

AN APPROVED EXPANSION FITTING COMPLETE WITH BONDING JUMPER AND CLAMPS SHALL BE INSTALLED. ELECTRICAL CONTRACTOR TO USE APPROVED EXPANSION JOINTS.

20. WIRE AND CABLE

- 20.1. ALL BUILDING WIRING TO BE APPROVED COPPER OR ALUMINUM.
- 20.2. MINIMUM CONDUCTOR SIZE IS #12 AWG TO BE USED.
- 20.3. SMALL CONDUCTORS FOR CONTROL OR LOW VOLTAGE WORK TO BE USED WHERE CALLED FOR ON DRAWINGS OR IN SPECIFICATIONS.
- 20.4. ALL CONDUCTORS TO BE COLOR CODED THROUGHOUT IN ACCORDANCE WITH THE FOLLOWING TO MATCH EXISTING:
 - EQUIPMENT GROUNDING CONDUCTOR – GREEN
 - NEUTRAL CONDUCTOR – WHITE
 - 120/208 VOLTS PHASE WIRES – RED, BLACK, AND BLUE

21. OUTLET BOXES

- 21.1. BOXES: HOT DIP GALVANIZED, CONFORMING TO CSA REQUIREMENTS.
- 21.2. USE CEILING FIXTURE BOX WITH CEILING GRID BRACKET FOR ALL INSTALLATIONS IN CEILING GRIDS.
- 21.3. BOXES FOR CEILING: #54151 OR #72171 OR SIMILAR APPROVED.
- 21.4. BOXES FOR INDOOR SURFACE MOUNTED EQUIPMENT, USE 4 INCH SQUARE #52151, #52171, #58361 OR SIMILAR APPROVED WITH APPROVED COVERS.
- 21.5. ALL OUTLET BOXES TO BE FLUSH MOUNTED EXCEPT AS SPECIFIED.
- 21.6. NO DRYWALL PLATES, PLASTER PLATES, BOXES WITH OPEN BACK, SECTIONAL, OR HANDY BOXES ALLOWED.

22. LOCATION OF OUTLETS

- 22.1. THE CONTRACT ADMINISTRATOR RESERVES THE RIGHT TO CHANGE LOCATION OF OUTLETS TO WITHIN THREE METERS OF POINTS INDICATED ON THE PLANS WITHOUT EXTRA CHARGE PROVIDING CONTRACTOR IS ADVISED BEFORE INSTALLATION IS MADE.
- 22.2. ELECTRICAL CONTRACTOR TO REFER TO ARCHITECTURAL ROOM ELEVATIONS FOR POSITION, AND MOUNTING HEIGHTS OF ALL OUTLETS, SWITCHES, INTERCOMMUNICATIONS, TELEPHONES, SPEAKERS, CLOCKS, AND THE LIKE. POSITIONS SHOWN ON ARCHITECTURAL PLANS TO TAKE PRECEDENCE OVER POSITIONS OR MOUNTING HEIGHTS SHOWN ON ELECTRICAL PLANS.

23. PULLBOXES

- 23.1. SUPPLY AND INSTALL PULLBOXES AS REQUIRED TO SUIT JOB CONDITIONS. PULLBOXES TO CONFORM TO CANADIAN ELECTRICAL CODE AND BE FINISHED IN ENAMEL OVER CORROSION-RESISTANCE PRIMER WITH SCREW-ON OR HINGED COVER. IN REMOVABLE CEILING AREAS, PULLBOXES ARE TO BE INSTALLED ABOVE THE CEILING. PULLBOXES IN FINISHED WALLS AND PLASTER OR NON-REMOVABLE CEILINGS TO HAVE OVERLAPPING TYPE TRIM WITH COVERS PRIME COATED AND PAINTED ON JOB TO MATCH WALL OR CEILING FINISH.

