

COMMUNICATIONS SPECIFICATIONS

GENERAL

1. PROVIDE ALL MATERIALS, LABOUR, ENCLOSURES, SUPPORT STRUCTURES, DEVICES, HARDWARE, SOFTWARE, PROGRAMMING AND EQUIPMENT NECESSARY TO MAKE A COMPLETE INSTALLATION AS DESCRIBED AND SHOWN. THIS INSTALLATION SHALL BE LEFT COMPLETE AND READY FOR OPERATION.
2. THE COMPLETE INSTALLATION SHALL BE ONE YEAR WARRANTY FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER. REPLACE AT NO ADDITIONAL COST ANY WORK OR MATERIAL WHICH MAY FAIL OR PROVE DEFECTIVE DURING THE WARRANTY PERIOD.
3. THE INSTALLATION SHALL CONFORM IN EVERY RESPECT TO THE RULES AND REGULATIONS OF THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE, ANSI/TIA, BICSI, IEEE 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 ANSI/TIA, IEEE, NEMA, ISO/IEC STANDARDS, SHALL BE CSA/UL CERTIFIED OR CERTIFIED BY AN EQUIVALENT RECOGNIZED CERTIFYING AGENCY TO MEET CANADIAN STANDARDS AND LOCALLY APPROVED. TELECOMMUNICATIONS, SECURITY, EQUIPMENT CONSISTING OF INDIVIDUAL CERTIFIED COMPONENTS MUST ALSO HAVE A CSA OR 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 TENDER. NOTIFY ENGINEER OF DISCREPANCIES OR CONFLICTS WITH ANY REGULATION BEFORE SUBMITTING THE PRICE. FAILING SUCH NOTIFICATION, THIS CONTRACTOR SHALL MEET ALL SUCH REQUIREMENTS WITHOUT EXTRA COST TO THE OWNER.
5. OBTAIN ALL NECESSARY PERMITS, PAY ALL NECESSARY FEES, GIVE ALL NECESSARY NOTICES AND OBTAIN APPROVAL OF THE ELECTRICAL AUTHORITIES HAVING JURISDICTION.

SHOP DRAWINGS

6. SUBMIT ELECTRONIC COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT.
7. FOR SHOP DRAWING'S SUBMITTED ELECTRONICALLY, INCLUDE PROJECT NAME IN SUBJECT LINE OF E-MAIL.
8. EQUIPMENT PROPOSED SHALL MEET OR EXCEED THE SAME STANDARDS OF PERFORMANCE, QUALITY AND WORKMANSHIP AS THAT SPECIFIED.
9. SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE TRADE AND GENERAL CONTRACTOR.

REQUEST FOR INFORMATION (RFI)

10. FOR RFI'S SUBMITTED ELECTRONICALLY, INCLUDE PROJECT NAME AND RFI NUMBER IN SUBJECT LINE OF E-MAIL.
11. CONTENT OF THE RFI SHALL INCLUDE A DETAIL DESCRIPTION OF THE ITEM NEEDING INTERPRETATION AND PROPOSED SOLUTION.

RECORD DRAWINGS

12. PROVIDE "AS-BUILT" DRAWINGS IN PDF AND AUTOCAD FORMAT ON A USB MEMORY STICK.

MAINTENANCE MANUALS

13. 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.

REMOVALS

14. REMOVE ALL UNNECESSARY EXISTING COMMUNICATIONS, SECURITY, VIDEO SURVEILLANCE, ACCESS CONTROL EQUIPMENT, WIRING AND FIXTURES IN THOSE PORTIONS OF THE EXISTING BUILDING WHICH ARE BEING REMODELED OR DEMOLISHED. THE EQUIPMENT MAY BE REUSED ON THIS PROJECT IF, IN THE OPINION OF THE CONSULTANT, SUCH EQUIPMENT IS IN SATISFACTORY CONDITION AND MEETS THE STANDARDS ESTABLISHED. THE OWNER MAY SELECT FROM THE MATERIALS AND/OR EQUIPMENT REMAINING WHICH HE WISHES TO RETAIN AND THE REMAINDER SHALL BE EITHER REMOVED FROM THE SITE OR RETURN TO THE OWNER FOR REUSE.
15. ANY COMMUNICATIONS, SECURITY, VIDEO SURVEILLANCE, ACCESS CONTROL EQUIPMENT IN REMODELED SECTIONS OR IN STRUCTURES REMOVED OR ALTERED, ADJACENT TO NEW WORK, NECESSARY FOR THE OPERATION OF THE EXISTING BUILDING, SHALL BE RELOCATED AS NECESSARY.
16. ALL EXISTING EQUIPMENT REUSED SHALL BE MADE GOOD AND GUARANTEED.
17. POWER INTERRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE A TIME SUITABLE TO THE BUILDING OCCUPANT(S).

