

**GENERAL**

- These notes are to be read in conjunction with the specifications drawings and all other documents pertaining to this project.
- This building has been designed in accordance with the 1995 edition of the Manitoba Building Code.
- The Contractor shall be responsible for the design and installation of all necessary shoring, bracing and formwork. Formwork for new construction shall be bridged over existing services. Procedure must be approved by the Contract Administrator.
- Any unsound structural conditions observed or created during construction are to be reported to the Contract Administrator immediately.
- Coordinate size and location of all openings in structural members with trades involved. All openings not indicated on structural drawings to be approved by the Contract Administrator.
- Confirm the location of all sub-grade services prior to commencing site work.
- Verify all dimensions and elevations with architectural drawings prior to construction. Any discrepancies to be reported to the Contract Administrator immediately. Do not scale drawings.
- Do not backfill against structure until main floor is in place.
- Confirm all existing conditions prior to construction. Any discrepancies or conflicts to be reported to Contract Administrator immediately.

**SEISMIC LOADING DATA**

Sa(0.2) = 0.12, Sa(0.5) = 0.056  
 Sa(1.0) = 0.023, Sa(2.0) = 0.006  
 PGA = 0.05g, IE = 1.0  
 SITE CLASSIFICATION "E"  
 F<sub>v</sub> = 2.1, F<sub>v</sub> = 2.1

**CONCRETE**

- Concrete work shall be in accordance with the latest edition of CAN 3-A23.1 for "Concrete Materials and Methods of Concrete Construction" including cold weather requirements when the temperature falls below 5°C.
- Provide one set of concrete test cylinders in accordance with the latest edition CAN 3-A23 for every 50 m<sup>3</sup> of concrete placed and a minimum of one set for each structural component.
- Normal Portland Cement Type 10 for all concrete except:
  - Sulphate Resisting Cement type 50 for all pile caps and piles
- CONCRETE DESIGN STRENGTH @ 28 days
  - 35 MPa: precast concrete
  - 30 MPa: piles and pile caps
  - 25 MPa: all other concrete U/N
- AGGREGATE SIZE:
  - max 40mm for pile caps & piles
  - max 20mm for all other concrete
  - max 12mm for masonry lintels and core fill
- SLUMP:
  - 90mm +/- 20mm for all concrete
  - except 150mm +/- 20mm for masonry fill.
- AIR ENTRAINMENT:
  - 6% +/- 1% grade beams, exterior curbs and driveways, and parkade slabs
- Walls, piers and columns shall be poured a minimum of 24 hours before slabs and beams.
- Provide dovetail anchor slots in concrete walls and columns where masonry abuts.
- All structural slabs framing into concrete walls or beams shall have a minimum 40mm chase into supporting member by the height of the slab.
- Where concrete beams frame into concrete walls or other concrete beams and are poured later, provide 40mm chase (height and width to match beam).
- The use of calcium chloride is not permitted.
- Construction joint keys in grade beams shall be formed at pile locations only.
- Construction joint keys in structural slabs to be formed at 1/3 span. Provide key width equal to half the thickness of the slab. Provide 15M dowels @ 600 o/c top & bottom.
- Saw cuts for slab on grade shall be 25mm deep & 3mm wide. Cutting to be done not sooner than 12 hours, and not later than 24 hours after the slab is poured. Cuts to be filled with approved bituminous compound or caulking.
- Slip joint all paving against structural members with 12mm impregnated fibreboard.
- Coordinate the location of all items embedded in concrete work with Architectural, Mechanical & Electrical drawings.
- Contract Administrator to be notified at least 72 hours in advance of all major pours.
- Refer to architectural drawings for concrete surfaces requiring architectural finishes.
- Where voidform is indicated on drawings use cardboard shearmat below structural slabs and low density polystyrene below walls and gradebeams.
- Exterior sidewalks to be 100mm thk. concrete on compacted granular fill reinforced with 10m @ 300 o/c E.W. mid-depth. Provide tooled control joints @ max. 1500 o/c and construction joints @ max. 6100 o/c
- Concrete slab at exterior refuse container to be 150mm thick concrete on compacted granular fill reinforced with 15M @ 300 o/c E.W. mid. depth.