24. SWITCHES AND RECEPTACLES

- 24.1. LINE VOLTAGE SWITCHES TO BE RATED 15A, 125 VOLTS, OF MATCHING FINISH TO SURROUNDING, EXCEPT WHEN NOTED. TWO POLE, THREE WAY, FOUR WAY SWITCHES TO BE OF MATCHING TYPE.
- 24.2. STANDARD RECEPTACLES TO MATCH EXISTING OR EQUAL.
- 24.3. ISOLATED GROUND RECEPTACLES TO BE THREE WIRE, ORANGE FACE, STRAIGHT BLADE, COVER PLATE TO BE OF IMPACT RESISTANCE OF MATCHING FINISH TO SURROUNDING, EXCEPT WHEN NOTED.
- 24.4. PLATES FOR ALL FLUSH MOUNTING DEVICES TO BE OF THERMOPLASTIC WITH MATCHING FINISH TO SURROUNDING, EXCEPT WHEN NOTED.
- 24.5. PROVIDE LABELS FOR ALL RECEPTACLES.
- 24.6. FOR ALL RECEPTACLES OTHER THAN STANDARD 15A DUPLEX RECEPTACLES, PROVIDE TAGS GIVING AMP RATING, PHASE, AND VOLTAGE.

25. SUPPORTS

- 25.1. ALL SURFACE CONDUITS, ELECTRICAL EQUIPMENT, AND THE LIKE TO BE SECURELY AND ADEQUATELY SUPPORTED.
- 25.2. CABLES INSTALLED ON ROOF SHALL BE INSTALLED MECHANICALLY SECURED & SUPPORTED TO CABLE TRAY SYSTEM. SECURING CABLES TO ROOF RUBBER BLOCKS DIRECTLY IS NOT AN ACCEPTABLE MECHANICAL SUPPORT MEANS.
- 25.3. WHERE INSERTS ARE REQUIRED IN CONCRETE, EXPANSION INSERTS, LEAD INSERTS OR PLASTIC INSERTS TO BE USED IN DRILLED HOLES. SHORT DRIVEN PINS MAY BE USED IN STRUCTURAL CONCRETE ONLY WITH THE PERMISSION OF THE CONTRACT ADMINISTRATOR.
- 25.4. ELECTRICAL CONTRACTOR TO RETAIN THE SERVICES OF STRUCTURAL CONTRACT ADMINISTRATOR LICENCE IN THE PROVINCE OF THE PROJECT TO REVIEW & TO DESIGN SUPPORTS FOR ANY ELECTRICAL ITEMS HUNG FROM CEILING. PROVIDE CERTIFICATION LETTER FROM DESIGN CONTRACT ADMINISTRATOR HEREIN AFTER WORK COMPLETION.
- 25.5. SUPPLY & INSTALL ADEQUATE SOLID BACKING IN WALLS TO EXTEND AT LEAST TWO TIMES THE SQUARE AREA OF THE MOUNTING SURFACE OF THE FIXTURE INSTALLED FOR WALL MOUNTED EQUIPMENT.

26. GROUNDING

- 26.1. SUPPLY AND INSTALL COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE CANADIAN ELECTRICAL CODE AND THE ELECTRICAL INSPECTION DEPARTMENT. ALL COMPONENTS TO BE SECURELY AND ADEQUATELY GROUNDED AND WHERE REQUIRED TO ACCOMPLISH THIS, GROUNDING JUMPERS, GROUNDING STUDS AND BUSHING TO BE USED.
- 26.2. PROVIDE AN UN-INSULATED ISOLATED GROUND BUS IN NEW ELECTRICAL PANEL AND PROVIDE A #6 AWG INSULATED ISOLATED GREEN GROUND WIRE FROM ISOLATED GROUND BUS TO MAIN GROUND BUS IN BUILDING ELECTRICAL ROOM.

- 26.3. PROVIDE A #12 INSULATED ISOLATED GREEN GROUND WIRE FROM EACH ISOLATED GROUND OUTLET TO INSULATED ISOLATED GREEN GROUND BUS IN PANEL.
- 26.4. PROVIDE BONDING JUMPER ACROSS WATER METER.
- 26.5. ALL GROUND RODS SHALL BE INSTALLED IN LISTED PVC GROUND TEST WELL INSTALLED PER MANUFACTURER SPECIFICATIONS.

