1 ASSEMBLY - GENERAL

1.1 The work of this section includes the provision of all design, labour, materials, equipment and services required to fabricate and install interior specialties as required for a complete project. The work includes, but is not necessarily limited to, the items referenced herein:

1.1.1 Washroom Accessories

1.1.2 Lockers

1.1.3 Laminated Toilet Partitions

1.1.4 Whiteboards and Tackboards

1.1.5 Lightproof Shades

1.1.6 Vertical Louvre Blinds

1.1.7 Wardrobe and Closet Specialties

1.1.8 Floor Grilles

1.1.9 Video Monitor Mounts

1.1.10 Acoustical Wall Treatment

1.1.11 Overhead Projection Screens

1.1.12 Interior and Exterior Signage

1.1.13 Other Interior Specialties

1.2 Provide specialties to function, locations and in numbers indicated in space data sheets and/or specified herein. Include all necessary structural support, blocking and backing for all interior specialties provided either by the *[Design Builder]* for items as listed herein or Owner supplied items.

2 ASSEMBLY DESIGN CRITERIA

2.1 Refer to individual Assembly Components.

3 ASSEMBLY COMPONENTS

3.1 WASHROOM ACCESSORIES

3.1.1 **General:**

3.1.1.1 Submittals: Submit shop drawings or catalogue illustrations in accordance with Section 01340. 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.

3.1.2 **Design:**

3.1.2.1 In general, provide the following quantities:

Recessed waste receptacle:	one (1) per washroom.
Grab bars	two (2) per handicapped toilet compartment.
Electric hand dryers (infrared):	one (1) per lavatory.
Shower rod and curtains:	one (1) per female shower compartment.
Vanity mirrors:	full length of vanities typical. One (1) above each urinal
Robe hook:	one (1) in each toilet & shower compartment. one(1) for rear of each enclosed office door
Shelving:	full length of locker room vanities typical.
Janitor's shelving:	one (1) per janitorial closet.
Soap holder:	one (1) per showerhead.

3.1.2.2 Owner to supply the following accessories, for installation by the *[Design Builder]*.

Toilet paper dispenser:	one (1) per toilet stall.
Soap dispenser:	one (1) per lavatory.
Feminine napkin dispenser:	one (1) per female toilet compartment.

3.1.2.3 Provide blocking and plywood backing for all washroom accessory installations.

3.1.3 **Materials/Finishes:**

3.1.3.1 Sheet steel: commercial quality to *[ASTM A526- 80]* with ZF001 designation zinc coating.

3.1.3.2 Stainless steel sheet metal: to *[ASTM A167-82]*, Type 304, with No. 4 finish.

3.1.3.3 Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2mm wall thickness.

3.1.3.4 Fasteners: concealed screws 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.

3.1.3.5 Chrome and nickel plating: to *[ASTM B456-79]* satin finish.

3.1.3.6 Manufacturer's or brand names on face of units not acceptable.

3.1.3.7 Combination towel dispenser/waste receptacle: recessed wall unit. Interior of 0.8mm galvanized steel, exterior of 0.8mm stainless steel. Suitable for dispensing folded or roll paper towels. Removable galvanized steel waste receptacle, lockable access door with continuous full height stainless steel hinge. Acceptable material: *[Twincee Model 2010 Universal Towel Dispenser and Waste Receptacle].*

3.1.3.8 Grab bars: 32mm dia x 1.6mm wall tubing of stainless steel, 38mm 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. Acceptable material: *[Twincee 6000 Series Grab Bars]*.

3.1.3.9 Hand dryers: semi-recessed, infrared control, white.

3.1.3.10 Stainless steel shelf unit: 127mm deep, box formed edges, and corners welded and polished smooth: Acceptable material: *[Bobrick Model no. 5066]*.

3.1.3.11 Robe hook: stainless steel with 75mm projection.

3.1.3.12 Shower rods: 38mm dia. x 2mm wall thickness stainless steel tubing of required length, with satin chrome finished flanges, 12 shower curtain hooks and curtain hold back hook and chain. Shower rod material and anchorage to withstand downward pull of 0.9kn.

3.1.3.13 Shower curtains: anti-bacterial fire-resistive, self-extinguishing vinyl laminated fabric shower curtain.

3.1.3.14 Soap holder: with bar: recessed stainless steel 158 x 158mm soap tray with integral grab bar, extended lip and steel backplate.

3.1.3.15 Janitor’s shelving: Stainless steel, 203mm deep x 1220mm long, with manufacturer’s standard hooks, mop strip and holders.

3.1.4 **Fabrication/Installation:**

3.1.4.1 Install and secure accessories rigidly in place as follows:

3.1.4.1.1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.

