GENERAL NOTES

1. STRUCTURAL DESIGN BASED ON THE NATIONAL BUILDING CODE OF CANADA 2015 EDITION.
   A) IMPORTANCE CATEGORY: NORMAL
   B) WIND LOAD: Q50 = 0.45 KPA
   C) GROUND SNOW LOAD: SS = 1.9 KPA
   D) ASSOCIATED RAIN LOAD: SR = 0.2 KPA
2. SEISMIC SITE CLASSIFICATION: NOT APPLICABLE
3. DO NOT SCALE DRAWINGS.
4. ALL DIMENSIONS ARE TO BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS PROJECT DRAWINGS AND EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.
5. THESE STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE AND DO NOT INDICATE ALL COMPONENTS NECESSARY FOR SAFETY DURING CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON AND AROUND THE JOBSITE DURING CONSTRUCTION.

CAST-IN-PLACE CONCRETE

I CONCRETE

1. ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CSA-A23.1-14 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CSA-A23.2-14 "METHOD OF TEST FOR CONCRETE".
2. PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF QUALITY, YIELD AND STRENGTH AS SPECIFIED IN CONCRETE MIXES, AND WILL COMPLY WITH CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
3. PROVIDE CERTIFICATION THAT PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH REQUIREMENTS OF CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
4. CONCRETE PROPERTIES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

EXTERIOR SLABS-ON-GRADE:	30 MPA MIN. AT 28 DAYS CLASS OF EXPOSURE: F-1 ENTRAINED AIR/CATEGORY: 1 (5% TO 8%) AGGREGATE MAX. 20 MM CURING TYPE: TYPE 1 - BASIC
INTERIOR SLABS: (HOUSEKEEPING PADS)	25 MPA MIN. 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: NONE AGGREGATE MAX. 20 MM CURING TYPE: TYPE 1 - BASIC
CONCRETE FILL: (BELOW NEW FREEZERS/ OVERPOUR)	25 MPA MIN. 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: NONE AGGREGATE MAX. 12 MM CURING TYPE: TYPE 1 - BASIC
MASONRY FILL:	20 MPA MIN. AT 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: NONE AGGREGATE MAX. 14 MM SLUMP: 200 MM ± 40 MM

UNLESS INDICATED OTHERWISE THE CONTRACTOR SHALL SPECIFY CONCRETE SLUMP APPROPRIATE WITH PLACEMENT METHODS AND SITE CONDITIONS. THE CONTRACTOR SPECIFIED SLUMP MUST BE SHOWN ON THE CERTIFICATION LETTER AND CONCRETE DELIVERY TICKET.

5. UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO THE LATEST EDITION OF CSA-A23.1-14 AS FOLLOWS:
   A) TYPE 1 - BASIC: 3 DAYS ≥ 10°C AND FOR A TIME NECESSARY TO ATTAIN 40% OF THE SPECIFIED STRENGTH.
   B) TYPE 2 - ADDITIONAL: 7 DAYS ≥ 10°C AND FOR A TIME NECESSARY TO ATTAIN 70% OF THE SPECIFIED STRENGTH.
   C) TYPE 3 - EXTENDED: 7 DAYS WET CURING ≥ 10°C.
6. AIR ENTRAINING ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C260/C260M-10A "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE". SUPERPLASTICIZING ADMIXTURES SHALL CONFORM TO ASTM C494/C494M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" OR ASTM C1017/C1017M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE" WHEN FLOWING CONCRETE IS APPLICABLE. AIR ENTRAINED ADMIXTURES TO HAVE A DURABILITY FACTOR GREATER THAN 75, WHEN TESTED TO ASTM STANDARDS C666/C666M PROCEDURE A. SPACING FACTOR FOR ANY AIR ENTRAINING ADMIXTURE MUST BE 0.17MM OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C457 "STANDARD TEST METHOD FOR MICROSCOPICAL DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE".

