

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- .1 Comply with requirements of Division 1.

1.2 RELATED WORK

- .1 Section 06 10 00: Rough Carpentry.
- .2 Section 07 21 00: Building Insulation.
- .3 Section 07 92 00: Joint Sealing.
- .4 Section 09 91 00: Painting.

1.3 DEFINITION

- .1 Drywall = gypsum board.

1.4 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C1396/C1396M-14a, Standard Specification for Gypsum Wallboard.
 - .2 ASTM C1629/C1629M-15, Standard Classification for Abuse Resistant Nondecorated Interior Gypsum Panel Products and Fibre Reinforced Cement Panels.
 - .3 ASTM C475/C475M-15, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .4 ASTM C840-13, Standard Specification for Application and Finishing of Gypsum Board.
 - .5 ASTM C954-15, 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 C645-13, Specification for Nonstructural Steel Framing Members.
 - .7 ASTM C754-15, Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products.
 - .8 ASTM C1002-07(2013), Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - .9 ASTM C1047-14a, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .2 Association of the Wall and Ceilings Industries International (AWEI).
- .3 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-71.25 M-88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .4 Canadian Standards Association (CSA)
 - .1 CAN/CSA-S136-12, North American Specification for the Design of Cold Formed Steel Structural Members.
- .5 Underwriters' Laboratories of Canada (ULC).
 - .1 CAN/ULC-S102-10, Surface Burning Characteristics of Building Materials and Assemblies.

1.5 QUALITY ASSURANCE

- .1 Fire rated assemblies: provide materials and construction which are identical to those indicated in the fire-rated test design designation.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
- .2 Storage and Handling Requirements:
 - .1 Store gypsum board assemblies materials level, off ground, indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect gypsum board assemblies from nicks, scratches, and blemishes.
 - .3 Protect from weather, elements and damage from construction operations.
 - .4 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.
- .3 Damaged and broken panels are not to be incorporated into the work. Replace defective or damaged materials with new.

1.7 AMBIENT CONDITIONS

- .1 Apply gypsum board after building has been completely enclosed. Ensure that work to be concealed by gypsum board has been installed, tested reviewed and approved before starting work.
- .2 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.
- .3 Apply board and joint treatment to dry, frost free surfaces.
- .4 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.8 WASTE MANAGEMENT AND DISPOSAL

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

1.8 WASTE MANAGEMENT AND DISPOSAL (continued)

- .4 Divert unused gypsum, metal, and wood materials from landfill to metal recycling facility approved by Departmental Representative.
- .5 Divert unused paint and caulking material from landfill to official hazardous material collections site approved by Departmental Representative.
- .6 Do not dispose of unused paint and caulking materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Gypsum Board - Standard Board (Type 1): to ASTM C1396/C1396M, regular, 16 mm thick where indicated, 1220 mm wide x maximum practical length, ends square cut, edges tapered.
- .2 Gypsum Board - Fire Rated Board (Type 2): to ASTM C1396/C1396M, Type "X", 16 mm thick, 1220 mm x maximum practical length, ends square cut, edges tapered.
- .3 Fire Rated Gypsum Board Horizontal Shaft Wall Assembly (1 HR. rating):
 - .1 Construct 1 hour fire rated horizontal shaft wall to ULC Design W452 requirements.
 - .2 Construct horizontal shaft wall assembly to room side of existing interstitial floor opening in Room (A124).
- .4 Plywood: as specified in Section 06 10 00 – Rough Carpentry.
- .5 Batt Insulation: as specified in Section 07 21 00 – Building Insulation.
- .6 Non-Structural Metal Framing:
 - .1 Non-loadbearing channel stud framing: to ASTM C645, stud sizes as indicated on drawings, roll formed from 0.53 mm (25 Ga.) and 0.91 mm (20 Ga.) thickness as indicated on drawings, hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
 - .1 Floor tracks and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
 - .2 Top Track: two-piece nesting tracks to ASTM C645, 0.91 mm (20 Ga) thick, in widths to suit stud sizes. Top track 65 mm flange height. Nesting track 75 mm flange height.
 - .3 Metal rough furring members: 38 x 19 x 1.4 mm size and 19 x 12 x 1.4 mm thick cold rolled steel, galvanized steel wire.
 - .4 Metal channel stiffener: J-profile, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating, sized to suit channel stud size.

2.1 MATERIALS (continued)

- .7 Structural Steel Framing:
 - .1 Steel studs: to CAN/CSA S-136, roll-formed of zinc coated sheet steel of thickness, material and profile as indicated on drawings. Minimum steel stud thickness 1.22 mm (18 Ga).
 - .2 Stud tracks: fabricated from same material and finish as steel studs, width to suit stud depth, single piece, minimum steel thickness of 1.92 mm (14 Ga) unless indicated otherwise on drawings.
 - .3 Bridging: channels fabricated from same material and finish as studs, 38 x 19 x 1.52 mm minimum thickness.
 - .4 Bridging angle clips: fabricated from same material and finish as studs, 38 x 38 x depth of steel stud, 1.52 mm minimum thickness.
 - .5 Fasteners, anchors, screws: as recommended by manufacturer.
- .8 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30, hot dipped galvanized (wipe coat) to ASTM A525.
- .9 Furring channels: 0.5 mm. core thickness galvanized steel channels for screw attachment of gypsum board.
- .10 Corner beads: to ASTM C1047, metal, zinc-coated by hot-dip process, 0.5 mm base thickness, beaded angle with perforated flanges, # D-100-90° drywall type corner bead by Bailey Metal Products or approved equal.
- .11 Casing beads: to ASTM C1047, metal, zinc-coated by hot-dip process, 0.5 mm base thickness, channel shaped; beaded corners, # 4411 channel trim by Bailey Metal Products or approved equal.
- .12 Joint compound: to ASTM C475, asbestos-free, as recommended by board manufacturer.
- .13 Sealants: as specified in Section 07 92 00 – Joint Sealing.
- .14 Screws: to ASTM C1002, self-drilling, self-tapping, case hardened.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 ERECTION: NON-STRUCTURAL METAL FRAMING