3.1.4.1.2 Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into cell/wall cavity.

3.1.4.1.3 Solid masonry or concrete: use bolt with lead expansion sleeve set into drilled hole.

3.1.4.1.4 Toilet/shower compartments: use male/female through bolts.

3.1.4.1.5 Install grab bars on built-in anchors provided by bar manufacturer.

3.1.4.1.6 Use tamper proof screws/bolts for fasteners.

3.2 LOCKERS

3.2.1 **General:**

3.2.1.1 Submittals: Submit samples in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Submit duplicate 50 x 50mm samples of colour and finish on actual base metal and one full size locker complete with features specified.

3.2.1.2 Submittals: Submit shop drawings in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Indicate thickness of metal, fabricating methods, assembled banks of lockers, bases, trim, numbering, filler panels and end/back panels.

3.2.1.3 Reference standards to *[CGSB 44-GP-40-71]* Locker, Clothing Steel.

3.2.2 **Design:**

3.2.2.1 Provide numbers and locations as per Statement of Requirements and space data sheets. Utilize recessed lockers wherever possible.

3.2.3 **Materials/Finishes:**

3.2.3.1 Sizes: all student lockers shall be 305w x 381d x 1829mm high, single and two tier models unless otherwise noted.

3.2.3.2 Body: fabricate case to form strong rigid unitary construction. Form door frame to a box channel using min. 1.6mm steel. Fabricate back, sides and bottom from minimum 0.90mm sheet steel to form gap-free enclosure. Use welded construction. Bottoms shall have diagonal emboss sloping and centre drainage hole. Fabricate in groups of four bodies insofar as exact quantities allow.

3.2.3.3 Door: fabricate door from sheet steel to form one piece, double wall envelope construction, reinforced, welded and enclosed on all sides. Outer panel, minimum 1.6mm, inner panel minimum 0.90mm. Mount door flush with locker frame and free from protrusions such as handles, locks, bumpers, hasps or hinges.

3.2.3.4 Shelf: provide minimum 0.90mm shelf with channel shaped front flange. Set shelf 25mm away from door to permit ventilation. Locate shelf 350mm down from top of locker. Reinforce or weld front edge to provide strong rigid edge.

3.2.3.5 Ventilation: provide a series of vandal resistant rectangular slots in top and bottom of door frames to allow air to flow freely through entire locker.

3.2.3.6 Hardware:

3.2.3.6.1 Door handle: provide recessed, moulded reinforced plastic.

3.2.3.6.2 Latch: provide silent friction type catch to maintain door in closed position. Locate at centre of door.

3.2.3.6.3 Hinges: provide each door with concealed 64mm x 2.0mm, five knuckle, non-removable pin hinges, welded to frame and to door. Provide three per door 1200mm and higher. Paint to match.

3.2.3.6.4 Bumpers: provide two rubber bumpers mounted close to top and bottom of door to silence closing of door, mechanically fastened and tamperproof.

3.2.3.6.5 Number plates: provide rigid, vandal-proof plated or corrosion resistant metal with dye stamped or etched numbers in contrasting colour, minimum 9mm high. Numbering sequence as determined by Owner.

3.2.3.6.6 Coat hooks: provide each locker opening with three single, round tip, plated metal hooks attached with minimum two plated bolts per hook. Locate on side and back walls, 75mm below shelf.

3.2.3.6.7 Lock: provide 3.5mm hasp to permit recessed padlock locking.

3.2.3.7 Miscellaneous: provide the following panels. Cross and edge stiffen and tightly secure with concealed fastenings (no pop rivets, holes or bolt heads).

3.2.3.7.1 End panels: for non-recessed banks of lockers provide minimum .09mm flush end panels.

3.2.3.7.2 Perimeter trim: for non-recessed banks of lockers, provide 50mm wide x 0.80mm box profile trim flush with surface of lockers around perimeter of locker banks.

3.2.3.7.3 Filler panels: where required and where obstructions occur, provide 1.6mm filler panels between banks of lockers. Locate flush with face of lockers.

3.2.3.7.4 Sloped top: provide 0.90mm sloped top complete with continuous dust cap and internal and external corner panels as required.

3.2.4 **Fabrication/Installation:**

3.2.4.1 Finish complete locker including door, frame, body, shelf and all exposed surfaces. Thoroughly degrease, clean and apply phosphate coat, then electrostatically apply enamel and bake to produce a hard, durable finish.

3.2.4.2 Colours: as selected from manufacturer's premium range. Allow for four (4) colour combinations.

3.2.4.3 Workmanship:

3.2.4.3.1 Fold back or shape exposed edges of lockers, doors, frames, shelves and other components to provide safe rounded corners. Remove all burrs.

