

GENERAL

- 1 ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NATIONAL BUILDING CODE OF CANADA 2005 AND MANITOBA SUPPLIMENTS, THE MANITOBA WORKER SAFETY ACT, LOCAL CODES, BYLAWS, ORDINANCES, AND SAFETY REGULATIONS.
- 2 THE COMPLETE WORK SHALL BE GOVERNED BY THE DICTATES OF GOOD PRACTICE IN ALL DETAILS OF MATERIALS AND METHODS EVEN IF NOT MINUTELY SPECIFIED.
- 3 THE DRAWINGS DESCRIBE THE COMPLETED PROJECT AND DO NOT INDICATE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY AND PERMANENT STRUCTURES, FORMWORK, FALSEWORK, SHORING, ETC., REQUIRED TO COMPLETE THE PROJECT. MAINTAIN THE SITE, AT LEAST ON A DAILY BASIS, FREE FROM ACCUMULATIONS OF WASTEMATERIAL AND DEBRIS. DISPOSE OF WASTE MATERIAL IN ACCORDANCE WITH LOCAL REGULATIONS.
- 4 DO NOT SCALE DRAWINGS. ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE. VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD AND REPORT ANY DISCREPANCIES.
- 5 LOCATE AND PROTECT ALL MECHANICAL, ELECTRICAL AND MUNICIPAL SERVICES BEFORE COMMENCING CONSTRUCTION. COORDINATE THE WORK WITH THE REQUIREMENTS OF ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS. VERIFY THE LOCATIONS OF ALL EQUIPMENT AND OPENINGS. DO NOT SEPARATE DRAWING SETS.
- 6 THE CONTRACTOR WILL LEAVE THE SITE IN THE SAME OR BETTER CONDITION THAN IT WAS BEFORE CONSTRUCTION. SITE CLEAN-UP, DRAINAGE, SECURITY, ETC. AND CONDITION OF THE WORK WILL BE TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR BEFORE LEAVING THE SITE.

LOADING

ALL LOADS AND FORCES SHOWN ARE SERVICE (UNFACTORED) LOADS IN KILOPASCALS (kPa) AND KILONEWTONS (kN) UNLESS NOTED OTHERWISE.

- 1 DEAD LOADS
SELF WEIGHT, MATERIALS OF CONSTRUCTION, MECHANICAL, ELECTRICAL, PERMANENT EQUIPMENT, AND PARTITIONS.
A) ROOF
ROOFING AND INSULATION 0.5
HANGING MECHANICAL AND ELECTRICAL 0.25
DL = 0.75 kPa
- 2 LIVE LOADS
A) ENVIRONMENTAL LOADS
GROUND SNOW LOAD S_s = 1.9 kPa
RAIN LOAD S_r = 0.2 kPa
UNIFORM SNOW S = 0.8 (1.9)+0.1 = 1.72 kPa
DRIFT SNOW ON LOW ROOFS - AS SHOWN ON PLANS
WIND - BUILDING CATEGORY II
Q(1/50) HOURLY PRESSURE 0.57 kPa
B) SUPERIMPOSED OCCUPANCY LIVE LOADS (UNFACTORED SERVICE)
EQUIPMENT LOADS SHOWN ON PLAN OR MINIMUMS LISTED BELOW
FLOOR (STORAGE) 7.2 kPa
MINIMUM POINT LOADS IN ACCORDANCE WITH NBC 4.1.6.9.3

SHOP DRAWINGS

- 1 SUBMIT SHOP DRAWINGS, SKETCHES AND DESIGN CALCULATIONS (AS REQUIRED) FOR REVIEW. ALLOW MINIMUM TEN (10) WORKING DAYS FOR REVIEWS. SUBMISSIONS FOR THIS PROJECT INCLUDE:
- PILING FABRICATION, LAYOUT, AND INSTALLATION
- CONCRETE (MIX DESIGNS), REINFORCING STEEL LAYOUT AND EMBEDMENTS
- PRECAST CONCRETE FABRICATION AND LAYOUT
- FORMWORK, PLACING SEQUENCE, FINISHING, POUR BREAKS, JOINTS, HARDENERS AND SEALANTS
- STRUCTURAL STEEL AND METAL FABRICATIONS
- LOAD AND WIND BEARING COLD FORMED STEEL STUD SYSTEMS
SHOP DRAWINGS FOR COMPONENTS DESIGNED BY THE CONTRACTOR MUST BEAR THE STAMP OF A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF MANITOBA.

