

LUMINAIRE SCHEDULE

SCALE: NTS

ELECTRICAL SPECIFICATION

SECTION 26 05 00 COMMON WORK RESULTS - FOR ELECTRICAL

.1 PROVIDE ALL MATERIALS, LABOUR, PLANT AND EQUIPMENT NECESSARY TO MAKE A COMPLETE INSTALLATION AS DESCRIBED AND

CERTIFIED OR CERTIFIED BY AN EQUIVALENT RECOGNIZED CERTIFYING AGENCY TO MEET CANADIAN STANDARDS AND LOCALLY

- SHOWN. THIS INSTALLATION SHALL BE LEFT COMPLETE AND READY FOR OPERATION. THE ENTIRE INSTALLATION SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE CITY. REPLACE AT NO ADDITIONAL COST ANY WORK OR MATERIAL WHICH MAY FAIL OR PROVE DEFECTIVE DURING THE GUARANTEE PERIOD. .3 THE INSTALLATION SHALL CONFORM IN EVERY RESPECT TO THE RULES AND REGULATIONS OF THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE AND ALL LOCAL CODES. ALL WORK SHALL BE UNIFORM AND HIGH QUALITY. ALL EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE NEW AND BUILT IN ACCORDANCE WITH EEMAC STANDARDS, SHALL BE CSA
- EQUIVALENT CERTIFICATION FOR THE ENTIRE ASSEMBLY. PROVIDE INSPECTION CERTIFICATE UPON COMPLETION OF THE WORK. .4 CAREFULLY EXAMINE ALL PLANS AND SPECIFICATIONS PERTAINING TO THIS CONTRACT AND VISIT SITE TO DETERMINE ALL FACTORS AFFECTING COSTS AND INCLUDE SAME IN BID. NOTIFY CONTRACT ADMINISTRATOR OF DISCREPANCIES OR CONFLICTS WITH ANY REGULATION BEFORE SUBMITTING PRICE. FAILING SUCH NOTIFICATION, THIS SUB-CONTRACTOR SHALL MEET ALL SUCH REQUIREMENTS WITHOUT EXTRA COST TO THE CITY.

APPROVED. ELECTRICAL EQUIPMENT CONSISTING OF INDIVIDUAL CERTIFIED COMPONENTS MUST ALSO HAVE A CSA OR

OBTAIN ALL NECESSARY PERMITS, PAY ALL NECESSARY FEES, GIVE ALL NECESSARY NOTICES AND OBTAIN APPROVAL OF THE ELECTRICAL AUTHORITIES HAVING JURISDICTION.

SUBMIT SIX (6) COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT. EQUIPMENT PROPOSED SHALL MEET THE SAME STANDARDS OF PERFORMANCE, QUALITY AND WORKMANSHIP AS THAT SPECIFIED. IDENTIFY ALL CIRCUITS IN PANELS, JUNCTION BOXES, EQUIPMENT AND CONTROLS.

3 AS-BUILTS

PROVIDE COPIES OF "AS-BUILT" DRAWINGS IN AUTOCAD FORMAT. .2 IDENTIFY ALL CIRCUITS IN PANELS, JUNCTION BOXES, EQUIPMENT AND CONTROLS.

OTHER APPLICABLE CODES, AUTHORITIES HAVING JURISDICTION, ETC.

4 OPERATION AND MAINTENANCE MANUALS

PROVIDE DATA FOR INCORPORATION INTO MAINTENANCE MANUAL. MANUAL SHALL INCLUDE INSTRUCTIONS FOR ALL EQUIPMENT SUPPLIED, COPY OF REVIEWED SHOP DRAWINGS AND TECHNICAL DATA SUCH AS PARTS LISTS, OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, ETC. THREE (3) HARD COVER COPIES OF MAINTENANCE MANUALS ARE TO BE SUBMITTED.