3.2.4.3.2 Assemble lockers so each locker and its component parts are straight, true, level and with all fabricated joints folded to provide straight edges.

3.2.4.3.3 Finished lockers shall be uniform in quality, free from any defects that may affect their appearance or serviceability.

3.3 LAMINATED TOILET PARTITIONS

3.3.1 **General:**

3.3.1.1 Submittals: Submit samples in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Submit duplicate 300 x 300mm samples of panel showing finish on both sides, two finished edges and core construction. Submit duplicate representative samples of each hardware item, including brackets, fastenings and trim.

3.3.1.2 Submittals: Submit shop drawings in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Indicate fabrication details, plans, elevations, hardware, and installation details.

3.3.1.3 Reference standards:

3.3.1.3.1 *[ASTM A167-87]* Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

3.3.1.3.2 *[CAN3-A172-M79]* Grade SS, solid plastic laminate.

3.3.1.4 Provide maintenance data for plastic laminate for incorporation into manual specified in Section 01730 - Operation and Maintenance Manual.

3.3.2 **Design:**

3.3.2.1 Provide the following laminate partitions:

3.3.2.1.1 Washroom toilet compartments, ceiling hung.

3.3.2.1.2 Female shower compartments, ceiling/wall mounted.

3.3.2.1.3 Urinal screens, wall mounted.

3.3.3 **Materials/Finishes:**

3.3.3.1 Solid laminated plastic panels and pilasters: to *[CAN3-A172]*, Grade SS, Type 3, 19mm thick with solid colour matt finish on both sides.

3.3.3.2 Hinges: Heavy-duty, self-lubricating, nylon bushings. Material/finish: stainless steel casting. Return movement: gravity. Adjustable to hold door open at any angle up to 90°.

3.3.3.3 Latch set: built-in, combination latch, door-stop, keeper and bumper, stainless steel, emergency access feature.

3.3.3.4 Wall and connecting brackets: stainless steel casting.

3.3.3.5 Coat hook: combination hook and rubber door bumper, stainless steel casting.

3.3.3.6 Pilaster shoe: stainless steel minimum 75mm high, 0.80mm thick material.

3.3.3.7 Headrails: anti-grip design.

3.3.3.8 Stainless steel sheet metal: to *[ASTM A167]*, Type 304 with No. 4 finish.

3.3.3.9 Fasteners: stainless steel tamperproof type screws and bolts.

3.3.3.10 Sealer: water resistant sealer or glue as recommended by laminate manufacturer.

3.3.4 **Fabrication/Installation:**

3.3.4.1 Fabricate doors and partition panels of solid laminated plastic panels, 19mm thick, to sizes required. Fabricate pilasters of solid laminate plastic panels 19mm thick, to sizes required.

3.3.4.2 Install partitions secure, plumb and square. Leave 12 mm space between wall and panel or end pilaster.

3.3.4.3 Anchor fixing brackets to masonry-concrete surfaces using screws and shields: to hollow walls using bolts and toggle type anchors. Attach panel and pilaster to brackets with through type sleeve bolt and nut.

3.3.4.4 Provide for adjustment of floor variations with screw jack through steel saddles made integral with pilaster. Conceal floor fixings with stainless steel shoes.

3.3.4.5 Equip each door with hinges, latch set, and each stall with coat hook mounted on door. Adjust and align hardware for proper function. Set door open position at 30° to front.

3.4 WHITEBOARDS

3.4.1 **General:**

3.4.1.1 Submittals: Submit samples in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Submit duplicate 300 x 300mm sample of each type whiteboard and 300mm long sample of each type trim.

3.4.1.2 Submittals: Submit shop drawings in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Indicate location, type, size, panel arrangement, backing, hardware, anchor or mounting details, frame or trim and accessories.

3.4.1.3 Provide operation and maintenance data for incorporation into manual specified in Section 01730 - Operation and Maintenance Manual. Affix maintenance instruction labels to whiteboards.

3.4.2 **Design:**

3.4.2.1 Provide whiteboards as per space data sheets.

3.4.3 **Materials/Finishes:**

3.4.3.1 Whiteboard facings of steel sheet: 0.8mm thickness, commercial quality to *[ASTM A526]*, pre-cleaned and treated to ensure maximum adhesion of an acid resistant type B (for Chalk) porcelain enamel.

3.4.3.2 Whiteboard core fibreboard: to *[CAN/CSA A247]*, Type impregnated, 11mm thick.

3.4.3.3 Laminating adhesive: to manufacturer's standard.

3.4.3.4 Joint reinforcement: concealed mechanical jointing system to provide straight, rigid, continuously supported, tight butt, flush joints at surface.