FORMWORK

- 1 FORMWORK TO CAN/CSA -S269.3-M92, "CONCRETE FORMWORK".
- 2 FORM OIL TO BE NON-STAINING, NON-TOXIC, AND NON-VOLATILE.
- 3 ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC., WILL BE SUPPORTED USING PADS OF PLYWOOD OR TEMPERED FIBREBOARD TO PREVENT PUNCTURING. POLYSTYRENE IS NOT AN ACCEPTABLE FORM MATERIAL.
- 4 PROVIDE ISOLATION JOINTS BETWEEN SLABS AND INTERIOR WALLS AND PEDESTALS WHERE SHOWN.
- 5 BEFORE CONCRETE IS PLACED, REVIEWED EQUIPMENT SHOP DRAWINGS SHALL BE EXAMINED FOR THE PROVISION OF OPENINGS, ANCHOR BOLTS, INSERTS, ETC.
- 6 PROVIDE 10 MIL POLYETHYLENE SHEET UNDER SLABS, SIDE LAP 300 AND TAPE. SEE DETAIL.

CAST-IN-PLACE CONCRETE

- 1 ALL CONCRETE MIXES, PLACING, CURING, AND TESTING WILL BE IN ACCORDANCE WITH CSA-A23.1-04/A23.2-04 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION/METHODS OF TEST FOR CONCRETE
- 2 CONCRETE ADMIXTURES CONFORM TO CSA A3000-03 CEMENTITIOUS MATERIALS COMPENDIUM
- 3 CONCRETE MIXES TO BE IN ACCORDANCE WITH CSA-A23.1-04, ALTERNATIVE 1;

NO.	LOCATION	CLASS OF EXPOSURE	MAX WATER TO CEMENTITIOUS MATERIAL RATIO	MIN. f'c (MPa)	AIR CONTENT CATEGORY	CURING TYPE
1	PILES	S-3	0.50	30 @ 56d	2	1
2	GRADE BEAM	F-2	0.50	35 @ 28d	2	1
3	MAIN FLOOR SLAB	N	0.50	30 @ 28d	2	1
4	EXTERIOR SLABS	C-2	0.45	32 @ 28d	1	2

- 4 BEFORE PLACING REVIEW SHOP DRAWINGS FOR EQUIPMENT, OPENINGS, ANCHOR BOLTS, EMBEDS, ETC. TO ENSURE COMPLETENESS.
- 5 FINISHING - FINISH CLASS B, HAND OR MECHANICALLY SCREEDDED, STEEL TROWEL FINISHED.
f_{ti} = 25, f_l = 20, SWI = 3
- EXTERIOR SLABS, LIGHT BROOM FINISH.
- CHAMFER ALL EXPOSED EDGES 25 mm.
- 6 TESTING:
A) AN INDEPENDENT INSPECTION/TESTING AGENCY WILL BE ENGAGED BY THE OWNER. RESULTS OF FIELD TESTS WILL BE REPORTED IMMEDIATELY TO THE CONTRACTOR. INSPECTION AND TESTING DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR QUALITY CONTROL AND CONTRACTUAL OBLIGATIONS.
B) TESTING FIRM WILL PREPARE THREE TEST CYLINDERS FROM EACH 50 M3 OF CONCRETE, OR FRACTION THEREOF, FOR EACH DAY, TYPE OF CONCRETE, OR TYPE OF STRUCTURAL COMPONENT. ONE SLUMP TEST AND ONE ENTRAINED AIR TEST FOR EACH SET OF CYLINDERS.
- 7 USE COLD WEATHER CONCRETING METHODS WHEN THE MEAN AMBIENT TEMPERATURE FALLS BELOW +5°C. ADDITIONAL TEST CYLINDERS WILL BE PREPARED DURING COLD WEATHER CONCRETING AND FIELD CURED UNDER SAME CONDITIONS AS CONCRETE WHICH THEY REPRESENT.

FOUNDATIONS

- 1 CAST-IN-PLACE CONCRETE PILES ARE DESIGNED FOR AN ALLOWABLE SKIN FRICTION OF 14.4 kPa. TOP 3m OF PILE NEGLECTED TO ALLOW FOR SOILS SHRINKAGE.

