Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

.1 ASTM C36/C36M-01 Specification for Gypsum Wallboard.

.2 ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.3 ASTM C514-01, Specification for Nails for the Application of Gypsum Board.

.4 ASTM C840-01, Specification for Application and Finishing of Gypsum Board.

.5 ASTM C954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.

.6 ASTM C1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.7 ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

.8 ASTM C1177-01, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

.9 ASTM C1178/C1178M-01, Specification for Glass Mat Water-Resistant Gypsum Backing Board.

.10 ASTM C1280-99, Specification for Application of Gypsum Sheathing Board.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86 (R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit fire rated partition assemblies, ULC Design No.'s to Contract Administrator for approval.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.

.2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.

.3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.4 SITE ENVIRONMENTAL REQUIREMENTS

.1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.

.2 Apply board and joint treatment to dry, frost free surfaces.

.3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit duplicate samples of 300 mm long samples of corner and casing beads, vinyl mouldings, shadow mould, cornice cap, textured finishes and insulating strip.

Part 2 Products

2.1 MATERIALS

.1 Standard board: to ASTM C36/C36M regular, and Type X, thickness as indicated, 1200 mm wide x maximum practical length, ends square cut, edges bevelled.

.2 Abuse resistant board moderate duty to ASTM C588: Manufacturer's standard size abuse-resistant gypsum base sheets in maximum available lengths to minimize end-to-end joints; manufacturer's standard edge profile.

.3 Glass mat gypsum substrate sheathing: to ASTM C1177, regular and type X, thickness as indicated, 1200 mm wide x maximum practical length.

.4 Metal furring runners, hangers, tie wires, inserts, anchors: to ASTM.

.5 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

.6 Resilient drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.

.7 Nails: to ASTM C514.

.8 Steel drill screws: to ASTM C1002.

.9 Laminating compound: as recommended by manufacturer, asbestos-free.

.10 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, ABS, PVC, zinc-coated by electrolytic process 0.5 mm base thickness, perforated flanges, one piece length per location.

.11 Sealants: in accordance with Section 07 92 00 - Joint Sealants.

.12 Acoustic sealant: in accordance with Section 07 92 00 - Joint Sealants.

.13 Polyethylene: to CAN/CGSB-51.34, Type 2.

.14 Insulating strip: rubberized, moisture resistant, 3 mm thick cork, closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.

.15 Joint compound: to ASTM C475, asbestos-free.

.16 Shadow mould: 35 mm high, snap-on trim, of 0.6 mm base steel thickness galvanized sheet prefinished in satin enamel, white colour.

.17 Non shrink polymer d/w compound: as recommended by manufacturer.

Part 3 Execution

3.1 PREPERATION

.1 Examine all framing to ensure the work has been completed to meet the tolerances specified in Section 09 22 16.

.2 Report in writing any non-compliant work to the Contract Administrator.

.3 Proceeding with work will indicate acceptance of framing.

3.2 ERECTION

.1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.

.2 Do application of gypsum sheathing in accordance with ASTM C 1280.

.3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.

.4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.5 Install work level to tolerance of 1:1200.

.6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.

.7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.

.8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

.10 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.

.11 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

.13 Erect drywall resilient furring transversely across studs, joists, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 25 mm drywall screw.

.14 Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

3.3 APPLICATION

.1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.

.2 Apply single layer gypsum board to metal, wood furring or framing using screw fasteners. Maximum spacing of screws 300 mm on centre.

.1 Single-Layer Application:

.1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.

.2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.

.2 Double-Layer Application:

.1 Install gypsum board for base layer and exposed gypsum board for face layer.

.2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.

.3 Apply base layers at right angles to supports unless otherwise indicated.

.4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.

.3 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.

.4 Apply board using stud adhesive on furring or framing, laminating adhesive on base layer of gypsum board.

.5 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.

.6 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.

.7 Install gypsum board with face side out.