- .1 Partitions:
 - .1 Provide maximum deflection of $L/240$, L being the space between supports.
 - .2 Align partition tracks at floor and ceiling and secure at 600 mm o.c. maximum.
 - .3 Extend studs to underside of structural deck above, unless indicated otherwise.
 - .4 Place metal studs vertically at 400 mm o.c. maximum 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 studs as required to provide rigid installation.
 - .5 Securely attach studs to bottom runner track by screwing both sides of stud.
 - .6 Erect metal studs to tolerance of 1:1000.
 - .7 Do not fasten studs to top track. Position stud screw fasteners at nesting track to allow up to 25mm movement. Maintain clearance under beams and structural slabs to avoid transmission of structural loads.
 - .8 Co-ordinate erection of studs with installation of service lines. Ensure stud web openings are aligned.
 - .9 Place two studs floor-to-ceiling at each side of openings wider than stud spacing. Secure studs together.
 - .10 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.

3.3 ERECTION: STRUCTURAL STEEL FRAMING

- .1 Install steel framing in accordance with applicable requirements of CAN/CSA-S16.1 and CAN3-S136 and meet applicable requirements of "Lightweight Steel Framing Manual" by CSSBI 50M.
 - .1 Erection tolerances:
 - .1 Plumb: not to exceed $1/500^{\text{th}}$ of member length.
 - .2 Spacing: not more than +/- 3 mm variance.
- .2 Anchor tracks securely to structure at 600 mm o.c. maximum.
- .3 Seat studs into bottom tracks and top track.
- .4 Erect steel studs plumb and true within specified tolerances, aligned and securely attached. Do not splice studs.
- .5 Install studs vertically spaced 400 mm o.c. and fasten to tracks with screws one at each flange, top and bottom track.
- .6 Provide temporary bracing as required.

3.3 ERECTION: STEEL STUD FRAMING (continued)

- .7 Brace steel studs with horizontal internal bridging at 1220 mm maximum vertical centres. Fasten bridging to steel clips fastened to steel studs with screws.
- .8 Coordinate installation of steel studs with Work of other Sections.

3.4 ERECTION: GYPSUM BOARD

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840, except where specified otherwise.
- .3 Install work level to tolerance of 1:1200.
- .4 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers and grilles.
- .5 Install 19 x 64 mm. furring channels parallel to and at exact locations of steel stud partition header track.
- .6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .9 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Check clearances with equipment suppliers.
- .10 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.5 ERECTION: SHAFT WALL ASSEMBLY

- .1 Erect 1 hr. fire rated shaft wall assembly, horizontal application, in accordance with ULC Design W452.

3.6 APPLICATION

- .1 Apply gypsum board after bucks, anchors, blocking, sound attenuation, electrical and mechanical work is approved by Departmental Representative.
- .2 Apply single or double layer gypsum board to metal furring or framing using screw fasteners for first layer, laminating adhesive or screw fasteners for second layer. Maximum spacing of screws 300 mm on centre.

3.6 APPLICATION (continued)

- .3 Ceilings: install gypsum board perpendicular to supports. Stagger end joints at least 250 mm. over supports.
- .4 Install gypsum board on walls vertically to avoid end-butt joints. Install gypsum board with face side out.
- .5 Do not install damaged or damp boards.
- .6 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.7 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 at 150 mm on centre using contact adhesive or screw fasteners 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 Cut and fit gypsum board as required to accommodate other work.
- .5 Unless otherwise shown or specified, extend gypsum board on both sides of partitions to underside of structure above.
 - .1 Fasten gypsum board to studs, not to top channel.
 - .2 Allow for 25 mm deflection.
 - .3 Fasten gypsum board to supports with screws spaced at maximum 305 mm o.c.
- .6 Fasten gypsum board to supports with screws spaced at maximum 305 mm. o.c.
- .7 Splice corners and intersections together and secure to each member with 3 screws.
- .8 Install access doors supplied by mechanical and electrical divisions to electrical and mechanical fixtures specified in respective sections.
 - .1 Rigidly secure frames to furring or framing systems, build doors into gypsum board elements flush and parallel to walls.
- .9 Tape and fill exposed joints, fastener heads, edges, corners, to produce an acceptable surface ready for finishing.
- .10 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 minimum 200 mm.

3.7 INSTALLATION (continued)

- .11 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.
- .12 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.
- .13 Sand lightly to remove burred edges and other imperfections. Sand each coat of topping compound with fine sandpaper as required to produce smooth surface. Do not sand paper face of gypsum board.
- .14 Finish concealed joints at fire rated and at acoustically insulated gypsum board elements to underside of structure. Provide tape and one coat of cement.
- .15 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.8 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.
 - .1 Leave work 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.

3.9 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by gypsum board assemblies installation.

3.10 GYPSUM BOARD SCHEDULE

- .1 Use Fire-rated Type “X” Gypsum Board at fire rated assemblies and elements.
- .2 Partitions: Refer to Interior Partition Types on architectural drawings for gypsum board types.
- .3 Ceilings and Bulkheads: Type “X” at fire-rated ceiling assemblies. Standard board at non-rated ceiling assemblies.
- .4 One Hour Fire-Rated Shaft Wall Assembly (horizontal): on room side of interstitial floor opening in Room (A124).

END OF SECTION