EXCAVATING AND BACKFILLING

- 1 EXISTING CONDITIONS: VISIT THE SITE AND NOTE ALL CHARACTERISTICS AND IRREGULARITIES AFFECTING THE WORK. CONFIRM EXACT LOCATIONS OF ALL SERVICES AND UTILITIES AND PROTECT FROM DAMAGE. OBTAIN AND PAY FOR ANY NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.
- 2 ALL MATERIALS TO BE SUBJECT TO ENGINEER'S APPROVAL. STOCKPILE FILL MATERIALS IN AREAS DESIGNATED BY ENGINEER. STOCKPILE GRANULAR MATERIALS TO PREVENT SEGREGATION. REMOVE FROM THE SITE AND DISPOSE OF SURPLUS OR UNSUITABLE MATERIAL.
- 3 BACKFILLING WILL NOT BE PERMITTED UNTIL MAIN FLOOR STRUCTURE IS IN PLACE AND TANK FLOOR SLABS HAVE BEEN POURED AND CURED.
- 4 TYPE 1 FILL: CLEAN CRUSHED GRAVEL COMPOSED OF SOUND, HARD PARTICLES FREE FROM FROZEN MATERIAL, FLAKY PARTICLES, SOFT SHALE, ORGANIC MATTER OR FOREIGN MATTER, TO MEET THE FOLLOWING REQUIREMENTS:

SIEVE SIZE (mm)	PERCENT PASSING BY WEIGHT
20.0	100
10.0	35-77
5.0	15-55
1.25	0-30
0.08	0-12

- 5 TYPE 2 FILL: PIT RUN GRAVEL COMPOSED OF SOUND, HARD PARTICLES FREE FROM FROZEN MATERIAL, FLAKY PARTICLES, SOFT SHALE, ORGANIC MATTER OR FOREIGN MATTER, TO MEET THE FOLLOWING REQUIREMENTS:

SIEVE SIZE (mm)	PERCENT PASSING BY WEIGHT
80.0	100
50.0	55-100
25.0	38-100
16.0	32-85
5.0	20-65
0.315	6-30
0.08	2-15

- 6 TYPE 3 FILL: CLEAN NATURAL RIVER OR BANK SAND, FREE OF FROZEN MATERIALS, SILT, CLAY, LOAM, FRIABLE, OR SOLUBLE MATERIALS AND ORGANIC MATTER, TO MEET THE FOLLOWING REQUIREMENTS;

SIEVE SIZE (mm)	PERCENT PASSING BY WEIGHT
10.0	100
5.0	95-100
2.5	80-100
1.25	50-90
0.830	25-65
0.315	10-35
0.160	2-10

- 7 PROOF ROLL SUBGRADE, COMPACT TO 100 % STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). PLACE FILL WITHIN 2% OF OPTIMUM MOISTURE CONTENT TO THE REQUIRED ELEVATION IN LIFTS NOT EXCEEDING 150mm. COMPACT FILL TO FOLLOWING STANDARD DENSITIES (SPMDD).
.1 SUBGRADE UNDER SLABS..... 95%
.2 WALLS, BEAMS, ETC..... 95%
.3 UNDER SLAB-ON-GRADE..... 97%
.4 UNDER FOOTINGS..... 100%
- 8 USE EXTREME CAUTION WHERE UNBALANCED LOADING MAY OCCUR ON WALLS AND STRUCTURES. MAXIMUM UNBALANCED ELEVATIONS 300 mm UNLESS APPROVED BY THE ENGINEER IN WRITING.
- 9 PREVENT BOTTOMS OF EXCAVATIONS FROM SOFTENING OR FREEZING. DO NOT OVER EXCAVATE IF SOFTENING OR OVER EXCAVATION OCCURS, REPLACE WITH TYPE 1 FILL COMPACTED TO 100% MODIFIED PROCTOR MAXIMUM DRY DENSITY (MPMDD) WITHIN 2 % OPTIMUM MOISTURE CONTENT OR LEAN MIX CONCRETE.
- 10 DEWATERING: PROVIDE AND/OR SUITABLE EQUIPMENT INCLUDING PUMPS, PIPING, TEMPORARY DRAINS, GRADING, TRENCHES AND SUMPS TO KEEP EXCAVATIONS FREE FROM WATER UNTIL CONCRETE IS PLACED, CURED, AND STRUCTURAL ADEQUACY IS ASSURED.
- 11 INSPECTION AND TESTING: OWNER WILL PAY COSTS FOR INSPECTION AND TESTING.
A) EXCAVATED SURFACES: MAKE A SERIES OF THREE TESTS FOR EACH 500 M2 WHEN UNDISTURBED EXCAVATED SURFACE IS BEING PREPARED.
B) FILLS UNDER SLABS ON GRADE: MAKE 3 TESTS FOR EVERY 2 LIFTS OF COMPACTED FILL FOR EACH 500 M2 AREA.
C) BACKFILL AGAINST WALLS: MAKE ONE TEST OF EACH DIFFERENT MATERIAL FOR APPROXIMATELY EACH 50 M OF WALL BEING BACKFILLED AT DEPTH INCREMENTS OF 600 mm.