.8 Do not install damaged or damp boards.

.9 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.4 INSTALLATION

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure [using contact adhesive for full length.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.5 Construct control joints of preformed units two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.

.6 Provide continuous polyethylene dust barrier behind and across control joints.

.7 Locate control joints at changes in substrate construction, at approximate 10 m spacing on long corridor runs, at approximate 15 m spacing on ceilings.

.8 Install control joints straight and true.

.9 Construct expansion joints as detailed] at building expansion and construction joints. Provide continuous dust barrier.

.10 Install expansion joint straight and true.

.11 Install cornice cap where gypsum board partitions do not extend to ceiling.

.12 Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm on centre.

.13 Splice corners and intersections together and secure to each member with 3 screws.

.14 Install access doors to electrical and mechanical fixtures specified in respective sections.

.1 Rigidly secure frames to furring or framing systems.

.15 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.

.16 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:

.1 Levels of finish:

.1 Level 0: No tapping, finishing or accessories required.

.2 Level 1: Embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.

.3 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.

.17 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.

.18 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.19 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.20 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

.21 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

3.5 SCHEDULES

.1 Construct fire rated assemblies where indicated.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM C 645-99, Standard Specification for Nonstructural Steel Framing Members.

.2 ASTM C 754-98a, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

Part 2 Products

2.1 MATERIALS

.1 Non-load bearing channel stud framing: to ASTM C 645, stud size as indicated, roll formed from 0.53 mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.

.2 Floor and ceiling tracks: to ASTM C 645, in widths to suit stud sizes, 32 mm flange height.

.3 Metal channel stiffener: standard size, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.

.4 Acoustical sealant: to CAN/CGSB-19.21.

.5 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.

Part 3 Execution

3.1 ERECTION

.1 Align partition tracks at floor and ceiling and secure at 600 mm o.c. maximum.

.2 Install damp proof course under stud shoe tracks of partitions on slabs on grade.

.3 Place studs vertically at indicated spacing and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.

.4 Erect metal studding to tolerance of 1:1000.

.5 Attach studs to bottom and ceiling.

.6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.

.7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.

.8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.

.9 Install heavy gauge single jamb studs at openings.

.10 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.

.11 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

.12 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.

.13 Install steel studs or furring channel between studs for attaching electrical and other boxes.

.14 Extend partitions to ceiling height except where noted otherwise on drawings.

.15 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50 mm leg ceiling tracks. Use double track slip joint as indicated.

.16 Install continuous insulating strips to isolate studs from un insulated surfaces.

.17 Install two continuous beads of acoustical sealant insulating strip under studs and tracks around perimeter of sound control partitions.

END OF SECTION

Part 1 General

1.1 RELATED WORK

.1 Trim for recessed mechanical fixtures and recessed electrical fixtures.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM International)

.1 ASTM C635-00, Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.

.2 ASTM C636-96, Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

1.3 DESIGN REQUIREMENTS

.1 Maximum deflection: 1/360th of span to ASTM C635 deflection test.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit reflected ceiling plans for special grid patterns as indicated.

.3 Indicate lay-out, insert and hanger spacing and fastening details, splicing method for main and cross runners, location of access splines, change in level details, access door dimensions, and locations and acoustical unit support at ceiling fixture, lateral bracing and accessories.

.4 Submit one representative model of each type ceiling suspension system.

.5 Ceiling system to show basic construction and assembly, treatment at walls, recessed fixtures, splicing, interlocking, finishes, acoustical unit installation.

1.5 REGULATORY REQUIREMENTS

.1 Fire-resistance rated suspension system: certified by a Canadian Certification Organization accredited by Standards Council of Canada.

Part 2 Products

2.1 MATERIALS

.1 Intermediate duty system to ASTM C635.

.2 Basic materials for suspension system: commercial quality cold rolled steel zinc coated.

.3 Suspension system: non fire rated, made up as follows:

.1 Exposed tee bar grid.