**C-I-P CONCRETE PILES**

- Cast-in-place piles are designed for an assumed skin friction of 14.4 kPa.
- Concrete for cast-in-place piles shall be 30 MPa @ 28 days using sulfate resisting type 50 cement, 40mm maximum size aggregate, 90mm slump and 3% to 5% air entrainment. Vibrate the top 3m of each pile
- Piles shall be no more than 2% out of plumb; and no more than 50mm out of alignment.
- Pile reinforcing shall extend a minimum of 600mm into pilecap or grade beam/wall.
- Slab sub-base to be built up of 'C-Base' granular fill compacted to 95% Standard Proctor Density in maximum 200mm lifts. Final lift to be 150mm 'A-Base' granular fill compacted to 98% Standard Proctor Density. All compaction densities to be confirmed by an independent testing agency prior to placement of any concrete.
- Geotechnical information to be made available as coordinated by the Contract Administrator.

**REINFORCING**

- All bars to conform to CSA G30.12. 15M bars and larger to be grade 400 10M bars and supporting rods to be grade 300 or better
- All steel to be detailed in accordance with the current ACI Detailing Manual.
- Minimum clear cover to reinforcing:
  - 20mm structural slabs
  - 25mm interior face of walls
  - 40mm face of grade beams
  - 50mm exterior face of walls, bottom of grade beams & walls
  - 75mm pile caps
  - 75mm bottom of footings
- All reinforcing shall be held in place with proper accessories.
- In concrete beams, bend horizontal reinforcing 600mm around corners, or use extra corner bars 900mm x 900mm.
- Top steel in beams shall be lapped at centre span, bottom steel shall be lapped at support.
- All reinforcing steel shall be cleaned of all dirt, grease and other deleterious materials prior to placing.
- All reinforcing shall be new billet deformed bars.
- Minimum reinforcing for equipment bases 10M @ 300 o/c E.W.
- Reinforcing steel supplier to confer with contractor as to desired construction joint locations and supply dowels and bar lengths to accommodate these joints.
- Reinforcing steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions, placement and splice locations.

**STRUCTURAL STEEL**

- All structural steel, including HSS sections, to be in accordance with G40.21-M350W.
- All welding shall conform to CSA W59; fabricators to be certified in accordance with the latest edition CSA W47.1.
- Fabrication and erection shall be in accordance with the latest edition CSA S16.1, "Steel Structures for Buildings".
- Steel erector shall be responsible for supplying and erecting all temporary bracing to provide stability for the structure as a whole, until all related structural framing is erected and completely installed.
- Fabricator shall notify the Contract Administrator of any proposed substitutions or changed connection details.
- Holes required in steel sections must be approved by the engineer.
- All beams continuous over columns shall have 2 web stiffeners on each side, the same thickness as column unless noted, but not less than 10mm.
- No holes permitted in top of beams at columns where beams are continuous over columns, unless loss of section by holes is compensated by equal material area welded to side of flange.
- All structural steel shall receive at least one coat primer to CISC/CPMA standard 1-73.
- Use asphalt base paint (flintkote 410-02 or eq.) at columns below slab.
- All high strength bolts to be ASTM A325M.
- The shear capacity of all shear splices shall be at least equal to the shear capacity of the smaller beam, unless noted.
- The steel supplier shall shop weld 40mm x 3mm masonry anchors to all steel members in contact with masonry walls. Maximum spacing of ties shall be 800 o/c unless noted.
- Steel supplier is responsible for design and detailing of all structural steel connections not shown on drawings.
- Anchor bolts shall be supplied by structural steel supplier & set by general contractor. General contractor to supply and install 25mm non-shrink grout under all base plates.
- Expansion anchors to be zinc-plated steel wedge type with the following design values in 30 MPa concrete:
  - 12mmØ - 9 kN shear, 9 kN pull-out
  - 20mmØ - 18 kN shear, 18 kN pull-out
- All exposed portions of ledge angles and connections to be coated with bituminous paint.
- Provide 75 x 75 x 6mm angle framing around all deck openings greater than 450mm x 450mm unless noted.
- Structural steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions and placement. All connections not shown on drawing are to be sealed by a Professional Engineer registered in the Province of Manitoba.