CONCRETE REINFORCING

- 1 ALL REINFORCING STEEL TO MEET CAN/CSA-G30.18-M92 (R2002) - BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT 400 MPa DEFORMED BARS EXCEPT 10M TIES MAY BE 300 MPa.
- 2 ALL STEEL TO BE DETAILED IN ACCORDANCE WITH CSA A23.1-04 CONCRETE MATERIALS AND METHODS OF THE CONCRETE CONSTRUCTION, A23.3-04 DESIGN OF CONCRETE STRUCTURES AND STANDARD THE MANUAL OF PRACTICE BY THE REINFORCING INSTITUTE OF CANADA 2004.
- 3 CLEAR COVER TO REINFORCING WILL BE:
CONCRETE CAST AGAINST EARTH 75 mm
INTERIOR CONCRETE SLABS & WALLS 20 mm
INTERIOR CONCRETE BEAMS 40 mm
SLABS-ON-GRADE 50 mm TOP
FOUNDATION WALLS, GRADE BEAMS AND PILECAPS
FORMED SURFACES EXPOSED TO EARTH OR WEATHER 50 mm ON EXPOSED SIDE
- 4 BEAMS AND SLABS: LAP TOP STEEL MIDSPAN AND BOTTOM STEEL OVER SUPPORTS.
- 5 PROVIDE LAPS TO CSA A23.3 OR THE FOLLOWING MINIMUMS.
10M 700 mm
15M - 1000 mm
20M - 1200 mm
25M - 1900 mm
- 6 ALL REINFORCING TO BE HELD IN PLACE AND TIED WITH PROPER ACCESSORIES, HI-CHAIRS AND SPACERS. DETAIL, SUPPLY AND INSTALL ALL ACCESSORIES.
- 7 ALL OPENINGS: (U.N.O) ADD 2-15M BARS EACH SIDE AND 2-15M BARS DIAGONAL 1200 mm LONG EACH CORNER. PROVIDE MINIMUM 450 mm DEEP BEAM OVER OPENINGS C/W 10M STIRRUPS AT 150 mm O.C. SLABS; ADD 2-15M DIAGONAL AT RE-ENTRANT CORNERS.
- 8 ALL REQUIRED OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE CONSULTANT PRIOR TO CONSTRUCTION.
- 9 WALLS AND BEAMS: PROVIDE HOOKS IN HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OR PROVIDE ADDITIONAL HOOKED DOWELS (SEE DETAIL).
- 10 REINFORCING STEEL SHALL BE CLEAN AND FREE OF ALL DIRT, GREASE AND OTHER DELETERIOUS MATERIALS PRIOR TO PLACING CONCRETE.
- 11 REINFORCING STEEL SHALL BE DEFLECTED, NOT CUT AROUND INSERTS AND OPENINGS LESS THAN 450 mm.
- 12 REINFORCING STEEL SHALL NOT BE WELDED, HEATED OR BENT ON-SITE WITHOUT PRIOR APPROVAL OF THE CONSULTANT.
- 13 DOWELS TO CONCRETE SLABS AND WALLS TO MATCH SLAB REINFORCING (U/N).
- 14 MISCELLANEOUS CONCRETE:
150 mm OR LESS THICK - REINFORCE WITH 15M AT 300 mm O.C., E.W.
THICKNESS GREATER THAN 150 mm REINF W/ 15M AT 300 mm O.C., E.W. E. F.