.1 Acceptable material: Armstrong 24 mm Prelude XL #1762 White.

.4 Fire-resistance rated suspension system: certified for use in 1 hour. Certified System two directional exposed tee bar grid, concealed tee spline, concealed runner.

.1 Acceptable material: Armstrong 24 mm Prelude XL Fireguard #1762 White.

.5 Exposed tee bar grid components: white. Components die cut. Main tee with double web, rectangular bulb and 25 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.

.6 Hanger wire: galvanized soft annealed steel wire.

.1 3.6 mm diameter for access tile ceilings.

.2 To ULC design requirements for fire rated assemblies.

.3 2.6 mm diameter for other ceilings.

.7 Hanger inserts: purpose made.

.8 Carrying channels: manufacturer’s standard.

.9 Accessories: splices, clips, wire ties, retainers and wall moulding flush/reveal, to complement suspension system components, as recommended by system manufacturer.

Part 3 Execution

3.1 INSTALLATION

.1 Installation: in accordance with ASTM C636 except where specified otherwise.

.2 Install suspension system to manufacturer's instructions and Certification Organizations tested design requirements.

.3 Do not erect ceiling suspension system until work above ceiling has been inspected by Contract Administrator.

.4 Secure hangers to overhead structure using attachment methods as indicated and as acceptable to Contract Administrator.

.5 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.

.6 Lay out centre line of ceiling both ways, to provide balanced borders at room perimeter, with border units not less than 50% of standard unit width according to reflected ceiling plan.

.7 Ensure suspension system is co-ordinated with location of related components.

.8 Install wall moulding to provide correct ceiling height.

.9 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles, and speakers.

.10 Support at light fixtures, diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.11 Interlock cross member to main runner to provide rigid assembly.

.12 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

.13 Finished ceiling system to be square with adjoining walls and level within 1:1000.

3.2 CLEANING

.1 Touch up scratches, abrasions, voids and other defects in painted surfaces.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM E1264-98, Classification for Acoustical Ceiling Products.

.2 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S102-88 (R2000), Surface Burning Characteristics of Building Materials.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit duplicate samples of each type acoustical units.

1.3 ENVIRONMENTAL REQUIREMENTS

.1 Permit wet work to dry before commencement of installation.

.2 Maintain uniform minimum temperature of 15 deg C and humidity of 20 - 40% before and during installation.

.3 Store materials in work area 48 hours prior to installation.

1.4 QUALITY ASSURANCE

.1 Regulatory Requirements: Fire-resistance rated floor/ceiling and roof/ceiling assembly: certified by Canadian Certification Organization accredited by Standards Council of Canada.

Part 2 Products

2.1 MATERIALS

.1 Acoustic units for suspended ceiling system fire rated and non fire rated:

.1 Armstrong Advance Fine Fissured Second Look III.
.2 Size: 610 x 1220 x 19.
.3 Edge detail: Angled Tegular.
.4 Colour: white.

.2 Acoustic units for suspended ceiling system in meeting room.

.1 Armstrong Clean Room VL
.2 Size: 610 x 1220 x 19 unperforated. Edge detail: square lay-in.
.3 Colour: white.

Part 3 Execution

3.1 EXAMINATION

.1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Contract Administrator.

3.2 INSTALLATION

.1 Install acoustical panels and tiles in ceiling suspension system.

3.3 APPLICATION

.1 Install acoustic units to clean, dry and firm substrate.

.2 Install acoustical units parallel to building lines with edge unit not less than 50% of unit width. Refer to reflected ceiling plan.

.3 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moulding.

3.4 INTERFACE WITH OTHER WORK

.1 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 ASTM D 2047: Standard Test Method for Static Coefficient of Friction of Floor Surfaces.

.2 ASTM D 2240: Standard Test Method for Rubber Property-Durometer Hardness.

.3 ASTM D 5116: Standard Guide for Small Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products.