WORK IN EXISTING BUILDING

CO-ORDINATION.

18. THE BUILDING SHALL REMAIN OPEN AND IN NORMAL OPERATION DURING THE CONSTRUCTION PERIOD.
19. WHERE EXISTING SERVICES SUCH AS TELEPHONE, DATA NETWORK ARE REQUIRED TO BE DISRUPTED AND/OR SHUT DOWN, CO-ORDINATE THE SHUTDOWNS WITH THE OWNER 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 72 HOURS IN ADVANCE OF PERFORMING WORK AND OBTAIN OWNER'S WRITTEN CONSENT PRIOR TO IMPLEMENTING.
20. 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 OWNER AND CONSULTANT.
21. IF EXISTING EQUIPMENT SHOWN ON DRAWINGS IS DEFECTIVE IT SHOULD BE BROUGHT TO THE CONSULTANT AND OWNERS ATTENTION PRIOR TO WORK COMPLETION.

INSTALLATION

22. INSTALL BOXES, CONDUIT AND WIRING THROUGH EXISTING AREAS AS REQUIRED FOR THE NEW INSTALLATION.
23. PATCH AND REPAIR WALLS AND CEILINGS IN EXISTING AREAS THAT HAVE BEEN DAMAGED OR CUT OPEN DUE TO THE NEW ELECTRICAL INSTALLATION.
24. WHERE NEW CABLES OR CONDUITS HAVE BEEN INSTALLED THROUGH EXISTING FIRE RATED WALLS, SEAL OPENING AROUND CABLES AND CONDUIT TO MAINTAIN FIRE RATING.
25. ALL EXISTING EQUIPMENT REUSED SHALL BE MADE GOOD AND GUARANTEED.
26. COMMUNICATIONS OR SECURITY INTERRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE A TIME SUITABLE TO THE BUILDING OCCUPANT(S).

GROUNDING AND BONDING

27. THE ENTIRE INSTALLATION SHALL BE GROUNDED/BONDED IN CONFORMANCE TO THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE AND BICSI OUTSIDE PLAN REFERENCE MANUAL 14TH EDITION.

28. ALL CONDUIT SHALL HAVE A SEPARATE INSULATED BONDING CONDUCTOR.

BOXES AND ENCLOSURES

29. OUTLET, JUNCTION AND SWITCH BOXES SHALL BE GALVANIZED STEEL AND SIZED ACCORDING TO THE ELECTRICAL CODE AND TO SUIT EACH APPLICATION.

MOUNTING HEIGHTS

30. MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTRE LINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE.

31. REVIEW ALL OTHER DISCIPLINE'S DRAWINGS AND COORDINATE.

CONDUITS AND CABLE

32. DRAWINGS DO NOT INDICATE ALL CONDUIT AND CABLE RUNS. THOSE INDICATED ARE IN DIAGRAMMATIC FORM ONLY.
33. MINIMUM CONDUIT SIZE SHALL BE 27MM UNLESS INDICATED OTHERWISE.

VIDEO SURVEILLANCE CAMERA

34. USE EXISTING RELOCATED CAMERA. ALL NEW VIDEO SURVEILLANCE CAMERA SHALL MATCH EXISTING INSTALLED IN THE FACILITY.

POWER SUPPLY, SWITCHES AND CONVERTERS

35. USE AVAILABLE SPARE PORTS ON EXISTING POE NETWORK SWITCH FOR EQUIPMENT REQUIRING POE POWER SUPPLY. OWNER IS RESPONSIBLE TO PROVIDE AND INSTALL NETWORK SWITCH AND POE NETWORK SWITCH REQUIRED FOR THE PROJECT.

EQUIPMENT IDENTIFICATION

36. IDENTIFY COMMUNICATIONS EQUIPMENT WITH NAMEPLATES AND LABELS SHALL FOLLOW EXISTING LABELLING STANDARDS IN THE FACILITY.
37. WORDING ON NAMEPLATES AND LABELS TO BE APPROVED BY CONSULTANT/OWNER PRIOR TO MANUFACTURE.
38. NAMEPLATES FOR SECURITY AND ALARM PANEL: INDICATE LOCATION OF EQUIPMENT BEING MONITORED AND VOLTAGE.
39. ALL EQUIPMENT SHALL HAVE A LAMACOID ON WHICH THE RACK, PATCH PANEL AND COMMUNICATIONS ROOM NUMBER FROM WHICH IT IS FED, IS INDICATED. THE IDENTIFICATION SHALL BE MECHANICALLY SECURED TO THE COVERPLATE ON THE APPROPRIATE EQUIPMENT.
40. LABEL ALL CABLES WITH MACHINE PRINTED LABEL MAKER SHALL BE RATED FOR INSTALLATION ON HARSH ENVIRONMENT AND THAT SHALL NOT PEEL-OFF DUE TO CHANGING TEMPERATURE.
41. ALL WIRING IS TO BE NUMBER TAGGED AT ALL POINTS OF CONNECTION WITH NUMERICAL NUMBER TAGS.