3.4.3.5 Anchor clips, brackets and fasteners: concealed type recommended by whiteboard manufacturer.

3.4.3.6 Backing: 26 ga., stretcher-levelled, galvanized zinc coated steel sheet to give a balanced sandwiched panel that remains constant and warp resistant under normal conditions.

3.4.3.7 Whiteboard finish porcelain enamel: to Porcelain Enamel Institute Standards PEI S104 regards durability, smoothness of texture, colour continuity. Gloss factor of 6-8 as measured by 45 degree glossometer. Surface finish for dry water dampened erasable markers, white colour.

3.4.3.8 Trim and framing:

3.4.3.8.1 Extruded aluminum: Aluminum Association alloy AA6063-T5. Minimum 1.5mm thick.

3.4.3.8.2 Whiteboard trim and framing: perimeter trim or frame, map rail with cork, bottom rail with integral chalk trough, of manufacturer's standard sections appropriate for installation conditions.

3.4.3.8.3 Accessories manufacturer's standard:

3.4.3.8.4 Map hooks: 4 every 1200mm o.c.

3.4.3.9 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes. Clear anodic finish: designation AA-M12-C22-A41. Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative shall meet requirements of *[CGSB 63-GP-2M]*, for coating Classes 1, 2 and 3 respectively.

3.4.4 **Fabrication/Installation:**

3.4.4.1 Fabricate whiteboard panels to sizes required.

3.4.4.2 Factory laminate whiteboards, consisting of 0.8mm thick facing sheet, with 11mm thick fibreboard core and 26 ga. thick backing sheet. Adhesive in accordance with manufacturers recommendations.

3.4.4.3 Make finished panels flat and rigid and fit with joint reinforcement. Fit joints between abutting whiteboard panels with joint reinforcement except where covering trim is required.

3.4.4.4 Install chalkboards in accordance with manufacturer's instructions, plumb and level, provide rigid, secure writing surface.

3.4.4.5 Install trim and framing around chalkboard panels. Make mitres and intersecting joints to hair-line fit, free of rough edges. Use concealed brackets to reinforce and hold joints tight and flush. Exposed fasteners permitted. Overlap trim 6mm onto panels.

3.4.4.6 Mechanical attachment:

3.4.4.6.1 To concrete or solid masonry use lag screw and expansion bolts or screws and fibre plugs as appropriate for stresses involved.

3.4.4.6.2 To hollow masonry use toggle bolts or equivalent.

3.4.4.6.3 To wood or sheet metal use screws. Secure into framing members in stud walls.

3.5 TACKBOARDS

3.5.1 **General:**

3.5.1.1 Submittals: Submit samples in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Submit duplicate 300 x 300mm sample of each type of tackboard and 300mm long sample of each type of trim.

3.5.1.2 Submit shop drawings in accordance with Section 01340 - Shop Drawings, Product Data, Samples and Mock-ups. Indicate location, type, size, panel arrangement, backing, hardware, anchor or mounting details, frame or trim and accessories.

3.5.1.3 Requirements of regulatory agencies: Surface burning characteristics of materials: listed and labelled by an organization accredited by Standards Council of Canada.

3.5.2 **Design:**

3.5.2.1 Provide tackboards in locations and quantities specified in space data sheets.

3.5.2.2 Provide the following tackboards :

Classrooms, computer labs and other instruction areas:	Vinyl faced
Common areas, corridor and lobbies	Vinyl faced
Corporate classrooms, office/administration areas:	Fabric faced

3.5.3 **Materials/Finishes:**

3.5.3.1 Tackboard facing vinyl fabric: to *[CGSB 41-GP-30M]*, Type 3, listed and labelled, weave pattern, colour selected from standard manufacturer’s range. Classified as to surface burning characteristics in accordance with *[CAN4-S102]*, flame spread 55, smoke developed 55-70, fuel contributed 20.

3.5.3.2 Composition cork tackboards: single layer Krommenie cork, 6mm thick, colour selected from manufacturer's standard range, listed and labelled. Classified as to surface burning characteristics in accordance with *[CAN4-S102]*, flame spread 55, smoke developed 55-70, fuel contributed 20.

3.5.3.3 Tackboard fabric: facing 100% polyester fabric covering to 3mm corkboard bonded to fibreglass core c/w concealed mechanical fastening. Acceptable material: *[Sound Solution Avanti Tackable Wall Panel – TKP].*

3.5.3.4 Particle board: to *[CAN3-0188.1]*, Grade R.

3.5.3.5 Laminating adhesive: to manufacturer's standard.

3.5.3.6 Joint reinforcement: concealed mechanical jointing system to provide straight, rigid, continuously supported, tight butt, flush joints at surface.