.4 ASTM E 648: Standard Test Method for Critical Radial Flux of Floor –Covering Systems Using a Radiant Heat Energy Source.

.5 ASTM E 662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

.6 ASTM F 970: Standard Test Method for Static Load Limit.

.7 ASTM G 21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

1.2 QUALITY ASSURANCES

.1 The manufacturer to be a firm experienced in the manufacturing of prefabricated rubber / vinyl athletic floorings

.2 Installer must have successfully completed installations of the same scale in the last three years.

.3 Installer to be recognized and approved by the athletic flooring manufacturer.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00.

.2 .Submit three each of the following;

- .1 Selection and verification samples for finishes, colours and textures in the standard colour(s) selected.
- .2 Technical data sheets of rolled product.
- .3 Adhesive product data sheets and manufacturer's certificate indicating approval for the proposed application.
- .4 Shop drawings showing layout, profiles and product components.
- .5 Provide game line scaled drawings showing all game lines for approval by Contract Administrator.

.3 Provide maintenance data for resilient flooring for incorporation into manual.

1.4 PRE-INSTALLATION MEETING

.1 Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.5 MOCK-UPS FOR FLOOR SYSTEM

.1 Construct mock-up in accordance with Section 01 33 00.

.2 Mock-up to be installed following the same procedure and material as per the actual floor.

.3 Mock-up size: 1.2m x 1.2m.

.4 Conduct pull test on mock-up.

.5 Mock-up may remain as part of the Work.

1.6 ADDITIONAL MATERIALS

.1 Provide to the owner additional amounts of flooring representing 2% of the total surface of each types and colours.

.2 Maintenance material must be from the same dye lot.

1.7 DELIVERY AND STORAGE

.1 Deliver and store the material in the original packaging with the labels intact in a controlled environment of a minimum temperature of 55°F (13°C) and under 50% relative humidity. Protect work until accepted by Contract Administrator.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Maintain air temperature and structural base temperature at flooring installation area above 20^{o} for 48 hours before, during and 48 hours after installation.

.2 Flooring should not be installed before the concrete has cured for a minimum of thirty (30) days.

.3 Moisture vapour emission of the concrete slab must not exceed 3 lbs. / 1000 sq. ft. /24 hours when using tile calcium chloride test as per ASTM F1869.

.4 Installation of the athletic flooring shall only commence once all work related to other craftsmen and trades have been completed.

Part 2 Products

2.1 GYMNASIUM

.1 Acceptable material: Mondo Advance

.1 Thickness 10 mm.

.2 Colours: allow for three colours from manufacturer's standard colour range

.1 Colour 'A' – Court – Mondo L90 Light Maple
.2 Colour 'B' – Perimeter – Mondo L25 Burgundy
.3 Colour 'C' – Text – Mondo L54 Gold

.2 Prefabricated athletic rubber flooring, calendared and vulcanized with a base of natural and synthetic rubber, stabilizing agents and pigmentation.

.3 Finish: Smooth/flat

.4 Manufactured in three layers, which are vulcanised together. The shore hardness of the top layer will be greater than that of the middle and bottom layer, shore hardness of layers to be recommended by the manufacturer and the limits specified.

.5 Width: 1.22 m

.6 Length to suit least amount of seams

.7 Physical properties of the prefabricated rubber floor to conform to:

.1 Hardness Shore A: 64/40 to ASTM D 2240.
.2 Critical Radiant flux: 1.03 w/cm2, class I to ASTM E 648, NFPA 101.
.3 Optical smoke density: <450 to ASTM E 662
.4 Static load limit: 0.004 to ASTM F 970.
.5 Fungal resistance test: no growth to ASTM G 21-90.
.6 Coefficient of friction; > 0.75 to ASTM D 2047

.8 Adhesives: certified and supplied by flooring manufacturer.

.9 Patching compound: certified and supplied by flooring manufacturer.

