GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. Design live loads shall not be exceeded at any time during construction. For concrete structures, design live loads may only be applied after concrete reaches its design strength.
3. Construction loads must not be imposed on structure in excess of specified design live load. Design live loads may only be applied after concrete reached its design strength.
4. The contractor is to verify dimensions, elevations, slopes, details, conditions and other data noted on the structural drawings with conditions on the site, co-ordinate all dimensions with the architectural drawings prior to construction or fabrication of any building component, and is held responsible for reporting any discrepancies that effect structural framing to the Contract Administrator before proceeding with the work. Variations and modifications to work shown on the structural drawings shall not be carried out without written permission from the Contract Administrator.
5. Modifications, alterations or substitutions must be authorized in writing by the Contract Administrator.
6. The Contractor shall locate all existing site services prior to construction.
7. For openings in slabs, floor, walls, roof, etc. refer to architectural, mechanical, structural and or other pertinent drawings.
8. Location of construction joints not indicated on plans is the responsibility of the Contractor but approval must be obtained from the Contract Administrator before proceeding.
9. The Contractor shall be responsible for the design and installation of all necessary shoring, bracing and form work. Form work for new construction shall be bridged over existing services.
10. The structure and grade beams shall be braced in all directions to safely withstand all lateral forces which may be encountered during erection. The bracing shall remain in place until all permanent bracing, framing, cladding and backfill are in place.
11. All codes referenced in these notes shall be of the latest applicable revision.
12. All beams, angles and miscellaneous metals indicated on architectural drawings but not shown on structural drawings, shall be included in the tender price. The contractor is responsible for confirming sizes and locations of these members with Contract Administrator prior to tender closing.
13. Do not cut or drill any openings into structural members without obtaining written permission from the Contract Administrator.
14. All structural components shall be co-ordinated to LEED requirements in all drawings and specifications.

DIMENSIONS & SYMBOLS

DIM — DIMENSION GRID TO GRID

DIM — DIMENSION POINT TO GRID

DIM — DIMENSION POINT TO POINT

Detail Number / From On — Section or Detail #; Sheet where Section or Detail is shown

Sheet of origin

F.H. Indicates a Full Height Section

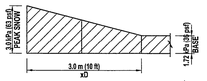
DESIGN SPECIFICATIONS

1. The building is designed in accordance with the National Building Code of Canada, Current Edition .
   - Snow (Roof) 0.8(Ss) + (Sr) = 1.98 kPa
   - Wind q(1/50) - 0.45 kPa

MAIN FLOOR FRAMING NOTES

- design live load = 4.8 kpa

SNOW LOAD AROUND MECHANICAL UNITS



EXCAVATION AND BACKFILL

1. Grade beams or walls shall be backfilled with granular material.
2. Excavation, sub-grade preparation and backfill for slabs on grade shall be provided in accordance with the geotechnical report included with the specifications.
3. For excavation, backfill and compaction, refer to Geotechnical Engineers recommendation and geotechnical report.
4. Excavation, backfill and compaction is to be supervised by a Geotechnical Engineer.
5. All compaction test results are to be forwarded to Contract Administrator.

CAST IN PLACE FRICTION PILES

1. The contractor shall confirm the location of sub-grade services prior to commencing drilling for piles.
2. Piles shall be cast-in-place concrete friction piles to diameters and lengths indicated on the plan.
3. Piles have been designed on the basis of shaft adhesion values shown below. Variance in soil conditions from the above shall be reported to the Contract Administrator before proceeding.
4. Pile reinforcing for piles located in unheated areas shall extend the full length of the pile.
5. The upper 10'-0" (3000mm) of all piles shall be consolidated with a mechanical vibrator.
6. Pile installation shall be provided under the full time inspection of a qualified professional geotechnical engineer selected by the Contract Administrator.
7. Maintain accurate record of each pile. Submit a copy of this record to the Contract Administrator.
8. A copy of the geotechnical Investigation report is available and included in the project specifications.
9. Full-length steel sleeves should be maintained on site and utilized as required during construction to maintain pile holes in a clean dry state.