3.5.3.7 Anchor clips, brackets and fasteners: concealed type recommended by manufacturer for fixed mounting.

3.5.3.8 Trim and framing extruded aluminum: Aluminum Association alloy AA6063-T5. Minimum 1.5mm wall thickness. Perimeter trim or frame of manufacturer's standard sections appropriate for installation conditions.

3.5.3.9 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes. Clear anodic finish: designation AA-M12-C22-A41. Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative shall meet requirements of *[CGSB 63-GP-2M]*, for coating Classes 1, 2 and 3 respectively.

3.5.4 **Fabrication/Installation:**

3.5.4.1 Install trim on panels in factory. Make mitres and intersecting joints to hair-line fit, free of rough edges with concealed brackets to reinforce and hold joints tight and flush. No other joints permitted unless approved. No exposed fasteners permitted.

3.5.4.2 Install tackboards in accordance with manufacturer's instructions, to provide rigid, secure surface.

3.5.4.3 Install trim and framing around tackboard panels. Make mitres and intersecting joints to hair-line fit, free of rough edges. Use concealed brackets to reinforce and hold joints tight and flush. No exposed fasteners permitted. Overlap trim 6mm onto panels.

3.5.4.4 Mechanical attachment:

3.5.4.4.1 To concrete or solid masonry use lag screw and expansion bolts or screws and fibre plugs as appropriate for stresses involved.

3.5.4.4.2 To hollow masonry use toggle bolts or equivalent.

3.5.4.4.3 To wood or sheet metal use screws. Secure into framing members in stud walls.

3.6 LIGHTPROOF SHADES

3.6.1 **General:**

3.6.1.1 Submittals: Submit duplicate 300 x 300mm samples of shade fabric colour and texture in accordance with section 01340.

3.6.1.2 Submittals: Submit shop drawings in accordance with Section 01340 - Shop Drawings. Indicate, by large-scale details, anchorage, assembly, materials, components, finishes, and perimeter construction conditions.

3.6.1.3 Mock-up: Construct one complete mock-up of lightproof shade with attachments and accessories.

3.6.1.4 Operations & Maintenance Manuals: provide material and product data for incorporation into Section 01730.

3.6.2 **Design:**

3.6.2.1 Provide lightproof shades, required to darken instructional areas utilizing audio visual equipment and as per space data sheets.

3.6.3 **Materials/Finishes:**

3.6.3.1 Operation: Easylift (chain operated) action with infinite positioning, right hand operation.

3.6.3.2 Assembly:

3.6.3.2.1 Provide full factory assembled shade unit consisting of two end brackets (with crossover channels), shade tube, extruded aluminum fascia, black-out channels(sides), dynamic hembar/hembar and opaque fabric specified, mounted on face of head mullion. Removal must not require the disassembly of the shade unit.

3.6.3.2.2 End bracket: the 77 x 96mm end bracket shall be a two piece moulded ABS construction with a 64mm diameter nylon drive sprocket. Bracket colour to coordinate with fascia colour. Brackets shall have cross-over channels for chain to clear black-out channel.

3.6.3.2.3 Shade tube: extruded aluminum shade tube, 1.52mm thick with three internal continuous fins 4.82mm high for strength and drive capabilities when attached to nylon sprocket.

3.6.3.2.4 Fascia: extruded aluminum fascia 1.7mm thick, complete with three continuous screw flute, painted white.

3.6.3.3 Drive assembly: factory set for size and travel of shades. Capable of being field adjusted from the exterior of the shade unit without having to disassemble the hardware. Provide built in shock absorber system to prevent chain breakage, under normal use conditions.

3.6.3.4 Drive chain: No. 10 stainless steel bead chain formed in a continuous loop. The chain shall have a #90 test.

3.6.3.5 Exterior hembar: extruded aluminum with plastic end finials, painted white.

3.6.3.6 Black-out side and bottom channels: extruded aluminum channels to reduce light infiltration around the sides of the shades.

3.6.3.7 Blackout fabric:

3.6.3.7.1 Blackout fabric: 100% opaque, 4 ply fibreglass shade material, tear resistant fiberglass, vinyl coated. Weight: min.12 oz/sq. yard +/- *[(CCC-191-5041)]*.

3.6.3.7.2 The shade cloth shall hang flat, without buckling or distortion. The edge, when trimmed, shall hang straight without raveling. An unguided roller shade cloth shall roll true and straight without shifting sideways more than 0.3mm in either direction due to warp distortion, or weave design.

3.6.3.7.3 Flame retardance: Fabric shall be certified by an independent laboratory to pass Small Scale Vertical Burn Requirement Test *[CAN/ULC-S109-M87].*

3.6.3.7.4 If sewn, needle holes shall not permit light penetration. Washable with mild soap and water. Colours to be selected in manufacturer's range.