PRECAST CONCRETE

- 1 ALL PRECAST CONCRETE WORK WILL CONFORM TO THE FOLLOWING STANDARDS;
- CSA A23.1-04 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION
- CSA A23.2-04 METHODS OF TEST FOR CONCRETE
- CONCRETE ADMIXTURES TO CSA A3000-03 CEMENTITIOUS MATERIALS COMPENDIUM
- CSA A23.4-00 PRECAST CONCRETE - MATERIALS AND CONSTRUCTION
- CSA W47.1-03 CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES
- CSA W59-03 WELDED STEEL CONSTRUCTION (METAL ARC WELDING)
- CSA W186-M1990(R2002) WELDING OF REINFORCING BARS IN REINFORCED CONCRETE CONSTRUCTION
- CSA CAN3-A251 "QUALIFICATION CODE FOR MANUFACTURERS OF ARCHITECTURAL AND STRUCTURAL PRECAST CONCRETE"
- 2 DESIGN, DETAIL, SUPPLY AND INSTALL ALL STEEL ANGLES, ANCHOR BOLTS AND MISCELLANEOUS METAL HARDWARE NECESSARY TO SUPPORT PRECAST.
- 3 CHECK ALL DRAWINGS FOR WEIGHTS AND LOCATIONS OF EQUIPMENT TO BE SUPPORTED ON PRECAST UNITS AND FOR OPENINGS REQUIRED THROUGH UNITS.
- 4 SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW PRIOR TO FABRICATION. THESE DRAWINGS SHALL INCLUDE:
- DESIGN LOADS AND ASSUMPTIONS
- LOCATION OF ALL OPENINGS, MISCELLANEOUS DETAILS ALL POINT LOADS OVER 45 KG
- LAYOUT AND PLACEMENT MARKS FOR ALL UNITS
- SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA COVERING DESIGN OF PRECAST UNITS AND CONNECTIONS