ALLOWABLE SKIN FRICTION VALUES
0m (ft) to 3m (ft) - 0 kPa (PSF)
3m (10ft) to 8m (26ft)- 14 kPa (292 PSF)
8.0m (26 ft) to 10m (33 ft) - 11 kPa (230 PSF)

CONCRETE

1. Concrete, as specified in A23-04 table-2, shall have the following properties. It shall also meet LEED requirements with respect to Fly ash.

   a) C.I.P. PILES.
   Exposure Class: S-1

   b) RETAINING WALLS, BASEMENT WALLS
   Exposure Class: C-1

   c) GRADE BEAMS, PILE CAPS
   25 MPa
   Type GU Cement
   Max. Slump 90mm
   Max. Aggregate 20mm
   Air Entrainment 4% - 6%

   d) STRUCTURAL SLABS
   25 MPa
   Type GU Cement
   Max. Slump 90mm
   Max. Aggregate 20mm

   e) ENTRANCE SLABS, EXTERIOR PAVING, PARKING SLABS.
   Exposure Class C-2

2. Construction joints shall be made and located so as not to significantly impair the strength of the structure. The location of construction joints shall be approved by the Contract Administrator. Slab and beam construction joint details shall be approved by the Contract Administrator.
3. Provide 8" (200mm) plastic wrapped cardboard void form below all beams, walls, pile caps and structural slabs.
4. Place concrete as a continuous operation stopping only at construction joints.Construction joints shall be adequately dowelled and keyed. If not provided as part of this drawing set, details and locations of construction joints shall be provided by the contractor and reviewed by the Contract Administrator
5. Reinforcing steel must be reviewed by the Contract Administrator prior to placing concrete.
6. The Contractor shall notify the Contract Administrator at least 48 hours (72 hours for out-of-town projects) prior to all concrete pours.
7. Fins on concrete surfaces shall be removed. Honeycombed or otherwise defected concrete shall be removed sufficiently to expose sound concrete and shall be repaired as directed by the Contract Administrator.
8. Timing for removal of form work to be based on strength of concrete, as determined by the testing of field cured concrete cylinders. Do not remove form work from footings before concrete has reached 50% of its design strength. For walls and columns not supporting load, remove at 60% of design strength. For suspended structural slabs, form work may be removed at 80% of design strength, provided the slab is re-shored until full strength is reached.
9. Unless noted otherwise, contractor to test concrete for each day's concreting and/or every 40 cubic meters each day concreting. Forward test results to the Contract Administrator.
10. All freshly placed and consolidated concrete shall be cured in accordance with CSA standard A23.1, latest edition.
11. All freshly placed, consolidated concrete shall be suitably protected during the curing period against damage from adverse weather conditions such as winds, precipitation and extreme temperatures in accordance with CSA standard A23.1, latest edition.