3.6.3.7.5 Acceptable material: *[Teleshade system manufactured by Solarfective Products Ltd.]* All shade systems to be of single manufacturer.

3.6.4 **Fabrication/Installation:**

3.6.4.1 Install window recessed mounted lightproof shades to manufacturer's written instructions.

3.7 VERTICAL LOUVRE BLINDS

3.7.1 **General:**

3.7.1.1 Submittals: Submit samples of manufacturer's standard colours, patterns and textures of specified van and rail materials.

3.7.1.2 Submittals: Submit shop drawings in accordance with Section 01340 - Shop Drawings. Indicate dimensions in relation to window jambs, operator details, head and sill conditions between adjacent blinds, corner conditions, anchorage details, hardware and accessories details.

3.7.1.3 Warranties: The *[Design Builder]* hereby warrants that the vertical louvre blinds will provide specified level of appearance, and remain operational, subject to proper care and maintenance but for three (3) years

3.7.2 **Design:**

3.7.2.1 Provide vertical louvre blinds for all exterior windows, interior glazed frames and door sidelights (requiring privacy and/or shading for audio visual equipment usage).

3.7.2.2 Refer to space data sheets for locations.

3.7.3 **Materials/Finishes:**

3.7.3.1 The standard for this project is *[vertical pearlized P.V.C. louvre blinds by Shade-O-Matic]*. Acceptable alternatives must meet all standards set by this section.

3.7.3.2 Rails: Headrail, Standard duty, Extruded aluminum 6063-T5 alloy:

3.7.3.2.1 Roll-formed 0.8mm thick carbon steel with baked enamel finish.

3.7.3.2.2 Full length, one piece with capped ends.

3.7.3.2.3 Size: stream-lined profile c/w matching colour insert.

3.7.3.2.4 Colour and finish: extruded anodized aluminum.

3.7.3.3 Vanes: 1.2mm thick x 90mm x length to suit window assembly:

3.7.3.3.1 Rigid polyvinylchloride, light stable, to *[ASTM D1784]*, Class 12454-C, beaded edges. Pattern: Pearlized P.V.C.

3.7.3.4 Components:

3.7.3.4.1 Carrier tracks and wheels: standard heavy duty, acetal resin moulded material.

3.7.3.4.2 Gears, sprocket wheels, end caps: acetal moulded, spur and worm gears, self-lubricating with ratio recommended by manufacturer for particular unit type.

3.7.3.4.3 Bead chain: nickel plated brass or stainless steel.

3.7.3.4.4 Vane spacer links: Type 301 stainless steel, flexible to space and stabilize each truck.

3.7.3.4.5 Hooks: clear.

3.7.3.5 Brackets sized to support weight of blind plus forces applied to operate blind and designed to facilitate installation and removal of top rail, complete with hardware necessary for secure attachment of brackets to adjoining construction and to headrail.

3.7.3.6 Operation:

3.7.3.6.1 Traversing: manual and electrical operation, free hanging to operate, central split.

3.7.3.6.2 Control opening and closing of blind with nylon cord, tensioned by cord weight or cord tension pulley and without binding vanes at any angle.

3.7.3.6.3 Fabricate vanes to stack, uniform, in tight space allowing maximum clear window opening.

3.7.3.6.4 Rotational control: use bead chain to activate gear assembly to rotate all vanes simultaneously full 180° and hold them in fixed position until reset. Vane overlap 8mm minimum.

3.7.4 **Fabrication/Installation:**

3.7.4.1 Install bracket mounted vertical louvre blinds in accordance with manufacturer's instructions. Install blinds to inside of external windows square, plumb, true to line with operable parts adjusted for correct function.

3.7.4.2 Fabricate vanes to completely fill openings required, from head to sill and jamb-to-jamb.

3.7.4.3 Install vertical louvre blinds at inside of exterior windows and room side of interior glazed frames/sidelights.

3.8 COAT RACKS

3.8.1 **General:**

3.8.1.1 Submittals: Submit shop drawings as per Section 01340 - shop drawings.

3.8.2 **Design:**

3.8.2.1 Provide coat rod/shelf in all coat storage closet areas.

3.8.3 **Materials/Finishes:**

3.8.3.1 Garment rod: 25mm diameter tube, plugged at ends, stainless steel finish.

3.8.3.2 Shelves: four 19mm diameter tubes, plugged at ends, stainless steel finish.

3.8.3.3 Brackets: Steel brackets, capped at both ends, secured to wall on steel channel mounting, spaced at 900mm o.c. max. Top bracket to include garment rod mounting. Stainless steel finish.