II REINFORCING STEEL

1. ALL REINFORCING STEEL TO BE CSA-G30.18M-09 GRADE 400R DEFORMED BARS EXCEPT COLUMN TIES AND BEAM STIRRUPS WHICH SHALL BE GRADE 400W STEEL. ALL REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE REINFORCING STEEL INSTITUTE OF CANADA - MANUAL OF STANDARD PRACTICE, EXCEPT OTHERWISE NOTED.
2. REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-14 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

   EXTERIOR SLABS-ON-GRADE:
   EXPOSURE CLASS: F-2 40 MM TOP 40 MM BOTTOM

3. IN SLAB THICKENED EDGES BEND ALL TOP AND INTERMEDIATE HORIZONTAL STEEL 600 MM 2'-0" AROUND CORNERS, OR USE EXTRA L BARS 1200 MM 4'-0" LONG. ALL OPENINGS IN WALLS TO HAVE 2-15M EACH SIDE AND 2-25M OVER, EXCEPT AS NOTED.
4. TOP STEEL IN BEAMS TO BE LAPPED AT CENTRE SPAN, BOTTOM STEEL TO BE BUTTED AT SUPPORT.
5. 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. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
6. ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 400 MM O/C EACH WAY, UNLESS NOTED.
7. PROVIDE MINIMUM 2-10M BOTTOM INTEGRITY BARS THROUGHOUT STRUCTURES IN ACCORDANCE WITH CSA A23.3-14, CLAUSE 13.10.6.

III FORMWORK

1. UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 MM 1/2 IN. ASPHALT IMPREGNATED FIBREBOARD.
2. ALL CONSTRUCTION JOINT KEYS ARE TO BE A MINIMUM OF 40 MM 1 1/2 IN. DEEP.

STRUCTURAL STEEL

1. THE STRUCTURAL STEEL FABRICATOR'S ENGINEER SHALL BE RESPONSIBLE FOR LOCATING AND DESIGNING PROVISIONS FOR ALL TEMPORARY FALL PROTECTION SYSTEMS REQUIRED DURING CONSTRUCTION TO MEET MANITOBA WORKPLACE HEALTH AND SAFETY REGULATIONS.
2. STRUCTURAL STEEL TO CONFORM TO CSA-G40.21, "STRUCTURAL QUALITY STEELS" AND CSA-G40.20 "GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL".
3. ALL ROLLED OR STEEL STRUCTURAL SECTIONS SHALL BE G40.21-350W. ALL HOLLOW STRUCTURAL SECTIONS TO BE G40.21-350W CLASS C OR ASTM A500-C. ALL ANGLES, CHANNELS AND PLATES SHALL BE G40.21-300W.
4. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE PERFORMED IN ACCORDANCE WITH CSA S16-14, "DESIGN OF STEEL STRUCTURES".
5. ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF CSA W59, "WELDED STEEL CONSTRUCTION". FABRICATORS SHALL BE PROPERLY CERTIFIED IN ACCORDANCE WITH CSA W47.1, "CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES".
6. ALL BOLTED CONNECTIONS TO USE A325 HIGH STRENGTH BOLTS. MINIMUM CONNECTION SHALL CONSIST OF 2 BOLTS.
7. ALL STRUCTURAL STEEL IS TO RECEIVE ONE COAT OF CISC/CPMA 1-73A QUICK DRYING SHOP PRIMER. STEEL IN CRAWLSPACES SHALL RECEIVE 2 COATS. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP2. STEEL RECEIVING FINISH PAINTING TO HAVE ONE COAT OF CISC/CPMA 2-75 QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP7.
8. FABRICATOR TO NOTIFY ENGINEER OF ANY PROPOSED MEMBER SUBSTITUTIONS AND CHANGED CONNECTION DETAILS.
9. THE STRUCTURAL STEEL SUPPLIER SHALL PROVIDE AND BE RESPONSIBLE FOR ALL HOLES IN STEEL SECTIONS REQUIRED BY OTHER TRADES. SECTION SHALL BE STRENGTHENED WHERE REQUIRED TO GUARANTEE THE ORIGINAL STRENGTH OF THE BEAM. ANY CUTTING OF STEEL AT THE JOB SITE SHALL BE DONE ONLY AS DIRECTED AND APPROVED BY THE ENGINEER.
10. THE STRUCTURAL STEEL ERECTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND ERECTING ALL TEMPORARY GUYING AND BRACING OF THE STEEL FRAMING TO PROVIDE STABILITY FOR THE STRUCTURE AS A WHOLE. THESE SHALL REMAIN IN PLACE UNTIL ALL STEEL DECKING IS ERECTED, WELDED IN PLACE AND ALL MASONRY/CONCRETE WALLS CONSTRUCTED.
11. STRUCTURAL STEEL SUPPLIER IS TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA COVERING THE DESIGN OF CONNECTIONS, TO THE PROJECT DESIGN ENGINEER FOR REVIEW PRIOR TO FABRICATION. CONNECTION DESIGN TO INCLUDE FOR ALL ADJUSTABLE CONNECTIONS REQUIRED TO SUITE FABRICATION AND ERECTION PROCEDURES AND TOLERANCES.