STRUCTURAL STEEL

1. Fabricate & erect structural steel to CSA Standard CAN/CSA-S16.1
2. Structural steel shapes and plates shall conform to CSA Standard CAN/CSA-G40.21, Grade 350W and CAN/CSA-G40.21, Grade 350W for H.S.S., Class C.
3. All welding shall be performed by qualified welders fully approved for structural welding by the Canadian Welding Bureau in accordance with CSA Specifications W47 and W59.
4. Unless shown otherwise on the Drawings, connect all flexural members (beams, channels, etc...) at each end for one half of the total uniformly distributed factored load of the laterally supported beam, in addition to the transfer of factored moments, where shown on the Drawings.
5. Splicing of members not permitted unless otherwise noted.
6. Where beams are continuous over supports, no holes permitted in top flange. Provide 2-3/8" (10mm) welded web stiffener plates each side of beam, aligned with column walls.
7. Column base and cap plates shall be welded to columns. Provide 3/4" (20mm) thick cap plate c/w 4-3/4"Ø (20mm) bolts for all columns supporting cantilevered beams.
8. Structural steel erector shall supply and install all temporary guying and bracing necessary to provide stability for the structure as a whole. These shall remain in place until floor slabs are well cured, steel roof deck is fully welded and/or permanent bracing is installed.
9. Steel stairs, handrails, guardrails shall be designed by others. Fabricator shall submit shop drawings under the seal of a Professional Engineer registered in the project Province, to the Contract Administrator for approval prior to fabrication.
10. Structural Steel supplier shall submit shop drawings bearing the seal of a Professional Engineer in the project Province showing all design and fabrication details of connections to the Contract Administrator for review prior to fabrication.
11. Pipe sections to ASTM A53, minimum yield point 241 MPa (35 ksi).
12. Bolts, nuts, and washers to ASTM A325, minimum bolt diameter 3/4" (20mm).
13. Anchor bolts to ASTM A307.
14. Welding of reinforcing bars to CSA W186-M1990.
15. Primer to conform to the requirements of CGSB or CISC/CPMA standards.
16. Grout bed under base plates to be 35 MPa non shrink grout.
17. All bolted connections shall have a minimum of two bolts in each connected piece and be designed with bearing-type connections with threads included in shear plane, unless noted otherwise.
18. Unless noted otherwise on plans provide 3x3x3/8" (75x75x10) angle frame from joist to joist on each side of all steel deck openings over 16" (450mm), and C8x11.5 (C200x17) frame at all mechanical and electrical units that sit on or hang from the roof or floors.
19. All steel shall receive a primer - Low VOC. (- Coordinate with Architectural paint specification) except surfaces to be concreted, welded, light zinc coated or galvanized.
20. Clean all field welds after erection and touch up all unpainted surfaces with one coat of primer paint to match shop coat.
21. There shall be no cutting of the structural steel members for the work of other trades without prior written approval of the Contract Administrator.
22. All exposed steel to be galvanized.

REINFORCING STEEL

1. Reinforcing steel shall be new billet, deformed bars in accordance with CSA Standard CAN/CSA-G30.18 minimum yield strength to be 400 MPa, except 10M bars for stirrups and column ties may be 300 MPa.
2. Reinforcing steel shall be detailed in accordance with the latest RSIC Reinforcing Steel Manual of Standard Practice.
3. Lap top bars at centre span and bottom bars over supports.
4. All reinforcing to be held in place and tied by the use of proper accessories such as hi-chairs, spacers, etc., to be supplied by the reinforcing steel fabricator.
5. Reinforcing in concrete beams/walls and masonry bond beams to be bent 24" (600mm) around corners or use 3'-0" x 3'-0" (900mm x 900mm) corner bars.
6. Frame all openings in concrete beams, walls and/or slabs with 2-20M bars (extra) all four sides. Extend bars 24" (600 mm) beyond edges of openings except as noted.
7. Submit shop drawings which clearly indicate bar sizes, grade, spacing, hooks, bends, and supporting/spacing devices, etc., for review to the Contract Administrator prior to fabrication of the reinforcing steel.
8. Pit Walls/Slabs shall be 8" (200mm) thick reinforced with 15M @ 12" (300mm) o.c. each way at center unless otherwise shown.
9. Housekeeping pads shall be a minimum of 4" (100mm) thick and reinforced with 10M @ 12" (300mm) o.c. each way at centre unless otherwise shown.
10. Prior to placing concrete, ensure all reinforcing steel is clean, free of loose scale, rust, mud, oil or other foreign material which would reduce bond.
11. Heating, quenching and bending of reinforcing steel on the site is not allowed.
12. Splices at points of maximum tensile stress shall be avoided wherever possible. Such splices, where used, shall be approved by the Contract Administrator, the minimum lap shall be 48 bar diameters. 75mm
13. Continuous and temperature reinforcing bars shall be lapped 24 bar diameters, or 18" (450mm) minimum at splice or at corners. Terminate continuous bar at non-continuous ends with standard hook.
14. Minimum clear distance between parallel bars shall be greater than the largest of the following: 60mm
    a) 1.4 times bar diameter. 60mm
    b) 1.4 times maximum size of aggregates.
    c) 1 3/16" (30mm) minimum.
15. Minimum concrete cover for reinforcing:

Exposure Condition	Exposure Class		
	N	F-1, F-2, S-1, S-2	C-1, C-2, C-3, A-1, A-2, A-3,
PILES, FOOTING, RETAINING WALL, AND CONCRETE CAST AGAINST AND/OR PERMANENTLY EXPOSED TO EARTH.	"	75mm	75mm
BEAMS, GIRDERS, COLUMNS.	30mm	40mm	60mm
SLABS, WALLS, JOISTS, SHELLS AND FOLDED PLATES	20mm	40mm	60mm

STEEL DECK

1. Unless otherwise noted, Steel Deck shall be 1 1/2" X 22 ga. (38mmx 22 ga.) thick non-cellular, flutes at 6" (150mm) o.c. (minimum). Floor deck to have deformed webs for composite action.
2. Provide Zinc-Iron alloy (ZF) coated sheet steel to ASTM/A653/A653M Structural quality grade Z30 with ZF75 coating. Z275 where galvanized steel deck is specified on drawings.
3. Provide Acoustic deck in exposed ceiling areas. (See arch.)
4. Supply all closures, cover plates and accessories.
5. Design fabrication & installation of the steel deck to conform to CSA Standard S136 and the CSSBI Code of Practice.
6. Welding Shall Conform to CSA Standard W59.
7. Erector to be Certified to division 1 or 2.1 of CSA Standard W47.1.
8. Mechanically clinch side laps at 12" (300mm) o.c. maximum. Lap end joints minimum 2" (50mm) Provide 3/4" (20mm) diameter fusion welds at 12" (300mm) o.c. at all supports. Minimum bearing on supports to be 1 1/4" (30mm). Spot prime welds immediately after welding.
9. Steel deck supplier shall submit shop drawings bearing the seal of a Professional Engineer in the project province indicating
   a) deck plan, profile, dimensions, base steel thickness, metallic coating designation, connections to supports and spacings, projections, openings, reinforcement details and accessories.
   b) details of shoring of steel deck, such as location, time and duration of placement and removal of shoring for concrete fill decks.
10. Install deck continuous over at least three spans except where otherwise pre-approved by the Contract Administrator.
11. Paint all welds with an approved zinc-rich paint. - Low VOC. (- Co-ordinate with Architectural paint specification.)
12. Deck gauges shown on plan are suggested only. Supplier to provide deck gauge appropriate for the loadings shown. Deck gauge is to be increased at drift load and other high load areas as required.
13. Provide steel wedges in deck flutes over joists for mechanical roof top units with wood sleepers.

OPEN-WEB STEEL JOISTS (O.W.S.J.)

1. Design and fabricate steel joists in accordance with drawings and CSA Standards CAN/CSA-S16.1 & S136. Verify all drawing/site dimensions and conditions prior to fabrication.
2. Joist members shall be fabricated using structural steel conforming to CSA Standard CAN/CSA-G40.21, Grade 300W (minimum).
3. Bridging, bearing plates and angles shall be of structural steel conforming to CSA Standard CAN/CSA-G40.21 Grade 300W (minimum) unless noted otherwise.
4. Welding shall be performed by qualified welders fully approved for structural welding by the Canadian Welding Bureau in accordance with CSA Standard W47.1 and W59.
5. Minimum bearing length of joists to be 2 1/2" (64mm) on steel beams, 4" (102mm) on other materiel
6. Strut top and bottom chords of joists at all columns.
7. Weld bridging to joists, steel beams and steel plates fastened to walls.
8. Unless noted otherwise on plans provide 3x3x3/8" (75x75x10) angle frame from joist to joist on each side of all steel deck openings over 16" (450mm), and C8x11.5 (C200x17) frame at all mechanical and electrical units that sit on or hang from the roof or floors.
9. Joist supplier to refer to mechanical and all other pertinent drawings for locations and weights of equipment supported by joists.
10. Joist deflection due to live load shall not exceed 1/360 of the span.
11. Fabricate all joists with camber to offset the deflections due to dead load.
12. Submit shop drawings which clearly indicate joist spacing, depth, loading, camber, bearing, anchorage details, framed openings, accessories, etc., under the seal of a Professional Engineer registered in the project Province, to the Contract Administrator for approval prior to fabrication.
13. Design joists to accommodate mechanical ducts which are located within the joist space.
14. Provide Ceiling extensions where required by Contract Administrator.
15. Do not connect any members to chords of joist between panel points unless chords have been designed for extra stress or an additional diagonal has been inserted at the point of connection.
16. All OWSJ to have 100 nominal seat except OWSJ over gym. They will have a 125 nominal seat.
17. All OWSJ to be pre-cambered for dead load.
18. All OWSJ to be designed for a minimum net uplift of 1.0 kPa.
19. T.J. denotes tie joists. Top of Bottom chord where indicated.