MASONRY

- 1 ALL MASONRY WORK WILL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS;
2 CSA S304.1-04 DESIGN OF MASONRY STRUCTURES
3 CONCRETE BLOCKS TO CONFORM TO: A165.1-04 CONCRETE BLOCK MASONRY UNITS
4 MORTAR, GROUT, CONNECTORS, AND MASONRY CONSTRUCTION ARE AS SPECIFIED IN CSA A179, A370, AND A371, RESPECTIVELY
5 STANDARD HOLLOW MASONRY UNITS TO BE: H/15/A/M.
6 MORTAR MIXES:
.1 EXTERIOR BEARING WALLS: TYPE S
.2 EXTERIOR NON-BEARING WALLS: TYPE N
.3 INTERIOR BEARING WALLS: TYPE S
.4 INTERIOR NON-BEARING WALLS: TYPE N
.5 POINTING: TYPE N
- 7 USE GALVANIZED LADDER TYPE WIRE REINFORCEMENT EVERY SECOND COURSE. EVERY COURSE FOR STACK BOND.
- 8 TYPICAL MASONRY WALL - 190 BLOCK RUNNING BOND
HORIZONTAL REINFORCING (TYPICAL) BOND BEAM AT TOP AND BOTTOM, R/W 2-15M.
9 LADDER TYPE REINFORCING @ 400 O.C. (EVERY SECOND COURSE)
VERTICAL REINFORCING 15M @ 800 O.C. IN GROUTED CORES. DOWELS TO SLAB TO MATCH; USE DOWELS WITH HOOKS OR HILTI HIT ADHESIVE SYSTEM (MIN 200mm EMBEDMENT).
- 9 ALL MASONRY WALLS TO BE PROPERLY BRACED UNTIL STRUCTURE IS COMPLETED.
- 10 CONNECT BLOCK WALLS TO STEEL COLUMNS WITH STRAP ANCHORS AS SHOWN ON DETAILS.
- 11 PROTECT MASONRY AND OTHER WORK FROM MARKING AND OTHER DAMAGE. PROTECT COMPLETED WORK FROM MORTAR DROPPINGS. USE NON-STAINING COVERS.
- 12 BUILD MASONRY PLUMB, LEVEL, AND TRUE TO LINE, WITH VERTICAL JOINTS IN ALIGNMENT.
- 13 FILL SPACES BETWEEN JAMBS AND MASONRY WITH MORTAR.
- 14 WITH JOINT ROUNDER, PROVIDE 8 mm SMOOTH, TRUE TO LINE, UNIFORMLY CONCAVE JOINTS.
- 15 LEAVE 25 mm SPACE BETWEEN TOP OF NON-LOAD BEARING WALLS AND PARTITIONS AND STRUCTURAL ELEMENTS. DO NOT USE WEDGES.
- 16 LAYOUT COURSING AND BOND TO ACHIEVE CORRECT COURSING HEIGHTS, AND CONTINUITY OF BOND ABOVE AND BELOW OPENINGS, WITH A MINIMUM OF CUTTING.
- 17 MAKE CUTS FOR ELECTRICAL SWITCHES, OUTLET BOXES, ETC., STRAIGHT, CLEAN AND FREE FROM UNEVEN EDGES.
- 18 U-BLOCK LINTELS OVER OPENINGS IN NON-LOAD BEARING BLOCK WALL TO BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
UP TO 1200 mm 200 mm DEEP U-BLOCK
20 MPa CONCRETE FILL
2-15M BOTTOM
MINIMUM BEARING 200 mm EACH END
UP TO 2400 mm 400 mm DEEP U-BLOCK
20 MPa CONCRETE FILL
2-15M BOTTOM
MINIMUM BEARING 200 mm EACH END
WALLS UP TO 2000 mm
- PROVIDE 2 GROUTED CORES EACH SIDE OF OPENING. REINFORCE WITH 1-10M - VERT EACH CORE.
- PROVIDE 800 mm DEEP (4 COURSE) FULL GROUTED MASONRY BEAM. R/W 1-15M TOP AND 2-15M BOTTOM. 10M SINGLE LEG STIRRUPS @ 200 O.C. EXTEND HORIZONTAL REINFORCING 400 mm BEYOND OPENING.
- 19 OPENINGS IN LOAD BEARING BLOCK WALLS UP TO 2000 mm
- PROVIDE 2 GROUTED CORES EACH SIDE OF OPENING. REINFORCE WITH 1-10M - VERT EACH CORE.
- PROVIDE 800 mm DEEP (4 COURSE) FULL GROUTED MASONRY BEAM. R/W 1-15M TOP AND 2-15M BOTTOM. 10M SINGLE LEG STIRRUPS @ 200 O.C. EXTEND HORIZONTAL REINFORCING 400 mm BEYOND OPENING.