27. PANELS

- 27.1. NEW PANELS TO BE 120/208 VOLTS, 347/600 VOLTS, OR AS NOTED, 4 WIRE, SOLID NEUTRAL DESIGN WITH SEQUENCE STYLE BUSSING AND FULL CAPACITY NEUTRAL, COMPOSED OF AN ASSEMBLY OF BOLT IN PLACE TO ACCEPT MOLDED CASE CIRCUIT BREAKERS AS INDICATED WITH THERMAL AND MAGNETIC TRIP AND TRIP FREE POSITIONS SEPARATE FROM EITHER THE ON OR THE OFF POSITION. TWO AND THREE POLE BREAKERS TO HAVE A COMMON SIMULTANEOUS TRIP.
- 27.2. UTILIZE EXISTING PANELBOARDS AS INDICATED ON THE DRAWING. REUSE EXISTING BREAKERS WHERE IS POSSIBLE. PROVIDE NEW BREAKERS AS REQUIRED (FOR PROJECTS WITH EXISTING ELECTRICAL SERVICE AND DISTRIBUTION).
- 27.3. BALANCE PANEL LOAD FOR EACH PHASES, A, B, AND C. ALLOW FOR RELOCATING CIRCUITS WITHIN PANELBOARDS TO BALANCE THE LOAD.
- 27.4. PROVIDE COMPUTER PRINTED PANEL DIRECTORIES FOR ALL PANELS.
- 27.5. USE AFCI (ARC FAULT CIRCUIT INTERRUPTER) CIRCUIT BREAKERS FOR SLEEPING AREA CIRCUITS.

28. LIGHTING LUMINARIES AND LIGHTING CONTROLS

- 28.1. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL LIGHTING LUMINARIES COMPLETE WITH LAMPS, MOUNTING BRACKETS, BALLASTS AND ALL NECESSARY ACCESSORIES IN ACCORDANCE WITH THE LUMINARIES TYPES SHOWN.
- 28.2. ALL LIGHT FIXTURES' COLOR TEMPERATURE SHALL BE CONSISTENT.
- 28.3. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL LIGHTING CONTROLS WITH LINE VOLTAGE SWITCHES, DIMMER SWITCHES (RATED 1500 WATT), LOW VOLTAGE DIMMER SWITCHES, LOW VOLTAGE SWITCHES, LIGHTING RELAYS, BARRIER AND ALL CONTROL WIRING AND COMPONENTS TO SUIT THE LAYOUT. ALL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATION OF THE MANUFACTURER AND COMPLY WITH CODES.
- 28.4. LOW VOLTAGE MASTER SWITCHES AND BUILDING LIGHTING CONTROL SHALL HAVE THE CAPABILITY TO TURN ON AND OFF ALL LIGHTING (120 AND 347 VOLTS) WITH THE EXCEPTION OF LUMINARIES ON EMERGENCY LIGHTING CIRCUITS OR UN-SWITCHED NIGHT LIGHT CIRCUITS.
- 28.5. COORDINATE LIGHTING CONTROL PROGRAMMING WITH THE BUILDING SUPERVISOR.
- 28.6. ALL LIGHTING RELAYS SHALL BE LOCATED IN THE ELECTRICAL ROOM. PROVIDE NEW RELAY CABINET AS REQUIRED TO SUIT LAYOUT.
- 28.7. INSTALL OUTDOOR LIGHTING LUMINARIES TO BE CONTROLLED BY ASTRONOMICAL TIME-LOCK AND PHOTO SWITCH.
- 28.8. LIGHT STANDARD CONCRETE BASES, WHERE LIGHT STANDARD SPECIFIED, ARE TO BE PROVIDED BY GENERAL CONTRACTOR, WITH CONDUIT EMERGING FROM CENTER OF BASE.
- 28.9. LED LIGHT FIXTURES SHALL CARRY A MANUFACTURER WARRANTY FOR FIVE YEARS AT MINIMUM STARTING ONE DAY AFTER THE DATE OF THE FINAL CONTRACT ADMINISTRATOR'S CERTIFICATION LETTER.

29. EXIT LIGHTING AND EMERGENCY LIGHTING

- 29.1. PROVIDE NEW EXIT LIGHTS TO MATCH BUILDING STANDARD, EMERGENCY BATTERY UNITS, EMERGENCY REMOTE HEADS AND CONNECT LUMINARIES TO EMERGENCY LIGHTING CIRCUIT AS SHOWN ON THE DRAWINGS.
- 29.2. EMERGENCY BATTERY SHALL HAVE A FULL LOAD CAPACITY OF A PERIOD OF MINIMUM 30 MINUTES UNLESS IT IS SPECIFIED OTHERWISE ON THE DRAWINGS.
- 29.3. CHECK CIRCUIT LOADING OF ALL LIGHTING CIRCUITS AND EXIT LIGHTING CIRCUITS PRIOR TO CONNECTION. PROVIDE NEW CIRCUITS IF REQUIRED.
- 29.4. EMERGENCY LIGHTING SHALL BE INTERLOCKED WITH SPACE LIGHTING IN AREA OF SERVICE. PROVIDE VOLTAGE SENSING RELAY UNITS OR OTHER MEANS OF INTERLOCK ACCEPTABLE TO THE CONTRACT ADMINISTRATOR.