**OPEN WEB STEEL JOISTS**

- Joists which are resistance welded shall conform to W55.2 and w55.3.
- Steel joists design shall allow for all snow build-ups prescribed by the 1995 edition of the NBC.
- Bridging shall conform to the latest code requirements.
- Bridging to be connected to all beams and walls.
- Joist supplier to design joists to support mechanical equipment all weights & locations to be confirmed by mechanical contractor.
- Design and supply joist seats and bearing plates to suit elevations and skews indicated on drawings.
- The steel joist supplier shall submit drawings bearing the seal of an engineer, registered in the Province of Manitoba for review of:
  - fabrication drawings of each truss type c/w member sizes, dimensions, and design information.
  - an erection drawing, showing the location of all truss and other information required by the contractor for the proper installation of the trusses.

**STEEL DECK & LIGHT GAUGE METAL FRAMING**

- Steel deck and light gauge metal framing to be designed in accordance with the latest issue of CSA 136 and CSA 136.1 to support the loads indicated on the drawings.
- Steel deck work to be performed in accordance with the latest edition of Canadian Sheet Steel Building Institute Standards for Roof and Floor Decks.
- Steel deck to be manufactured from ASTM A525 Grade A structural quality sheet steel; hot-dip galvanized to ZF025 wiped coat designation.
- Submit shop drawings sealed by a Professional Engineer registered in the Province of Manitoba, indicating decking plan, profiles, supports and design loads.
- Mechanically fasten side laps @ 300 o/c.
- Fasten deck to support members with 19mm fusion welds @ 300 o/c.
- Reinforce deck openings up to 450 square with L55x55x5 each side. Extend reinforcing angles a min. of two flutes beyond opn'g. each side.

**MISCELLANEOUS METAL**

- Refer to architectural drawings for miscellaneous metal details.
- All steel to CSA G40.21-M300W
- Welded rebar anchors to be grade 300 weldable.
- All exposed miscellaneous metal to be reviewed for architectural appearance as per AISC. Specification for Architecturally Exposed Structural Steel.

**STRUCTURAL WOOD**

- All wood framing shall be in accordance with CSA 086.
- All lumber shall conform to 1978 N.L.G.A. grading rules for Canadian lumber.
- Wall studs to be minimum #2 Spruce-Pine-Fir or better U/N on drawings, kiln-dried to a maximum moisture content of 19%.
- Joists, lintels, and built-up beams to be minimum #2 Spruce-Pine-Fir or better U/N on drawings, properly seasoned to a maximum moisture content of 19%.
- The carpentry contractor in conjunction with the general contractor shall be responsible for supplying and installing all temporary and permanent bracing required to provide the stability of the structure.
- All plywood sheathing to be exterior grade.
- All wall and roof sheathing to be nailed secure in a controlled random pattern as follows:
  - Panel edges - 75mm nails @ 150mm o/c.
  - Intermediate supports & blocking - 75mm nails @ 250mm o/c.
- The wood truss supplier shall be responsible for the design and supply of all roof trusses, gable end trusses, bridging and hardware required for the connections.
- The wood truss supplier shall submit drawings bearing the seal of an engineer, registered in the Province of Manitoba for review of:
  - fabrication drawings of each truss type c/w member sizes, dimensions, and design information.
  - an erection drawing, showing the location of all truss and other information required by the contractor for the proper installation of the trusses.
- Truss layout indicated on drawings is for diagrammatic purposes only. Actual truss layout to be determined by supplier.
- No site modifications to be made to trusses without prior approval of supplier and Contract Administrator.
- All repairs made to damaged trusses to be approved by supplier and Contract Administrator.
- All built-up wood columns and post to be continuously blocked down to foundation.
- Provide additional studs (cripples) below bearing points of built-up beams and lintels. Number of studs to equal number of plies of beam or lintel u/n.
- Provide joist cross-briding at intervals not exceeding 8 times the member depth.
- Provide cont. horizontal solid blocking @ max. 1200 o/c vertically in all exterior stud walls.
- Minimum lintels for stud bearing walls u/n on drawings:
  - openings up to 1m use 2-2x8 S-P-F
  - openings up to 1.5m use 2-2x10 S-P-F