- .1 MOUNTING HEIGHT IS CENTRELINE OF EQUIPMENT ABOVE FINISHED FLOOR. IF MOUNTING HEIGHT IS NOT INDICATED VERIFY BEFORE PROCEEDING WITH INSTALLATION. MOUNT SAME HEIGHT AS EXISTING IF DIFFERENT FROM THAT SHOWN HERE UNLESS INDICATED OTHERWISE ON DRAWING.
- .2 MOUNTING HEIGHTS .1 MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTRELINE OF EQUIPMENT UNLESS INDICATED OTHERWISE .2 HEIGHTS AS ABOVE OR AT BOTTOM OF NEAREST BLOCK OR BRICK COURSE EXCEPT WHERE REQUIRED TO COMPLY WITH MANITOBA BUILDING CODE, OTHER APPLICABLE CODES, AUTHORITIES HAVING JURISDICTION, ETC. .3 HEIGHTS TO MATCH EXISTING WHERE APPLICABLE EXCEPT WHERE REQUIRED TO COMPLY WITH MANITOBA BUILDING CODE,

6 26 05 05 WORK IN EXISTING BUILDING .1 CO-ORDINATION.

- THE BUILDING SHALL REMAIN OPEN AND IN NORMAL OPERATION DURING THE CONSTRUCTION PERIOD. .2 WHERE EXISTING SERVICES SUCH AS ELECTRICAL POWER, FIRE ALARM SYSTEM, SOUND SYSTEM, ETC. ARE REQUIRED TO BE DISRUPTED AND/OR SHUT DOWN, CO-ORDINATE THE SHUTDOWNS WITH THE CITY AND CARRY OUT THE WORK AT A TIME AND IN A MANNER ACCEPTABLE TO THEM. CAREFULLY SCHEDULE ALL DISRUPTION AND/OR SHUT-DOWNS AND ENSURE THAT THE DURATION OF SAME IS KEPT TO THE ABSOLUTE MINIMUM. SUBMIT FOR APPROVAL A WRITTEN, CONCISE SCHEDULE OF EACH DISRUPTION AT LEAST 120 HOURS IN ADVANCE OF PERFORMING WORK AND OBTAIN CITY'S
- WRITTEN CONSENT PRIOR TO IMPLEMENTING. .3 SHOULD ANY TEMPORARY CONNECTIONS BE REQUIRED TO MAINTAIN SERVICES DURING WORK IN THE EXISTING BUILDING, SUPPLY AND INSTALL ALL NECESSARY MATERIAL AND EQUIPMENT AND PROVIDE ALL LABOUR AT NO EXTRA COST. SHOULD ANY EXISTING SYSTEM BE DAMAGED, MAKE FULL REPAIRS WITHOUT EXTRA COST, AND TO THE SATISFACTION OF THE CITY AND CONTRACT ADMINISTRATOR. .4 IF EXISTING EQUIPMENT SHOWN ON DRAWINGS IS DEFECTIVE IT SHOULD BE BROUGHT TO THE CONTRACT ADMINISTRATOR
- AND CITY'S ATTENTION PRIOR TO WORK COMPLETION. INSTALL BOXES, CONDUIT AND WIRING THROUGH EXISTING AREAS AS REQUIRED FOR THE NEW INSTALLATION.
- .2 ADD MODULES, SWITCHES, ETC. IN EXISTING CONTROL PANELS, AS REQUIRED, TO EXTEND EXISTING SYSTEMS TO NEW OR RENOVATED AREAS.
- .3 PATCH AND REPAIR WALLS AND CEILINGS IN EXISTING AREAS THAT HAVE BEEN DAMAGED OR CUT OPEN DUE TO THE NEW ELECTRICAL INSTALLATION.
- .4 WHERE NEW CABLES OR CONDUITS HAVE BEEN INSTALLED THROUGH EXISTING FIRE RATED WALLS, SEAL OPENING AROUND CABLES AND CONDUIT TO MAINTAIN FIRE RATING. .3 ALL EXISTING EQUIPMENT REUSED SHALL BE MADE GOOD AND GUARANTEED.
- .4 POWER INTERRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE A TIME SUITABLE TO THE BUILDING OCCUPANT(S).