2.2 GYMNASIUM GAME LINES

.1 Painted lines to court standards. Submit shop drawings complete with colour schedule.

.2 Basket ball court: 1 basketball court, to be to FIBA standards angled lines at the keys

.3 Volleyball court: 1 volleyball court.

.4 Badminton courts: 3 badminton courts.

2.3 TRANSITION STRIPS

.1 Transition strips to Section 09 65 19.

Part 3 Execution

3.1 CO-ORDINATION

.1 No concrete or asphalt sealers or curing compounds are applied or mixed with the subfloors. Co-ordinate with Division 3.

3.2 SITE VERIFICATION OF CONDITIONS

.1 Ensure that substrates are dry and exhibit neutral alkalinity. Moisture vapour emission tests (Calcium chloride tests in accordance with ASTM F1869-04) are mandatory on various area of the sub-floor prior to the beginning of the installation.

.1 Moisture vapour emission content of the concrete slab must not exceed 3 lbs/1000 ft2 per 24 hrs when using the calcium chloride test as per ASTM F1869-04.

.2 Alkalinity test and moisture test must be preformed. Ph level should be in the range of 7 to 8.5.

.2 Concrete subfloors to be placed a minimum of thirty (30) days prior to the installation of athletic rubber floor.

.3 Smooth, dense finish, highly compacted with a tolerance of 3 mm in 3.05m radius. Floor Flatness and Floor Levelness (FF and FL) numbers are not recognized.

3.3 PREPARATION

.1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with patching compound.

.2 Any previous surface application such as waxes, oils, greases, sealers, curing compounds, paints, varnishes, old adhesives or any other products that may act as a bond barrier must be removed from the subfloor.

.3 Clean floor and apply and float feathering compound to leave smooth, flat, hard surface, Prohibit traffic until the feathering compound has cured.

.4 Sub-floor is to be prepared as per manufacturer's recommendations.

3.4 APPLICATION: FLOORING

.1 Install athletic flooring in accordance With manufacturer's printed instructions.

.2 Unroll sheet and allowed to relax.

.3 Inspect sheet for any damages or defects.

.4 Always install the flooring in the same direction.

.5 Cut and adjust flooring prior to adhesion.

.6 All edges must be straight-edged before adjusting the seams.

.7 Mix adhesive in accordance with manufacturer's instructions.

.8 Roll flooring in both directions with a 45 kg sectional floor roller.

.9 Check for air bubbles and continue rolling if needed.

.10 Roll the seam with a hand roller and remove any excess adhesive that may have come through the seam.

.11 Hold all seams in place with suitable weights for a minimum of 12 hrs.

.12 Repeat the same procedure for the rest of the installation.

3.5 GAME LINES / FLOOR TEXT

.1 Painted lines to court standards. Submit shop drawings complete with colour schedule.

.2 Basketball court: 1 basketball court, to be to FIBA standards angled lines at the keys.

.1 Perimeter defined by flooring material colour change.

.2 Game lines: 50 mm wide solid black.

.3 Volleyball court: 1 volleyball court.

.1 50 mm wide lines solid red.

.4 Badminton courts: 3 badminton courts.

.1 38 mm wide lines solid white.

.5 Provide floor text where indicated on drawings to approved shop drawings, cut into flooring with colour ‘C’ sheet vinyl. Floor text to read “WINAKWA COMMUNITY CENTRE” in Lucinda Sans font, letters 600-mm high, set 300-mm from court edge, spaced to extend text approximately 2/3 of the total basketball court length (to be confirmed in shop drawings), readable from spectator bench side.

3.6 PROTECTION

.1 Surface to be protected before, during and after installation until final inspection.

.2 Prohibit traffic on floor for 72 hours after installation.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Architectural Painting Specifications Manual, Master Painters Institute (MPI).

1.2 QUALITY ASSURANCE

.1 Contractor shall have a minimum of five years proven satisfactory experience. When requested, provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.

.2 Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.