3.8.3.4 Hangers; closed loop non-removable coat hangers, chrome finish.

3.8.4 **Fabrication/Installation:**

3.8.4.1 Install as per manufacturer's printed instructions.

3.9 FLOOR GRILLES

3.9.1 **General:**

3.9.1.1 Submittals: Submit shop drawings in accordance with Section 01340 - Shop drawings.

3.9.2 **Design:**

3.9.2.1 Provide floor grilles at all public entrance locations, sizes to suit area served.

3.9.3 **Materials/Finishes:**

3.9.3.1 Acceptable material: *[Model BA-1, as manufactured by Bolar Canada Ltd]*.

3.9.3.2 Grille shall be aluminum, 6351-T6, clear anodized finish.

3.9.4 **Fabrication/Installation**

3.9.4.1 Install foot grille, c/w perimeter frame, drainage pan and related accessories as per manufacturer's printed instructions.

3.10 VIDEO MONITOR MOUNTS

3.10.1 **General:**

3.10.1.1 Submittals: Submit shop drawings in accordance with Section 01340 - Shop drawings.

3.10.2 **Design:**

3.10.2.1 Provide locations and quantities as per space data sheets.

3.10.3 **Materials/Finishes:**

3.10.3.1 Purpose-made yoke-style ceiling mounts with the following characteristics:

3.10.3.2 Designed for monitor size range 480-510mm diagonal.

3.10.3.3 Height and width adjustment to fit snug to cabinet. Width adjustment: 457-622mm.

3.10.3.4 Include a perforated bottom tray, 457mm deep, attached between the arms of the yoke bracket, c/w two brackets clipped to the tray to create a front retainer clip.

3.10.3.5 Design for a 10deg. Tilt and a 360deg. swivel.

3.10.3.6 Include a 100mm stabilizing bolt at the centre of the yoke and retaining brackets clipped onto the lower tray for the monitor to rest against.

3.10.3.7 Include a ceiling flange, welded pipe coupling and a steel pipe suspension pipe, c/w required fittings for a complete installation.

3.10.3.8 Include a safety belt for added security.

3.10.4 **Fabrication/Installation:**

3.10.4.1 Install as per manufacturer's printed instructions.

3.11 ACOUSTIC WALL TREATMENT

3.11.1 **General:**

3.11.1.1 Submittals: Submit shop drawings in accordance with Section 01340 - Shop drawings.

3.11.1.2 Submittals: Submit duplicate 300 x 300mm samples of finished acoustical units, c/w mounting systems.

3.11.2 **Design:**

3.11.2.1 Provide acoustical wall treatment as necessary to meet acoustic requirements, and as per room data sheets.

3.11.3 **Materials/Finishes:**

3.11.3.1 Prefabricated acoustic panel units:

3.11.3.1.1 Acoustic core: resin edge-hardened 7Ib/ft3 density fiberglass, 25mm thick.

3.11.3.1.2 Face sheet: 18 Ib/ft3 density rigid fiberglass board, 4mm thick, bonded to acoustic core.

3.11.3.1.3 Fabric: 100% polyester yarn, 2 ply, plain weave, fire-resistant when tested to *[CAN4-S102]*. Flammability to *[ASTM E-84]*. Acceptable material: *[Victor E-84 or Guilford 701]*.

3.11.3.2 Attachments: concealed mechanical fastening.

3.11.3.3 Acceptable panel manufacturers: *[Decoustics Limited - Hiri Panels or Sound Solutions Canada Ltd. - HFP Panels]*.

3.11.3.4 Ductliner board: 50mm thick, type II ductliner board (rigid) from *[Fiberglass Canada]* , anchored to substrate with insulation clips, impale type with 25mm dia. Washers, self locking.

3.11.4 **Fabrication/Installation:**

3.11.4.1 Shop fabricate panels dimensionally stable and shall not twist, warp, bow, or bend after installation. Finish panels with seamless fabric specified, stretched taut, laminated to face and edges and returned 38mm on the back.

3.11.4.2 Install wall panels using metal clips concealed system in accordance with manufacturer's recommendations.

3.12 OVERHEAD PROJECTION SCREENS

3.12.1 **General:**

3.12.1.1 Submittals: Submit shop drawings in accordance with Section 01340 - Shop drawings.

3.12.1.2 Warranties: Warranty projection screens against defects in materials and/or workmanship for five (5) years.

3.12.2 **Design:**

3.12.2.1 Provide manual and power assisted overhead projection screens in locations and quantities as per space data sheets.

3.12.3 **Materials/Finishes:**

3.12.3.1 Provide surface mounted projection screens with all associated supports and anchors for installation to suspended acoustical tile ceilings. Acceptable material: *[Draper V-screen, 1800 x 1800mm min. screen size]*.