COLD FORMED STEEL (CFS) METAL FRAMING


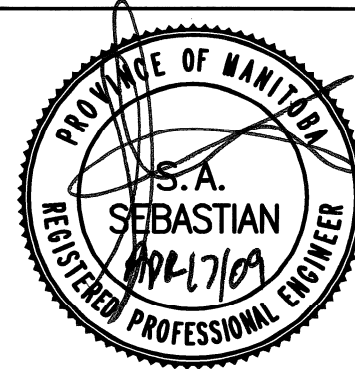
- 1 THE CONTRACTOR IS RESPONSIBLE FOR DESIGN, FABRICATION AND INSTALLATION OF ALL COLD FORMED STEEL FRAMING TO SUIT ARCHITECTURAL REQUIREMENTS AND LOADS SHOWN. THE LAYOUT, PRELIMINARY SIZING AND TYPICAL DETAILS PROVIDED ARE BASED ON THE "LIGHTWEIGHT STEEL FRAMING MANUAL, 2ND EDITION", AND LIGHTWEIGHT STEEL FRAMING - METRIC SECTION PROPERTIES 2005, PUBLISHED BY THE CANADIAN SHEET STEEL BUILDING INSTITUTE (CSSBI).
- 2 ALL CFS METAL FRAMING WILL BE IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:
1. NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS - CAN/CSA-S136-01
2. STEEL SHEET ELECTROLYTIC ZINC-COATED, FOR LIGHT COATING MASS APPLICATIONS - ASTM A591/A591 M.
3. STEEL SHEET, ALUMINIUM-ZINC ALLOY COATED BY THE HOT-DIP PROCESS, GENERAL REQUIREMENTS - ASTM A792M.
- 3 DESIGN CRITERIA:
1. DESIGN FLOOR JOIST AND WALL STUDS FOR UNIFORM LOADS SHOWN. MAXIMUM LIVE LOAD DEFLECTION L/360.
2. MAXIMUM SPACING OF MEMBERS 406 MM O.C.
3. DESIGN ALL MEMBERS AS UNSHEATHED. PROVIDE BRACING AS REQUIRED (MINIMUM SHOWN).
- 4 SHOP DRAWINGS:
PROVIDE ENGINEERING CALCULATIONS AND SHOP DRAWINGS VERIFYING THE CAPACITY OF THE MEMBERS AND THE ABILITY OF THE ASSEMBLIES TO MEET THE DESIGN REQUIREMENTS. INDICATE DESIGN LOADS AND DEFLECTION LIMITS. INCLUDE A DRAWING WHICH SHOWS DESIGN LOADS USED IN THE STRUCTURAL CALCULATIONS. EACH SHOP DRAWING SUBMITTED SHALL BEAR THE STAMP AND SIGNATURE OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. INCLUDE ALL NECESSARY SHOP DETAILS AND ERECTION DIAGRAMS. INDICATE MEMBER SIZES, LOCATIONS, THICKNESSES EXCLUSIVE OF COATING, COATINGS, AND MATERIALS. INCLUDE CONNECTION DETAILS FOR ATTACHING FRAMING TO ITSELF AND FOR ATTACHMENT TO THE STRUCTURE. INDICATE DIMENSIONS, OPENINGS, REQUIREMENTS OF RELATED WORK AND CRITICAL INSTALLATION PROCEDURES. SHOW TEMPORARY BRACING REQUIRED FOR ERECTION PURPOSES. INDICATE TYPES AND LOCATIONS OF FASTENERS, WELDS, AND SPECIAL SHAPES AND RELATIONSHIP OF PANELS TO STRUCTURAL FRAME. INDICATE DETAILS DESCRIPTION OF MECHANICAL, ELECTRICAL, PIPING, AND OTHER SYSTEMS AFFECTING THE WORK.

GRATING STAIRS

- 1 DESIGN TO THE REQUIREMENTS OF NATIONAL BUILDING CODE OF CANADA 2005, FOR ALL VERTICAL AND HORIZONTAL LIVE AND DEAD LOADS ON TREADS, LANDINGS AND HANDRAILS.
- 2 SHOP DRAWINGS: PROVIDE ENGINEERING DRAWINGS BEARING SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA FOR REVIEW PRIOR TO CONSTRUCTION.
- 3 MATERIAL: GALVANIZED STEEL
- 4 TREADS: GRATING WITH CHECKER PLATE NOSING.
- 5 STRINGERS: STEEL CHANNELS.
- 6 LANDINGS: GRATING WITH CHECKER PLATE NOSING.
- 7 HANDRAILS: AS DETAILED ON DRAWINGS.

METAL FABRICATIONS

- 1 SHOP DRAWINGS: PROVIDE ENGINEERING DRAWINGS BEARING SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA FOR REVIEW PRIOR TO CONSTRUCTION.
- 2 MATERIAL: GALVANIZED STEEL
- 3 WELDING: STEEL TO CSA W59-03, ALUMINIUM TO CSA W59.2-M1991 (R2003)
- 4 W SHAPES, HSS: TO G40.21 GR 350W OR ASTM A992/A572 GR 50 CLASS C
- 5 CHANNELS, ANGLES, TEES AND PLATES: TO G40.21-04, 300 MPA
- 6 STEEL PIPE: TO ASTM A53.
- 7 BOLTS AND ANCHOR BOLTS: TO ASTM A307.
- 8 SHOP COAT PRIMER: TO CISC/CPMA 2075.

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NO.	DESCRIPTION	DATE	ISSUED BY
REVISIONS/ISSUE			
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CLIENT			
CITY OF WINNIPEG PUBLIC WORKS TRAFFIC SERVICES			
			
PROJECT NAME			
RENOVATIONS FOR PAVEMENT MARKING OPERATIONS FACILITY			
DRAWING DESCRIPTION			
GENERAL NOTES			
DESIGNED BY:	DRAWN BY:	CHECKED BY:	
M.J.S.	J.L.P.		
APPROVED BY:			
			
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