| CONCRETE BEAM SCHEDULE  |            |               |             |                                  |               |
|---|------------|---------------|-------------|----------------------------------|---------------|
| MARK  | SIZE       | REINFORCING   |             |                                  |               |
|   |            | WIDTH x DEPTH | BOTTOM      | TOP                              | ADDITIONAL    |
| CB-1  | 250 x 1000 | 2-20M CONT.   | 2-20M CONT. | 2-15M CONT. MID<br>1-15M IN CURB | 10M @ 300 o/c |
| CB-2  | 250 x 1000 | 2-20M CONT.   | 2-20M CONT. | 2-15M CONT. MID                  | 10M @ 300 o/c |
| ALL GRADE BEAMS IN CONTACT WITH SOIL TO BE ON MIN. 150 LOW DENSITY AEROFAM VOIDFORM |            |               |             |                                  |               |

| CONCRETE WALL SCHEDULE  |                |                   |                   |                 |                                 |
|---|----------------|-------------------|-------------------|-----------------|---------------------------------|
| MARK  | SIZE           | REINFORCING       |                   |                 |                                 |
|   |                | WIDTH x DEPTH     | VERTICAL          | HORIZONTAL      | ADDITIONAL                      |
| CW-1  | 250 x AS NOTED | 15M @ 300 o/c MID | 15M @ 200 o/c MID | 1-20M CONT. T&B | 3-25M VERT. @ 200 o/c @ CORNERS |
| ALL WALLS IN CONTACT WITH SOIL TO BE ON MIN. 150 LOW DENSITY AEROFAM VOIDFORM |                |                   |                   |                 |                                 |

| CONCRETE SLAB SCHEDULE |       |                                     |  |               |                                    |
|------------------------|-------|-------------------------------------|--|---------------|------------------------------------|
| MARK                   | DEPTH | REINFORCING                         | DOWELS                                   | TOP ELEVATION | BASE                               |
| SL-1                   | 150   | 10M @ 300 o/c EACH WAY BOTTOM       | 10M @ 300 o/c TOP INTO CONC. WALL/GR. BM | SEE ARCH.     | 150 VOID FORM ON 150 COMPACT GRAN. |
| SL-2                   | 125   | 10M @ 300 o/c EACH WAY TOP          | 10M @ 300 o/c TOP INTO CONC. WALL/GR. BM | SEE ARCH.     | 150 VOID FORM ON 150 COMPACT GRAN. |
| SL-3                   | 125   | 15M @ 300 o/c EACH WAY TOP          | 15M @ 300 o/c TOP INTO CONC. WALL/GR. BM | ELEV 100 000  | 150 COMPACTED GRANULAR FILL        |
| SL-4                   | 250   | 10M @ 300 o/c EACH WAY TOP & BOTTOM | n/a                                      | ELEV 100 000  | 150 COMPACTED GRANULAR FILL        |
| SL-5                   | 125   | 10M @ 300 o/c EACH WAY BOTTOM       | 15M @ 300 o/c TOP INTO CONC. WALL/GR. BM | SEE ARCH.     | 150 COMPACTED GRANULAR FILL        |

**PILE SCHEDULE:**

- CIP-1: 500mmØ x 10 000 LG C-I-P 32 MPa, TYPE 50 CONCRETE 5-10M x 5400 VERT 10M RINGS, 2 @ 150 o/c, REM 900 o/c T.O. PILE ELEV. 98 950 u.n.o.
- CIP-2: 400mmØ x 10 000 LG C-I-P T.O. PILE ELEV 98 540 u.n.o.
- CIP-3: 400mmØ x 8 000 LG C-I-P T.O. PILE ELEV. 98 950 u.n.o.
- UP-4: 500mmØ UNDERPINNING PILE TO REFUSAL
- PC-1: 600mmØ x 600 DP. c/w 6-15M VERT. 5-10M RINGS

**STEEL BEAM SCHEDULE:**

- B-1: W360x33 FLOOR SUPPORT
- B-2: W410 x 39 LOBBY MIDWALL STRUCTURE
- B-3: W200x31 GIRTS AT PERIMETER
- B-4: W410x46 ROOF BEAM
- B-5: W360x33 ROOF BEAM
- B-6: C200x17 CANOPY SUPPORT
- B-7: W200x27 CANOPY SUPPORT