7 26 05 21 WIRES AND CABLE .1 FOR GENERAL PURPOSE WIRING: RW90 CONDUCTORS IN THREADED RIGID METAL CONDUIT. USE AC90 FOR FIXTURE DROPS AND

- IN METAL STUD WALLS. .2 RUN ALL CONDUIT AND CABLE CONCEALED, PARALLEL AND PERPENDICULAR TO BUILDING LINES, STAPLED AND/OR CLIPPED IN
- A NEAT WORKMANLIKE MANNER. .3 ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG EXCEPT AS NOTED.
- 4 IDENTIFY ALL CIRCUITS IN PANELS, JUNCTION BOXES, EQUIPMENT AND CONTROLS. .5 SHALL COMPLY WITH CEC SECTION 18-106 WIRING METHODS, CLASS 1 ZONE 1.

8 26 05 26 GROUNDING

- .1 THE ENTIRE INSTALLATION SHALL BE GROUNDED IN CONFORMANCE TO THE LATEST EDITION OF THE CANADIAN ELECTRICAL
- .2 ALL CONDUIT TO HAVE A SEPARATE INSULATED GROUND CONDUCTOR.
- 9 26 05 32 OUTLET BOXES, CONDUIT BOXES AND FITTINGS .1 OUTLET, JUNCTION AND SWITCH BOXES SHALL BE GALVANIZED STEEL AND SIZED ACCORDING TO THE ELECTRICAL CODE AND
- 2 CAST TYPE WITH GASKETED COVERS WHERE EXPOSED TO MOISTURE OR WEATHER OR WHERE SPECIFIED. .3 EXPLOSION PROOF IN HAZARDOUS AREAS TO SUIT THE HAZARDOUS CLASSIFICATION.

10 26 27 26 WIRING DEVICES

- PROVIDE WIRING DEVICES FOR ALL OUTLETS AS REQUIRED AND INDICATED. COLOUR AND MOUNTING TO MATCH EXISTING. .2 STANDARD OF ACCEPTANCE FOR DEVICES SHALL BE AS FOLLOWS: .1 SINGLE POLE, 2-POLE, 3-WAY AND 4-WAY WALL MOUNTED GENERAL PURPOSE SWITCHES SHALL BE PREMIUM
- LEVITON #1201. .3 COVERPLATES FOR DEVICES SHALL BE STAINLESS STEEL.

11 26 51 13 LIGHTING

- PROVIDE FIXTURES EQUAL TO THOSE SPECIFIED WITH LAMPS, PENDANT KITS, MOUNTING BRACKETS, LENSES AND ALL OTHER ACCESSORIES REQUIRED TO COMPLETE THE INSTALLATION.
- .2 FLUORESCENT FIXTURE BALLASTS SHALL BE T5HO ELECTRONIC TYPE. BALLAST MUST BE LISTED BY MANITOBA HYDRO AS ACCEPTABLE BY THEIR POWER SMART REBATE PROGRAM.

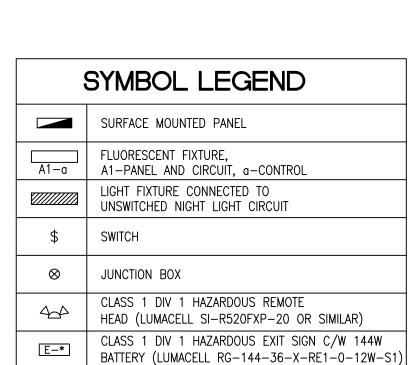
SPECIFICATION TOGGLE TYPE 15A 125VAC. TO BE SERIES HUBBELL #1201, ARROW HART #1891, BRYANT #4801 OR

Date

12 26 05 34 CONDUITS, CONDUIT FASTENERS AND FITTINGS

- .1 DRAWINGS DO NOT INDICATE ALL CONDUIT AND CABLE RUNS. THOSE INDICATED ARE IN DIAGRAMMATIC FORM ONLY.
- MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS INDICATED OTHERWISE. ALL CONDUITS SHALL HAVE A SEPARATE INSULATED GREEN GROUND CONDUCTOR.
- 4 SHALL COMPLY WITH CEC SECTION 18-108 SEALING, CLASS 1, ZONE 1.
- .5 ONE HOLE STEEL STRAPS TO SECURE SURFACE CONDUITS 50MM AND SMALLER.
- FITTINGS FOR RACEWAYS: TO CSA C22.2 NO. 18 FITTINGS: MANUFACTURED FOR USE WITH CONDUIT SPECIFIED COATING SAME AS CONDUIT.
- .8 FACTORY "ELLS" WHERE 90' BENDS ARE REQUIRED FOR 25MM AND LARGER CONDUITS. .9 RIGID STEEL CONDUIT, THREADED.