WOOD FRAMING

1. Sawn lumber for stud walls and lintels shall be Species Group D, Spruce Pine Fir Grade No.1/No.2 or better unless otherwise noted.

PLYWOOD

1. Plywood shall be Douglas Fir Plywood in accordance with CSA Standard 0121.
2. Plywood for floor, wall, and roof sheathing shall be G.1.S. (good one side), installed with face grain at right angles to studs and joists and be of type and thickness indicated on the drawings.

SHEATHING

1. Wall sheathing shall be 13mm grade O-2 oriented strand board in accordance with CSA Standard CAN3-O437.0.
2. Floor sheathing shall be 19mm D.F. plywood G.15. in accordance with CSA Standard 0121.
3. Sheathing for wall, floor and roof shall be installed with face grain at right angles to studs, trusses and joists.
4. Exterior wall sheathing to be fastened with 2 1/2"(64mm) nails @ 6"(152mm) o.c. @ panel edges and @ 12"(305mm) o.c. @ intermediate members.

NAILS AND LAG SCREWS

1. Nails shall be in accordance with CSA Standard B111, wire nails, spikes and staples. Material for lag screws shall be in accordance with ANSI/ASTM Standard A307, carbon steel externally threaded standard fasteners.

DRAWING LIST:

THE CONTRACTOR IS TO VERIFY DIMENSIONS AND DATA NOTED ON THE STRUCTURAL DRAWINGS WITH CONDITIONS ON THE SITE, CO-ORDINATE ALL DIMENSIONS WITH THE ARCHITECTURAL DRAWINGS, AND IS HELD RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. VARIATIONS AND MODIFICATIONS TO WORK SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE CARRIED OUT WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
THIS DRAWING IS NOT TO BE SCALED.
ALL BEAMS, ANGLES AND MISCELLANEOUS METALS INDICATED ON ARCHITECTURAL, MECHANICAL AND/OR ELECTRICAL DRAWINGS BUT NOT SHOWN OR NOTED ON STRUCTURAL DRAWINGS, SHALL BE INCLUDED IN THE TENDER PRICE. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING SIZES AND LOCATIONS OF THESE MEMBERS WITH BOTH THE ARCHITECT AND THE ENGINEER PRIOR TO TENDER CLOSING.

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Project # 7057

1. Issued for Tender Feb. 26, 2010

revision

APEGM
Certificate of Authorization
Lavergne Draward & Associates Inc.
No. 1912 Date: FEB. 26, 2010

PROVINCE OF MANITOBA
JULIEN LAVERGNE
FEB. 26, 2010
REGISTERED PROFESSIONAL ENGINEER

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project

SINCLAIR COMMUNITY CENTRE ADDITION & RENOVATION

490 Sinclair Street, Winnipeg

sheet title

GENERAL NOTES

project number: 7057
scale: AS NOTED
drawn by: AP
approved by: J.L.
date: 26 Feb. 2010

drawing number:

S 1.1