

SPECIFICATIONS:

1.0 GENERAL

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH MANITOBA BUILDING CODE 2011, 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, AND ELECTRICAL 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, SECURITY, ETC. AND CONDITION OF THE WORK WILL BE TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR BEFORE LEAVING THE SITE.

2.0 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) OFFICE ROOFS
- | | |
|-----------------------------------|----------|
| ROOFING AND INSULATION | 0.5 |
| HANGING MECHANICAL AND ELECTRICAL | 0.25 |
| <hr/> | |
| DL = | 0.75 kPa |
- B) EXIST BUILDING ROOF
- | | |
|-----------------------------------|----------|
| ROOFING AND INSULATION | 0.5 |
| OWSJ FRAMING | 0.1 |
| HANGING MECHANICAL AND ELECTRICAL | 0.25 |
| <hr/> | |
| DL = | 0.85 kPa |

2. LIVE LOADS

- A) ENVIRONMENTAL LOADS
- | | |
|--------------------------------|------------------------------|
| GROUND SNOW LOAD | Ss = 1.9 kPa |
| RAIN LOAD | Sr = 0.2 kPa |
| UNIFORM SNOW | S = 0.8 (1.9)+0.1 = 1.72 kPa |
| SNOW DRIFT - AS SHOWN ON PLANS | |
- B) SUPERIMPOSED OCCUPANCY LIVE LOADS (UNFACTORED SERVICE)
- | | |
|------------------------|----------|
| FLOOR (STORAGE) | 7.2 kPa |
| OFFICE ROOFS | 2.4 kPa |
| INTERIOR WALL PRESSURE | 0.25 kPa |

3.0 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:
 - 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.

4.0 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, WALL STUD & FLOOR JOIST LOAD TABLES", PUBLISHED BY BAILEY METAL PRODUCTS LIMITED (2006)
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-S136-07
 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 400 MM O.C.
 3. DESIGN ALL MEMBERS AS UNSHEATHED. PROVIDE BRACING AS REQUIRED (MINIMUM SHOWN).
4. SHOP DRAWINGS:

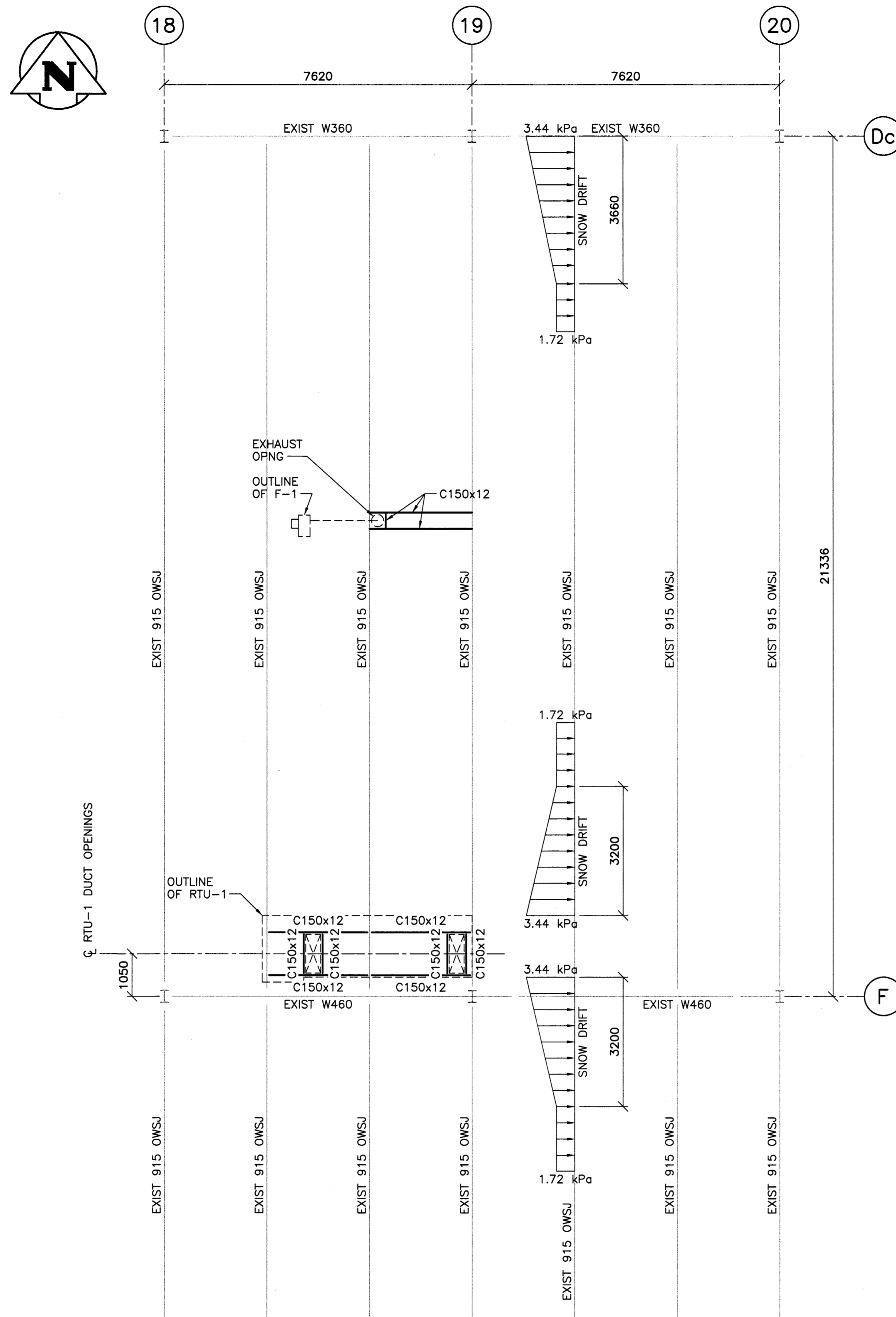
PROVIDE ENGINEERING CALCULATIONS AND SHOP DRAWINGS VERIFYING THE CAPACITY OF THE MEMBERS AND THE ABILITY OF THE ASSEMBLIES TO MEET THE DESIGN REQUIREMENTS. INDICATE DESIGN LOADS AND DEFLECTION LIMITS. INCLUDE A DRAWING WHICH SHOWS DESIGN LOADS USED IN THE STRUCTURAL CALCULATIONS. EACH SHOP DRAWING SUBMITTED 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.

5.0 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, ALUMINUM TO CSA W59.2-M1991 (R2008)
4. SHOP COAT PRIMER: TO CISC/CPMA 2075.