- 13 CONDUIT AND CABLE IDENTIFICATION
- .1 COLOUR CODE CONDUITS, BOCESAND METALLIC SHEATHED CABLE. .2 COLOUR CODING TO MATCH EXISATING WHERE APPLICABLE.
- .3 CONFIRM COLOUR CODING WITH CITY AND CONTRACT ADMINISTRATOR PRIOR TO START OF WORK. .4 CODE WITH PLASTIC TAPE OR PAINT AT POINTS WHERE CONDUIT OR VALE ENTERS WALL, CEILING OR FLOOR AT 15M INTERVALS. .5 COLOURS: 25mm WIDE PRIME COLOUR AND 20mm WIDE AUXILLIARY COLOUR.
- UP TO 250V (NORMAL POWER) YELLOW FIRE ALARM EMERGENCY VOICE
- 6 OTHER CONDUIT SYSTEMS AS DIRECTED ON SITE; ALL CONDUIT SYSTEMS SHALL BE IDENTIFIED .7 COLOUR OUTLET BOX COVERS TO BE COLOUR DESIGNATED AND SHOW CIRCUIT NUMBERS IN BLACK FELT MARKER ON INSIDE
- 14 EQUIPMENT IDENTIFICATION
- .1 IDENTIFY ELECTRICAL EQUIPMENT WITH NAMEPLATES AND LABELS AS FOLLOWS:
- .2 NAMEPLATES: LAMICOID 3mm THICK PLASTIC ENGRAVING SHEET, WHITE FACE WITH BLACK CORE (WHITE WITH BLACK LETTERS) LETTERING ACCURATELY ALIGNED AND ENGRAVED INTO CORE MECHANICALLY, ATTACHED WITH SELF TAPPING SCREWS. LETTERS
- TO BE MINIMUM 5mm HIGH. .3 WORDING ON NAMEPLATES AND LABELS TO BE APPROVED BY CONTRACT ADMINISTRATOR PRIOR TO MANUFACTURE.
- .4 LOW FOR MINIMUM OF TWENTY-FIVE (25) LETTERS PER NAMEPLATE AND LABELS. .5 NAMEPLATES FOR TERMINAL CABINETS, STARTERS AND CONTACTORS: INDICATE EQUIPMENT BEING CONTROLLED AND VOLTAGE.
- .6 ROOM NAMES AND NUMBERS USED SHALL BE ACTUAL ROOM NAMES AND NUMBERS THAT WILL BE USED ON THE PROJECT. COORDINATE AND CONFIRM WITH TRADES INVOLVED.
- .7 TO MATCH EXISTING WHERE APPLICABLE



* PLEASE NOTE *

ALL EQUIPMENT SHOWN "FADED BACK" IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED.

