille where indicated on drawings as follows:
 - .1 Entrance Vestibule (100): 1800 wide x 1800 mm long.

3.6 PROTECTION

- .1 Protect install products until completion of project.
- .2 Touch-up, repair or replace damaged products before Substantial Completion.

3.7 CLEANING

- .1 Clean in accordance with Section 01 74 11 – Cleaning.
- .2 On completion, touch up marred or abraded finished surfaces. Replace damaged components.
- .3 Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

END OF SECTION