30. FIRE ALARM SYSTEM

- 30.1. PROVIDE NEW DEVICES OR RELOCATE EXISTING DEVICES AS SPECIFIED FOR A COMPLETE OPERATING FIRE ALARM SYSTEM AS REQUIRED BY CODE OR SHOWN ON THE DRAWINGS.
- 30.2. MANUAL PULL STATIONS WITH GLASS RODS USED AS PULL HANDLE RESTRAIN ARE NOT ACCEPTABLE.
- 30.3. LOCATE STROBE LIGHTS TO OBTAIN GREATEST VISIBILITY IN THE SPACE. USE ADDITIONAL STROBE LIGHTS TO ACHIEVE VISIBILITY.
- 30.4. USE LOOP ISOLATORS TO MAINTAIN/PROTECT THE CONTINUITY OF THE FIRE ALARM DETECTION CIRCUIT.
- 30.5. INSTALL FIRE ALARM DETECTORS IN THE OPTIMUM LOCATION TO ACHIEVE THE BEST DETECTION.
- 30.6. UPON COMPLETION OF SYSTEM MODIFICATIONS, ELECTRICAL CONTRACTOR TO HIRE BASE BUILDING FIRE ALARM CONTRACTOR TO PERFORM SYSTEM VERIFICATION, ENCOMPASSING ALL REVISIONS TO THE FIRE ALARM SYSTEM.
- 30.7. FIRE ALARM INSTALLATION TO COMPLY WITH CSA-S524-06 & VERIFIED TO CSA-S537-04.
- 30.8. INCLUDE AND PAY FOR INTEGRATED SYSTEMS TESTING OF ALL FIRE PROTECTION AND ALL LIFE SAFETY SYSTEMS IN THE CONTRACT PER CAN/ULC-S1001 INCLUDING PREPARATION OF TESTING PLAN. SUBMIT PLAN FOR CONTRACT ADMINISTRATOR'S REVIEW PRIOR TO TESTING COMMENCEMENT.

31. COMMUNICATION/DATA

- 31.1. PROVIDE OUTLET BOXES AND EMPTY CONDUITS WITH PULL STRING FOR COMMUNICATION OUTLETS AS SHOWN AND NOTED ON THE DRAWINGS.
- 31.2. INSTALL 1 INCH CONDUIT FROM EACH COMMUNICATION OUTLET -PHONE/CABLE/ETHERNET- TO COMMUNICATION BOARD/DEMARICATION POINT/NETWORK SERVER.
- 31.3. USE J-HOOKS IN ACCESSIBLE CEILING SPACES ONLY WHEN PERMITTED BY THE CONTRACT ADMINISTRATOR, USE CONDUITS IN CONCEALED SPACES OR TO PASS THROUGH PARTITIONS/WALLS.
- 31.4. WHERE WIRING IS INCLUDED IN CONTRACT, TESTING OF ALL WIRING SHALL BE DOCUMENTED AND PRESENTED TO THE CONTRACT ADMINISTRATOR UPON REQUEST.

32. EQUIPMENT IDENTIFICATION

- 32.1. PROVIDE COMPUTER PRINTED LABELS OR LAMACOID ENGRAVED PLATES IN INDUSTRY ACCEPTABLE STANDARDS TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR TO BE SUITABLE FOR INSTALLATION ENVIRONMENT.
- 32.2. IDENTIFICATION TO BE AFFIXED TO EQUIPMENT, PANELS, SAFETY AND DISCONNECT SWITCHES, TRANSFORMERS, PULL BOXES, TERMINAL CABINETS, BATTERY BANKS, RECEPTACLES, AND ALL OTHER EQUIPMENT ON THE DRAWINGS.
- 32.3. IDENTIFICATION WORDING TO BE APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO PRINTING OR PRIOR TO ORDER.