FED FROM:			200	CATION				
Designation	Load	Ckt.		Phase	Ckt.		Load	Designation
BOOTH #4 - WEST WALL LIGHTS	(YA)	Trip 15	No.		No.	Trip 15	(VA)	BOOTH 3 - EAST WALL
bootini in the comb	1080	10	1	A	22	,,,		LIGHTS (EXISTING)
BOOTH #4 - SOUTH WALL /CEILING LIGHTS		15				15		BOOTH 3 - EAST CEILING
	1080		2	В	23			LIGHTS (EXISTING)
BOOTH #4 - EAST WALL LIGHTS	1080	15	١.	_	١	15		BOOTH 3 - WEST WALL
BOOTH #4 - NORTH CEILING LIGHTS	1060	15	3	С	24	15		LIGHTS (EXISTING) BOOTH 3 - WEST CEILING
	864	13	4	A	25	13		LIGHTS (EXISTING)
BOOTH #4 - WEST CEILING LIGHTS		15				15		NIGHT LIGHTS &
	1080		5	В	26			AIR SOLENOIDS (EXISTING
BOOTH #4 - WEST CEILING LIGHTS		15				15		BOOTH 2 - EAST WALL
	1080	4.5	6	С	27	4.5		LIGHTS (EXISTING)
SPARE		15	١.	١.		15		BOOTH 2 - EAST CEILING
SPARE		15	7	Α.	28	15		LIGHTS (EXISTING) BOOTH 2 - WEST WALL
O. 7 - 12		10	В	В	29	10		LIGHTS (EXISTING)
SPARE		15	Ť			15		BOOTH 2 - WEST CEILING
			9	С	30			LIGHTS (EXISTING)
SPARE		15				15		BOOTH 1 - N.L.
		A.F.	10	A	31			(EXISTING)
		15	11	В	32			BOOTH 1 - LIGHTS (EXISTING)
			11	ь	32			(EXISTING)
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SPARE		15	-					
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(EXISTING)			14	В	35			
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VOLTAGE:	120/2	001/0	21	C	42	20	PHA	1944
CAPACITY:		120/208V,3Ø,4W LOADS- PH 100A PH						2160
MOUNTING:								
REMARKS:	EXISTING TOTAL						6264	
NOTE: ALL BREAKERS ARE EXISTING.								
SMS ENGINEERING								PANEL SCHEDUL
SMS Engineering Ltd. Consulting Engineers								PBL FORT ROUGE PAINT BOO'

sms@smseng.com

05-Jul-12

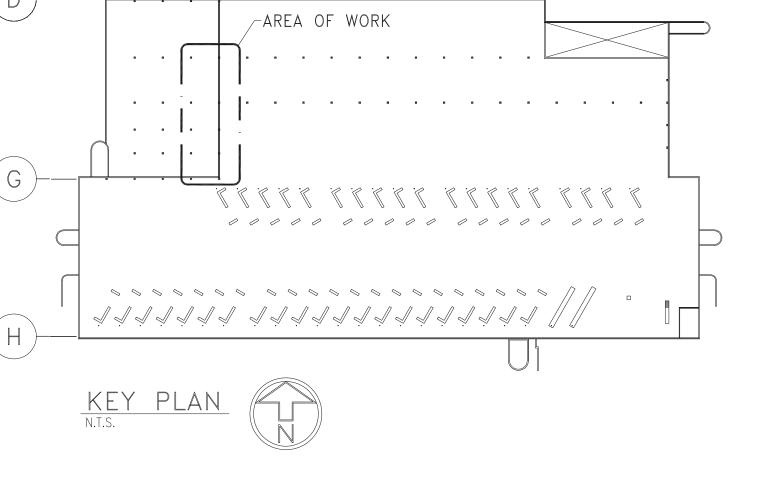


SMS Engineering Ltd. No. 166 Expiry: April 30, 2013 July 5,2012 # 24022

Certificate of Authorization



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GENERAL NOTES

- A. FULL INSTALLATION TO MEET CEC SECTION 18, CLASS 1, ZONE 1 REQUIREMENTS.
- B. ELECTRICAL SUB-CONTRACTOR TO VISIT SITE DURING BID AND VERIFY ALL EXISTING SERVICES ON SITE PRIOR TO SUBMITTING BID. REPORT ANY DISCREPANCIES TO CONTRACT ADMINISTRATOR DURING BID PERIOD.
- C. ELECTRICAL SUB-CONTRACTOR SHALL ENSURE COORDINATION BETWEEN ALL TRADES AND CONTRACT ADMINISTRATOR, ON AND OFF SITE, AS REQUIRED FOR INSTALLATION OF ELECTRICAL
- D. COORDINATE MOUNTING HEIGHTS AND LOCATION OF ALL FIXTURES WITH THE CITY PRIOR TO INSTALLATION.
- E. USE ELECTRICAL EQUIPMENT INTENDED FOR USE IN CLASS 1, ZONE 1 HAZARDOUS LOCATIONS AND EQUIPMENT SHALL BE MARKED IN ACCORDANCE TO CEC SECTION 18-052 MARKING.
- F. THE CONDUIT SHALL BE THREADED RIGID METAL WITH ASSOCIATED CABLE GLANDS THAT COMPLY WITH THE REQUIREMENTS OF CEC SECTION 18-106.
- G. EXPLOSION PROOF OR FLAME-PROOF BOXES, FITTINGS AND JOINTS SHALL BE THREADED FOR CONNECTION TO CONDUIT
- H. ALL FIXTURE TYPES SHALL MEET CEC SECTION 18-118 LUMINAIRES, CLASS 1, ZONE 1.
- I. REPORT ANY EQUIPMENT WHICH DOES NOT MEET CLASS 1 ZONE 1 REQUIREMENTS TO CONTRACT ADMINISTRATOR.
- J. FIRE STOP ALL PENETRATIONS.