.3 Conform to latest MPI requirements for interior painting work including preparation and priming.

.4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with MPI Painting Specification Manual "Approved Product" listing and shall be from a single manufacturer for each system used.

.5 Other paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and shall be compatible with other coating materials as required.

.6 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Contract Administrator.

.7 Standard of Acceptance:

.1 Walls: No defects visible from a distance of 1000 mm at 90^0 to surface.

.2 Ceilings: No defects visible from floor at 45^0 to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.3 SCHEDULING OF WORK

.1 Submit work schedule for various stages of painting to Contract Administrator for approval. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Obtain written authorization from Contract Administrator for any changes in work schedule.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be used.

.3 Upon completion, submit records of products used. List products in relation to finish system and include the following:

.1 Product name, type and use.
.2 Manufacturer's product number.
.3 Colour numbers.
.4 Manufacturer's Material Safety Data Sheets (MSDS).

.4 Submit duplicate 200 x 300 mm sample panels of each paint, stain with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:

.1 3 mm plate steel for finishes over metal surfaces.
.2 13 mm birch plywood for finishes over wood surfaces.
.3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
.4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
.5 10 mm cedar, hardboard, plywood for finishes over wood surfaces.

.5 When approved, sample panels shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.5 DELIVERY, HANDLING AND STORAGE

.1 Deliver, store and handle materials in accordance with Section 01 61 00.

.2 Labels shall clearly indicate:

.1 Manufacturer's name and address.
.2 Type of paint or coating.
.3 Compliance with applicable standard.
.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Provide and maintain dry, temperature controlled, secure storage.

.5 Observe manufacturer's recommendations for storage and handling.

.6 Store materials and supplies away from heat generating devices.

.7 Store materials and equipment in a well ventilated area with temperature range 7^0C to 30^0C.

.8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.9 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Contract Administrator. After completion of operations, return areas to clean condition to approval of Contract Administrator.

.10 Remove paint materials from storage only in quantities required for same day use.

.11 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

.12 Fire Safety Requirements:

.1 Provide one 9 kg Type ABC fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.6 SITE REQUIREMENTS

.1 Heating, Ventilation and Lighting:

.1 Ventilate enclosed spaces Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 ^{0}C for 24 hours before, during and after paint application until paint has cured sufficiently.

.2 Where required, provide continuous ventilation for seven days after completion of application of paint.

.3 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

.4 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities shall be provided by General Contractor.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:

.1 Ambient air and substrate temperatures are below 10 ^{0}C.

.2 Substrate temperature is over 32 ^{0}C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.

.4 The relative humidity is above 85% or when the dew point is less than 3^{o}C variance between the air/surface temperature.

.2 Perform no painting work when the maximum moisture content of the substrate exceeds:

.1 12% for concrete and masonry (clay and concrete brick/block).

.2 15% for wood.

.3 12% for plaster and gypsum board.

.3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".

.4 Test concrete, masonry and plaster surfaces for alkalinity as required.

.3 Surface and Environmental Conditions:

.1 Apply paint finish only in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted herein.

.3 Apply paint only when previous coat of paint is dry or adequately cured.

.4 Apply paint finishes only when conditions forecast for entire period of application fall within manufacturer's recommendations.

.5 Do not apply paint when:

.1 Temperature is expected to drop below 10 ^{0}C before paint has thoroughly cured.

.2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.

.3 Surface to be painted is wet, damp or frosted.

.6 Remove paint from areas which have been exposed to excess humidity, or condensation. Prepare surface again and repaint.

.7 Paint occupied facilities in accordance with approved schedule only. Schedule operations to approval of the Contract Administrator such that painted surfaces will have dried and cured sufficiently before occupants are affected.

.4 Additional Interior Application Requirements:

.1 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

Part 2 Products

2.1 MATERIALS

.1 Acceptable Paint materials: Benjamin Moore / ICI.