33. GENERAL

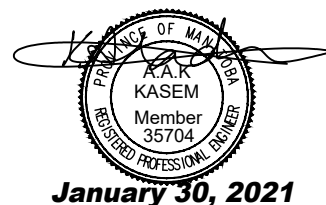
- 33.1. COORDINATE AND GET APPROVAL FROM BUILDING OWNER OR HIS REPRESENTATIVE FOR ALL CORING AND CUTTING OF BUILDING STRUCTURE. X-RAY AND COORDINATE LOCATION ON SITE PRIOR TO CORING.
- 33.2. CLEAN UP AND REMOVE ALL UNUSED WIRING AND CONDUITS.
- 33.3. REWIRE EXISTING LIGHTING AND POWER THAT ARE AFFECTED BY THIS CONSTRUCTION.
- 33.4. ALLOW AFTER HOUR WORK AND PROVIDE TEMPORARY POWER AND LIGHTING TO SUIT CONSTRUCTIONS SCHEDULE AND PHASES.
- 33.5. CONFIRM OUTLET LOCATIONS AND MOUNTING HEIGHT WITH PROJECT COORDINATOR ON SITE PRIOR TO INSTALLATION.
- 33.6. FIRE PROOF ALL FIRE RATED PENETRATIONS AFTER INSTALLATION TO COMPLY WITH CODES AND TO PROVIDE EQUAL FIRE SEPARATION RATING.
- 33.7. ELECTRICAL EQUIPMENT INSTALLED IN SPRINKLERED BUILDING SHALL BE COMPLETE WITH DRIP PROOF HOOD.
- 33.8. ELECTRICAL CONTRACTOR TO REPAIR TO FULLY WORKING CONDITION ANY ELECTRICAL INSTALLATION AFFECTED BY THIS CONTRACT (FOR WORK IN OR ADJACENT TO EXISTING BUILDINGS.)
- 33.9. INSTALL BASEBOARD HEATERS 4" ABOVE FINISH FLOOR LEVEL.
- 33.10. SUPPLY & INSTALL 3/4" PLYWOOD C/W FIRE RETARDANT PAINT BEHIND ELECTRICAL PANEL & FOR COMMUNICATION BOARD. INCLUDE PAINT MANUFACTURER CERTIFICATE OF COMPLIANCE AS PART OF O&M MANUAL.
- 33.11. ELECTRICAL CONTRACTOR TO SUPPLY & INSTALL PAINT & MUD PROTECTION FOR ELECTRICAL ROUGH-IN INSTALLATIONS INCLUDING WIRES, BOXES, AND THE LIKE.
- 33.12. INSTALL ELECTRICAL WIRING AND CONNECTIONS FOR POWER DOOR OPERATORS AS SPECIFIED ON PROJECT DRAWINGS. COORDINATE WITH MANUFACTURER AND SUPPLIER.
- 33.13. CAULK ALL PENETRATIONS IN ASSEMBLIES USED FOR ELECTRICAL INSTALLATION TO RESTORE COMPARABLE FINISH AND TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.

IBASA Electrical Engineering
ENTERPRISES Design & Consulting
490 Paul Blvd. Winnipeg, MB R2N 4C8
T. 204-515-1158
info@ibasa.ca www.ibasa.ca

COPY RIGHT RESERVED:
THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE THE DRAWING - ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO IBASA ENTERPRISES INC.
THE COPYRIGHTS TO ALL DESIGNS AND DRAWINGS ARE THE PROPERTY OF IBASA ENTERPRISES INC. REPRODUCTION OR USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY IBASA ENTERPRISES INC. IS FORBIDDEN.

E				
D RE-ISSUED FOR CONSTRUCTION	AK	AK	21	02 26
C RE-ISSUED FOR CONSTRUCTION	AK	AK	21	02 04
B ISSUED FOR CONSTRUCTION	AK	AK	21	01 30
A ISSUED FOR REVIEW	AK	AK	21	01 21
ISSUED	BY	APPR.	DATE	

SEAL:



CLIENT: BRIDGMAN COLLABORATIVE ARCHITECTURE
678 MAIN STREET
WINNIPEG, MB R3B 1E4
(204)488-3857
PROJECT TITLE: LOO LOO WINNIPEG
715 MAIN ST., WINNIPEG, MB
BID OPPORTUNITY 54-2021

SHEET TITLE: INSTALLATION SPECIFICATIONS-PART 2
PROJECT NO: 201231
SCALE: NTS
DESIGNED BY: AK
DRAWN BY: AK
REVIEWED BY: AK

SHEET NO:

E08.2