COMMUNICATIONS MATERIALS AND INSTALLATION

WIRING METHOD

42. INDOOR COMMUNICATIONS WIRING SHALL USE CATEGORY 6 TESTED TO 350MHZ SHALL MEET ANSI/TIA STANDARDS 586.2-D. ACCEPTABLE MANUFACTURERS: BELDEN, PANDUIT, COMMSCOPE, LEVITON.
43. OUTDOOR UNDERGROUND COMMUNICATIONS WIRING SHALL USE CATEGORY 6 CABLING FOR CABLE RUN LESS THAN 80M. IT SHALL BE TESTED TO 350MHZ AND SHALL MEET ANSI/TIA STANDARDS 586.2-D. ACCEPTABLE MANUFACTURERS: BELDEN, PANDUIT, COMMSCOPE, LEVITON.
44. RUN ALL CONDUIT AND CABLE CONCEALED, PARALLEL AND PERPENDICULAR TO BUILDING LINES, STAPLED AND/OR CLIPPED IN A NEAT WORKMANLIKE MANNER.
45. PROVIDE PATCH CORDS FOR ALL TERMINATED COPPER CABLES NECESSARY FOR A COMPLETE WORKING AND OPERATIONAL SYSTEM OF ALL EQUIPMENT.
46. PROVIDE NEW PATCH PANLE, RJ-45 JACKS, FACEPLATES, LABELING.
47. TEST ALL CABLES AND SUBMIT TEST RESULTS TO OWNER/CONSULTANT FOR REVIEW AND PRIOR TO EQUIPMENT INSTALLATION. ALL CABLES SHALL PASS PERMANENT LINK TEST FOR CATEGORY 6 CABLES.
48. PROVIDE EMT CONDUIT IN ACCORDANCE WITH TIA 569 WHERE STRUCTURED CABLING RACEWAYS ARE INSTALLED OUTSIDE OF THE CONCEALED ACCESSIBLE CEILING SPACES.

49. ALL CABLING PRODUCTS AND WORKMANSHIP MUST INCLUDE COVERAGE AS FOLLOWS:
- 49.1. SYSTEM APPLICATION WARRANTY FROM MANUFACTURER.
- 49.2. SYSTEM PERFORMANCE WARRANTY CERTIFICATE MUST BE PROVIDED BY THE SUBJECT WARRANTY MANUFACTURER.
- 49.3. THE SYSTEM APPLICATION WARRANTY TERM MUST BE A MINIMUM OF 25 YEARS PROVIDED BY THE WARRANTY UNDERWRITING MANUFACTURER, FROM THE DATE OF FINAL ACCEPTANCE OF THE PROJECT.
- 49.4. THE NAME AND ADDRESS OF THE BUILDING/FACILITY AND LOCATION OF SITE MUST APPEAR ON THE WARRANTY DOCUMENT.
- 49.5. THE COMMUNICATIONS SYSTEMS CONTRACTOR MUST BE FULLY APPROVED AND CERTIFIED BY THE PROPOSED WARRANTY UNDERWRITING MANUFACTURER PRIOR TO RESPONDING TO THE BID AS A PRE-QUALIFICATION.
- 49.6. TESTING SHALL BE PERFORMED BY TELECOMMUNICATIONS TECHNICIANS WHO ARE QUALIFIED TO PERFORM RELATED TESTS AS REQUIRED BY THE MANUFACTURER IN ACCORDANCE WITH THE MANUFACTURER'S METHODS.
- 49.7. THE ORIGINAL 25 YEAR WARRANTY CERTIFICATE FROM THE MANUFACTURER'S SHALL BE SUBMITTED TO THE AUTHORITY.



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Consultants

Legend

1	ISSUED FOR ADDENDUM #2	CB	AA
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Permit-Seal

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Certificate of Authorization
Stantec Consulting Ltd.

No. 1301

Client/Project
WINNIPEG TRANSIT MAINTENANCE FACILITY
OFFICE REDEVELOPMENT

421 OSBORNE ST. SOUTH, WINNIPEG, MB

Title
ELECTRICAL SPECIFICATION

Project No. 115421006	Scale 1/8"=1'-0"	
Drawing No. E-306	Sheet 18 of 18	Revision 1