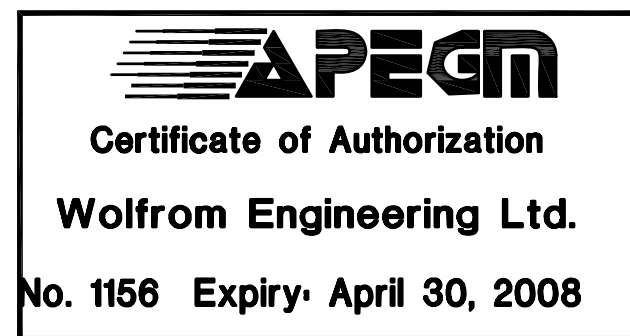
**WOOD JOIST SCHEDULE:**

- J-1: 406 DEEP TJI @ 300 o/c
- J-2: 900 DP PRE-ENG WOOD TRUSS @ 406 o/c
- J-3: 38x286 LUMBER @ 300 o/c
- J-4: 38x184 LUMBER @ 300 o/c

**STUD WALL SCHEDULE:**

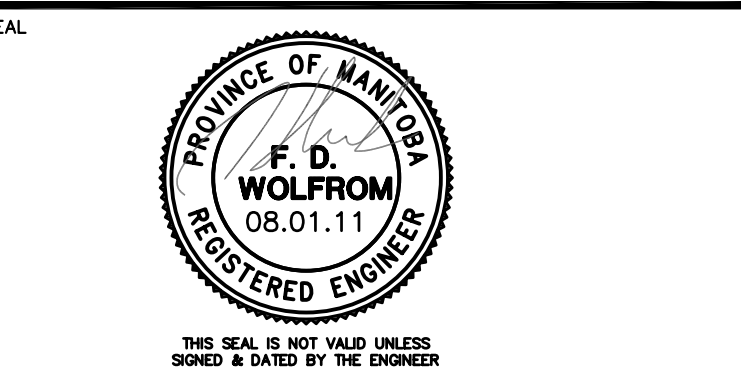
- SW-1: 38x140 SPF#2 STUDS @ 400 o/c DOUBLE TOP PLATE 12mmØ A.BOLTS @ 800 o/c 13mm PLYWOOD SHEATHING
- SW-2: 20ga STEEL STUDS 41x203 @ 400 o/c
- SW-3: 38x92 SPF#2 STUDS @ 400 o/c DOUBLE TOP PLATE

| COLUMN SCHEDULE |                 |   |   |
|-----------------|-----------------|---|---|
| MARK            | SIZE            | BASE PLATE  | ELEV. U/N                                   |
| C1              | W200x59         | 250 x 250 x 19 ON 25 NON SHRINK GROUT w/ 2-25Ø ANCHOR BOLTS | ELEV 99 600                                 |
| C2              | 127x127x9.5 HSS | 300 x 150 x 19 ON 25 NON SHRINK GROUT w/ 2-19Ø ANCHOR BOLTS | ELEV 99 950 (CONTRACTOR TO CONFIRM ON SITE) |



|   |                              |          |     |
|---|------------------------------|----------|-----|
| 4 | REVISED ONLY S-1 TERMINOLOGY | 08.01.11 | JR  |
| 3 | ISSUED FOR CONSTRUCTION      | 07.11.14 | JR  |
| 2 | 95% SUBMISSION               | 07.07.06 | SRB |
| 1 | UPDATED FOR PRICING          | 07.04.11 | SRB |
| 0 | FOR PRICING                  | 07.03.30 | SRB |

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JOB TITLE  
**VALOUR COMMUNITY CENTRE**  
 GYMNASIUM ADDITION AND  
 RENOVATIONS  
 715 TELFER STREET N. WINNIPEG

DRAWING TITLE  
**GENERAL NOTES AND SCHEDULES**

|          |          |                |
|----------|----------|----------------|
| DRAWN BY | SCALE    | DRAWING NO.    |
| SRB/JR   | AS NOTED | <b>S-1</b>     |
| FILE NO. | DATE     | REVISION NO. 4 |
| W06440   | JAN 2008 |                |

Plotted: 06-02-31 at 10:31:38 - Plot Scale: "AS IS"  
 CAD file by: "Unknown CAD User"; "Wolfrom Custom\316 Sheets\WOLFROM METRIC.dwg"