METAL DECK

1. CEILING DECK SHALL BE 75MM DEEP PROFILE, 0.762 MM WITH RIB SPACING OF 150 MM
2. DECK SHALL BE MINIMUM GRADE A WITH A MINIMUM GALVANIZED ZINC COATING TO ZF75
3. DECK SHALL BE ARC SPOT WELDED TO BEARING SUPPORTS AT 300 MM WELDS SHALL BE 20 MM DIAMETER.
4. SIDE LAPS SHALL BE MECHANICALLY FASTENED (BUTTON-PUNCHED) AT 600 MM ON-CENTRE.
5. DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 150 MM TO 300 MM ACROSS THE FLUTES WITH MINIMUM L65 X 65 X 6.4 EACH SIDE OF OPENING PERPENDICULAR TO FLUTES. ANGLE SHALL BE WELDED TO AT LEAST TWO FLUTES ON EACH SIDE OF OPENING.
6. DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 300 MM TO 450 MM ACROSS THE FLUTES WITH SUITABLE REINFORCEMENT BASED ON A STRUCTURAL ANALYSIS OF THE LOADS INVOLVED.
7. TOUCH UP DECK WITH ZINC RICH PAINT WHERE ZINC COATING HAS BEEN BURNED BY WELDING.

MASONRY

1. CONCRETE BLOCKS TO CONFORM TO CSA-A165-14 SERIES "STANDARDS FOR CONCRETE MASONRY UNITS".
   A) STANDARD HOLLOW MASONRY UNITS SHALL BE H/15/A/M.
   B) STANDARD SOLID MASONRY UNITS SHALL BE SF/15/A/M.
   C) LIGHTWEIGHT HOLLOW MASONRY UNITS SHALL BE H/15/C/M.
   D) LIGHTWEIGHT SOLID MASONRY UNITS SHALL BE SF/15/C/M.
   (COMPRESSIVE STRENGTH IS BASED ON NET AREA).
2. INTERIOR MASONRY NON-LOAD BEARING WALLS MAY BE BUILT WITH TYPE 'N' MORTAR HAVING A COMPRESSIVE STRENGTH OF 5 MPA AT 28 DAYS. MORTAR SHALL CONFORM TO CSA A179-14, "MORTAR AND GROUT FOR UNIT MASONRY".
3. USE DUR-O-WAL OR EQUAL EVERY SECOND COURSE. EVERY COURSE FOR STACK BOND.
4. THE TOP COURSE OF ALL BLOCK WALLS IS TO BE A 'U' BLOCK WITH 2-10M CONTINUOUS CENTRED AND FILLED WITH 20 MPA CONCRETE UNLESS NOTED ON PLAN.
5. ALL MASONRY WALLS TO BE PROPERLY BRACED UNTIL STRUCTURE IS CLOSED IN AND WALL PERMANENTLY SUPPORTED.
6. ALL BLOCK WALLS RECEIVING BEAMS TO HAVE 2 COURSES HIGH, 400 MM 16 IN. LONG FILLED WITH 20 MPA CONCRETE UNLESS NOTED ON DRAWINGS.
7. DOOR LINTELS IN BLOCK WALLS SHALL BE AS FOLLOWS UNLESS NOTED ON DRAWINGS:

UP TO 1200 MM	200 MM HIGH 'U' BLOCK 20 MPA CONCRETE FILL 2-10M BOTTOM
1200 MM TO 2400 MM	400 MM HIGH 'U' BLOCK 20 MPA CONCRETE FILL 2-15M BOTTOM

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

PROVINCE OF MANITOBA
May 14/18
A.J. GIES
Member
23243
REGISTERED PROFESSIONAL ENGINEER

APEGM
Certificate of Authorization
Crosier Kilgour & Partners Ltd.
No. 235 Date: 2018-05-14

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CONSULTING STRUCTURAL ENGINEERS

Revision	Description	Date
0	ISSUED FOR CONSTRUCTION	2018/05/14

Client / client

CORRECTIONAL SERVICE CANADA (CSC)

Stony Mountain Institution (SMI)
Stony Mountain, Manitoba

Project title / Projet

C17 STORES
Stony Mountain Institution (SMI)
Stony Mountain, Manitoba

FREEZER REPLACEMENT

Designed by / Conçu par: **AJG**

Drawn by / Dessiné par: **GDP**

Approved by / Approuvé par:

PWGSC Project Manager / Administrateur de Projets TPSGC: **TIM LODGE**

Drawing title / Titre du dessin

GENERAL NOTES

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.086718.001	S-1 OF 3	0

PWGSC - A1 - 841X594

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A-1