.2 Other Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.3 Paint materials for paint systems shall be products of a single manufacturer.

.4 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids, shall:

2.2 COLOURS

.1 Allow for 12 colours as selected by Contract Administrator.

.2 Where specific products are available in a restricted range of colours, selection will be based on the limited range.

.3 Second coat in a three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Contract Administrator's written permission.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

.4 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

.1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following values:

Gloss Level Category	Units @ 60º	Units @ 85º
G1 - matte finish	0 to 5	max. 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

.2 Gloss level ratings of painted surfaces shall be as specified herein and as noted on Finish Schedule.

2.5 INTERIOR PAINTING SYSTEMS

.1 Concrete Block: INT 4.2F

.2 Metal: doors, frames: INT 5.1Q-G5

.3 Metal deck, joists: INT 5.1C

.4 Metal supports benches: INT 5.1A-G5

.5 Wood trim: acoustic panels: INT 6.3A-G5

.6 Bench boards: INT 6.3J

.7 Wood electrical panels: INT 6.4P fire retardant coating (ULC rated).

.8 Plaster and Gypsum Board Walls: gypsum wallboard, drywall, "sheet rock type material", etc., and textured finishes:

.1 INT 9.2A-G3

.2 INT 92.F

.9 Plaster and Gypsum Board Ceilings: gypsum wallboard, drywall, "sheet rock type material", etc., and textured finishes: INT 9.2A-G3

2.6 EXTERIOR PAINTING SYSTEMS

.1 Steel doors and frames: INT 5.1Q-G5

.2 Steel and Metal Fabrications: EXT 5.1D-G5

Part 3 Execution

3.1 GENERAL

.1 Perform preparation and operations for interior painting in accordance with MPI Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.2 EXISTING CONDITIONS

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Contract Administrator damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple "cover patch test" and report findings to Contract Administrator. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

.3 Maximum moisture content as follows:

.1 Stucco, Plaster and Gypsum Board: 12%.

.2 Concrete: 12%.

.3 Clay and Concrete Block/Brick: 12%.

.4 Wood: 15%.

3.3 PROTECTION

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Contract Administrator.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.4 Protect building occupants in and about the building.

.5 Removal of electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings shall be done prior to undertaking any painting operations by General Contractor. Items shall be securely stored and re-installed after painting is completed by General Contractor.

.6 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.7 As painting operations progress, place "WET PAINT" signs in occupied areas to approval of Contract Administrator.

3.4 CLEANING AND PREPARATION

.1 Clean and prepare surfaces in accordance with MPI Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

.2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.6 Use trigger operated spray nozzles for water hoses.

.7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.

.2 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.3 Where possible, prime surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.4 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.5 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, blowing with clean dry compressed air, or vacuum cleaning.

.6 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.

.7 Do not apply paint until prepared surfaces have been accepted by Contract Administrator.

3.5 APPLICATION

.1 Method of application to be as approved by Contract Administrator. Apply paint by brush/ roller. Conform to manufacturer's application instructions unless specified otherwise.

.2 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple unless approved by Contract Administrator.

.5 Remove runs, sags and brush marks from finished work and repaint.

.3 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Contract Administrator.

.4 Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.6 Sand and dust between coats to remove visible defects.

.7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.8 Finish closets and alcoves as specified for adjoining rooms.

.9 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

.1 Unless otherwise specified, paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as noted otherwise.

.2 Mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

.3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

.4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

.5 Do not paint over nameplates.

.6 Keep sprinkler heads free of paint.

.7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

.8 Paint fire protection piping red.

.9 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.10 Paint natural gas piping yellow.

.11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

.12 Do not paint interior transformers and substation equipment.

3.7 FIELD QUALITY CONTROL

.1 Advise Contract Administrator when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

3.8 RESTORATION

.1 Clean and re-install all hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust to approval of Contract Administrator. Avoid scuffing newly applied paint.

.5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Contract Administrator.

END OF SECTION