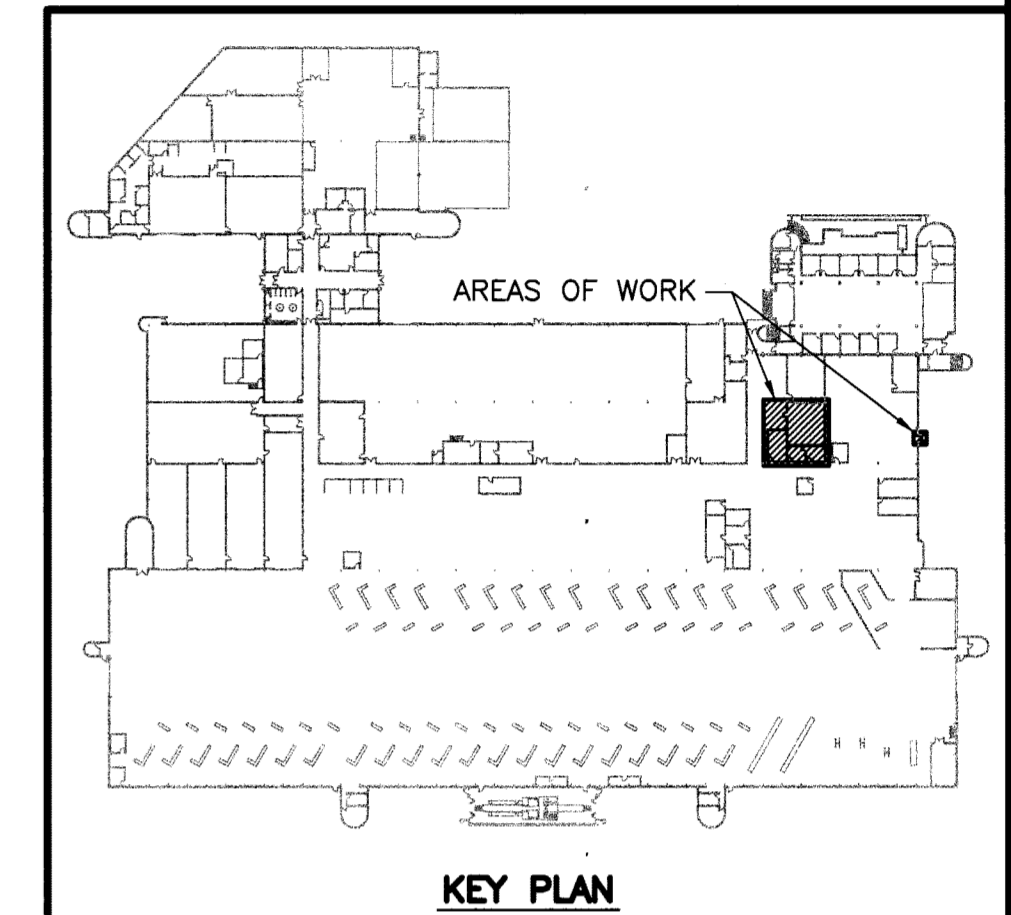
6.0 STRUCTURAL STEEL

1. STRUCTURAL STEEL TO CONFORM TO CSA G40.21-04, "STRUCTURAL QUALITY STEEL" AND CSA G40.20-04 "GENERAL REQUIREMENTS FOR ROLLED OR WELD QUALITY STEEL".
2. ANGLES PLATES AND CHANNELS TO BE G40.21, 44W (300 MPa) GRADE STEEL.
3. DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL TO CONFORM TO CAN3-S16.1-09, "LIMIT OF STATES DESIGN OF STEEL STRUCTURES."
4. ALL WELDING TO CONFORM TO CAN3-W59 "WELDED STEEL CONSTRUCTION."
5. FABRICATORS SHALL BE CERTIFIED IN ACCORDANCE WITH CAN3-W47.1-03, "CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES."
6. USE ASTM A325(M) HIGH STRENGTH BOLTS MINIMUM TWO BOLTS PER CONNECTION UNLESS SHOWN OTHERWISE. IF FIELD WELDING IS USED, ALL EXISTING SURFACES TO BE WELDED SHALL BE CLEANED OF CONTAMINANTS SUCH AS PAINT, GREASE, RUST, ETC.
7. ALL STRUCTURAL STEEL TO BE HOT-DIP GALVANIZED.
8. OBTAIN ENGINEER'S APPROVAL PRIOR TO MAKING ANY MEMBER SUBSTITUTIONS OR CONNECTION DETAIL CHANGES.
9. PROVIDE HOLES IN STEEL SECTIONS AS REQUIRED. SECTIONS SHALL BE STRENGTHENED AS REQUIRED TO ENSURE ORIGINAL STRENGTH OF BEAM. CUTTING OF STEEL AT JOB SITE SHALL BE DONE ONLY AS APPROVED AND DIRECTED BY THE ENGINEER.



EQUIPMENT WEIGHTS (SERVICE-UNFACTORED)	
RTU-1	1250 kg
F-1	100 kg

REFERENCE DRAWINGS	
NO.	DESCRIPTION



NO.	DATE	DESCRIPTION	PREPARED	REVIEW	DESIGN	AUTHORIZED
00	13.06.27	ISSUED FOR CONSTRUCTION	EV	CM	CM	

PROVINCE OF MANITOBA
MOTA Member
24320
3, 06, 2013

APEGM
Certificate of Authorization
TETRA TECH WEI Inc.
No. 5313 Date: April 30, 2014

DESIGNED BY: CM	PREPARED BY: EV	REVIEWED BY: CM
AUTHORIZED BY:	DATE: 13.05.14	SCALE: AS NOTED

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CLIENT:
**CITY OF WINNIPEG
TRANSIT DEPARTMENT**

TETRA TECH

PROJECT NAME:
ELECTRICAL SECTION RENOVATION AT THE WINNIPEG TRANSIT GARAGE, 421 OSBORNE STREET

DRAWING DESCRIPTION:
STRUCTURAL SPECIFICATIONS

DRAWING NO: 1329720200-DWG-S0002	REV: 00
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