KEY NOTES

- 1. WIRE AND INSTALL FIXTURE TYPE 'AA'. FIXTURE AND MOUNTING PENDANT TO BE SUPPLIED BY THE CITY. FIXTURE TYPE 'AA' TO BE SUSPENDED 1 FOOT FROM CEILING. ELECTRICAL SUB-CONTRACTOR TO PROVIDE 1 FOOT OF THREADED RIGID METAL CONDUIT. PENDANT MOUNTING HARDWARE TO BE COORDINATED WITH CARRIER CHANNEL LOCATIONS IN CEILING.
- 2. AREA IS DEFINED AS CLASS 1 ZONE 2 WITHIN 1M HORIZONTAL AND VERTICAL OF DOOR. ALL EQUIPMENT WITHIN ZONE TO BE HAZARDOUS RATED. CONDUIT TO BE THREADED RIGID STEEL. WHERE POSSIBLE, INSTALL EQUIPMENT AND CONDUIT MORE THAN 1 METER FROM DOOR.
- 3. WIRE AND INSTALL FIXTURE TYPE 'A'. FIXTURE AND MOUNTING BRACKET TO BE SUPPLIED BY THE CITY. FIXTURE TYPE 'A' TO BE WALL MOUNTED APPROX. 2 FEET FROM CEILING.
- 4. FIXTURE TO BE WIRED TO EXISTING NIGHT LIGHT CIRCUIT. CCT-31. CHECK FOR SPARE CAPACITY ON THIS CIRCUIT BEFORE WIRING TO IT. WIRE TO NEAREST AVAILABLE NIGHT LIGHT CIRCUIT WITH CAPACITY IF THERE IS NOT SUFFICIENT CAPACITY ON CCT-31.
- 5. RE-USE EXISTING 15A-1P BREAKERS THAT WERE MADE AVAILABLE DURING DEMOLITION.
- 6. INSTALL LIGHT SWITCHES MINIMUM 1M FROM DOOR OPENING.
- 7. FIXTURE IN HIGH CEILING AREA IS TO BE MOUNTED TO THE SAME HEIGHT ABOVE FLOOR AS FIXTURES IN LOWER CEILING
- 8. EXISTING CONDUITS THAT HAVE BEEN ON TEMPORARY SUPPORTS ARE TO BE CLIPPED ONTO NEW CEILING.
- 9. RELOCATE EXISTING EMT CONDUIT AND BX CABLING MORE THAN 1 METER HORIZONTAL AND VERTICAL FROM DOOR OR REPLACE WITH THREADED RIGID STEEL CONDUIT AND EXPLOSION AND FLAME-PROOF BOXES.
- 10. SEAL ALL NEW AND EXISTING CONDUITS (INSIDE AND OUT) WHICH PASS THROUGH PERIMETER WALL, SHALL MEET CEC SECTION 18-108 SEALING CLASS 1 ZONE 1.

300-275 Carlton Street Winnipeg, Manitoba R3C 5R6 T 204. 943. 7501 F 204. 943. 7507 2 05/JULY/12 ISSUED FOR BID PROFESSIONAL | |15/JUNE/12| ISSUED FOR 99% SUBMISSION Issue/Revision



WINNIPEG TRANSIT - PAINT BOOTH #4 RENOVATION 421 OSBORNE ST WINNIPEG, MANITOBA

The General Contractor shall check & verify all dimensions and report any errors or omissions to the designers

PAINT BOOTH #4 LIGHTING LAYOUT ELECTRICAL SPÉCIFICATION AND SCHEDULES necked WPD CJH APRIL 2012 | 12-106-0 AS NOTED