3.12.3.2 Provide ceiling recessed, power-assisted projection screens, 1800 x 1800mm min. screen size.

3.12.4 **Fabrication/Installation:**

3.12.4.1 Install manual and electric overhead projection screens as per manufacturer's printed instructions.

3.13 INTERIOR AND EXTERIOR SIGNAGE

3.13.1 **General:**

3.13.1.1 Submittals: submit shop drawings in accordance with Section 01340 - Shop drawings. Submit typical signage samples, one of each type, including safety signage, door number, washroom, directional, and department identification, in accordance with Section 01340.

3.13.1.2 Provide maintenance materials and spare parts as per section 01731.

3.13.1.3 Operations & Maintenance Manuals: provide material and product data for incorporation into Section 01730.

3.13.2 **Design:**

3.13.2.1 Sign graphics to be well-defined, arranged for balanced appearance, with proper spacing of letters, words and graphics. Conform to ADA accessibility guidelines.

3.13.2.2 Interchangeable room sign faces: provide wall-mounted signs with semi-concealed retaining holders that permit quick but vandal-resistant interchange of sign face components. Exposed fasteners are not acceptable.

3.13.2.3 All main building signage to be provided by a single manufacturer.

3.13.2.4 Incorporate use pictograms and consideration for visually impaired usage.

3.13.2.5 Mount all signage at consistent, visually accessible location.

3.13.2.6 Lobbies and other central areas to provide ‘you are here’ orientation, which is welcoming and assist users to their destination.

3.13.2.7 Provide thorough and strategically placed signage for personal safety.

3.13.2.8 Provide reference points to link destinations and buildings to compliment orientation displays and directories.

3.13.2.9 Signage must be professional, consistent, flexible, visually accessible, and coordinated with Owner corporate identity.

3.13.3 **Materials/Finishes:**

3.13.3.1 Main building signage and environmental communication types:

3.13.3.1.1 Door number identification: signs with names and/or functions at the entry way to the destination.

3.13.3.1.2 Public amenity identification: washrooms, telephones, elevators, etc.

3.13.3.1.3 Orientation messages: maps, floor plans, horizontal and vertical circulation, exit identification, ‘you are here’ identification.

3.13.3.1.4 Directional messages: signs with arrows, describing routes.

3.13.3.1.5 Departmental identification: manned and unmanned reception areas, main entrance zones, restricted zone identification.

3.13.3.1.6 General information: hours of services, etc.

3.13.3.1.7 No eating/smoking/drinking messages.

3.13.3.1.8 Room schedule signage: wall-mounted, capable of holding a 216 x 279mm paper room schedule, with clear face and concealed fasteners.

3.13.3.1.9 Acceptable material: *[ASI Sign Systems]*.

3.13.3.2 Safety and security signage:

3.13.3.2.1 Plastic, 200mm x 300mm high, 0.60 ga, UV resistance of 1-3 years, self-adhesive mounting.

3.13.3.2.2 Graphic display system as per CSA standards.

3.13.3.2.3 Signage graphic message types:

3.13.3.2.3.1 Regulatory signs, prohibitive: denotes an order forbidding action.

3.13.3.2.3.2 Regulatory signs, mandatory: denotes an order requiring action.

3.13.3.2.3.3 Warning signs, cautionary: denotes a potential hazard.

3.13.3.2.3.4 Warning signs, danger: denotes a definite hazard.

3.13.3.2.3.5 Information signs, emergency: denotes first aid, fire protection, fire-fighting and emergency equipment.

3.13.3.2.3.6 Information signs, general: indicates permission or denotes public information.

3.13.3.2.3.7 Fire evacuation plans/emergency procedures.

3.13.3.2.3.8 Acceptable material: *[All safety signage system as manufactured by Comsafe, Arkon Safety Equipment]*.

3.13.3.3 Building directories are to be provided in main entrance lobbies. It should be coloured or have high contrast finish, raised characters.

3.13.3.4 Provide parking area signage including reserved visitor parking, handicapped accessible parking, main building entrance identification.

3.13.3.5 Provision of exterior, building mounted and illuminated signage (to conform with existing campus-wide building identification systems) to be provided by others. *[Design Builder]* is to provide electrical service, conduit and junction boxes to main entrances locations as necessary for connection to building signage. Coordinate all corporate identity requirements with the Owners.

3.13.4 **Fabrication/Installation:**

3.13.4.1 Install safety signs with self-adhesive mount. Top of signs to line in with top of door frames throughout (2200mm AFF)

3.13.4.2 Install room identification signage on applicable doors.

3.13.4.3 Install interchangeable room schedule signage adjacent to door the schedule it serves.

End of Section