13.1. SUPPLY AND INSTALL MAGNETIC AND MANUAL MOTOR STARTERS WHERE INDICATED. STARTERS SHALL BE EQUAL TO EATON TYPE A200 MAGNETIC AND MS OR B–COMPLETE WITH 100 MANUAL COMPLETE WITH BUILT–IN HEATERS SIZED FOR MOTOR RATING.
13.2. PROVIDE CONTROL TRANSFORMERS AND AUXILIARY CONTACTS AS REQUIRED FOR CONTROL CONNECTIONS.

14. WIRING METHODS
14.1. ALL WIRING SHALL BE COPPER UNLESS INDICATED OTHERWISE.
14.2. FEEDER CONDUCTORS FROM SERVICE EQUIPMENT TO PANELBOARDS TO BE SIZED FOR MAXIMUM VOLTAGE DROP OF 2%.
14.3. BRANCH CIRCUIT WIRING SHALL BE MIN. #12 AWG 90C RATED IN EMT. AC–90 MAY BE USED WHERE PERMITTED BY CODE. ENT MAY BE USED FOR WIRING IN POURED CONCRETE WHERE PERMITTED BY CODE. WHERE WIRE SIZE IS NOT INDICATED, AMPACITY MUST MATCH OR EXCEED THAT OF PROTECTIVE DEVICE.
14.4. FEEDERS SHALL BE 90C RATED WIRE IN EMT. TECK 90, ACWU 90, AND AC–90 CABLES MAY BE USED FOR CONCEALED WIRING WHERE PERMITTED BY CODE, UNLESS SPECIFICALLY NOTED OTHERWISE.
14.5. BRANCH CIRCUIT WIRE SIZES INDICATED ON ANY EQUIPMENT SCHEDULES ARE RATED ON 90C. WHERE EQUIPMENT IS MARKED WITH A MAXIMUM CONDUCTOR TERMINATION TEMPERATURE THEN WIRE SIZE TO BE REVISED AS PER 4–006 OF CEC.
14.6. WIRING PENETRATING ANY HORIZONTAL OR VERTICAL ASSEMBLY REQUIRED TO HAVE A FIRE–RESISTANCE RATING SHALL BE IN ACCORDANCE WITH THE LOCAL BUILDING CODE. CONDUITS OR CABLES SHALL BE TIGHTLY FITTED AND FIRE STOPPED WHERE NECESSARY TO MAINTAIN FIRE RATING, AS FOLLOWS:
14.6.1. FOR COMBUSTIBLE PENETRATIONS THROUGH A FIRE SEPARATION PROVIDE A FIRESTOP SYSTEM WITH AN "F" RATING AS DETERMINED BY ULC OR CUL WHICH IS EQUAL TO THE FIRE RESISTANCE RATING OF THE CONSTRUCTION BEING PENETRATED. COMBUSTIBLE CABLES AND RACEWAYS SHALL BE MAX. 25 MM DIAMETER.
14.6.2. FOR PENETRATIONS THROUGH A FIRE WALL OR HORIZONTAL FIRE SEPARATION PROVIDE A FIRESTOP SYSTEM WITH A "FT" RATING AS DETERMINED BY ULC OR CUL WHICH IS EQUAL TO THE FIRE RESISTANCE RATING OF THE CONSTRUCTION BEING PENETRATED.
14.6.3. INSTALL FIRESTOP MATERIALS IN ACCORDANCE WITH ULC FIRE RESISTANCE DIRECTORY OR UL PRODUCTS CERTIFIED FOR CANADA (CUL) DIRECTORY.
14.6.4. COMPLY WITH MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF THROUGH–PENETRATION MATERIALS.
14.6.4.1. SEAL ALL HOLES OR VOIDS MADE BY PENETRATIONS TO ENSURE AN AIR AND WATER RESISTANT SEAL.
14.6.4.2. PROTECT MATERIALS FROM DAMAGE ON SURFACES SUBJECTED TO TRAFFIC.
14.7. PROVIDE GROUND WIRE IN ALL CONDUITS IN CONCRETE SLABS AND IN ALL BURIED CONDUITS AS REQUIRED BY CODE.
14.8. PROVIDE SUFFICIENT LENGTH OF FLEXIBLE CONDUIT OR CABLE COILED NEATLY IN CEILING SPACE TO ALLOW FOR 10'0" RELOCATION POTENTIAL FOR ALL RECESSED LUMINAIRES.

15. BASIC METHODS
15.1. INSTALL WIRING CONTINUOUSLY WITHIN RACEWAYS OR CABLES; SPLICES WILL BE PERMITTED ONLY AT OUTLETS AND JUNCTION BOXES. SUFFICIENT SLACK SHALL BE LEFT AT THESE POINTS TO PERMIT PROPER CONNECTION OF LUMINAIRES, DEVICES, EQUIPMENT, ETC.
15.2. ALL WIRING SHALL BE RUN CONCEALED IN CEILING, WALLS OR FLOOR WHEREVER POSSIBLE. ANY EXPOSED CONDUITS OR CABLES SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO BUILDING LINES AND IN A NEAT MANNER.
15.3. INSTALL PULL BOXES IN THE LOCATIONS SHOWN ON THE DRAWINGS AND AS FURTHER REQUIRED BY THE CANADIAN ELECTRICAL CODE. PULL BOXES SHALL BE LOCATED IN INCONSPICUOUS SPACES.
15.4. WHERE DEVICES ARE SHOWN ABOVE FIXED MILLWORK, MOUNT OUTLETS 6" ABOVE COUNTER OR BACKSPLASH. COORDINATE WITH MILLWORK INSTALLER AND ENSURE THAT OUTLETS DO NOT CONFLICT WITH BACKSPLASH.

16. WIRING DEVICES
16.1. LIGHT SWITCHES SHALL BE COMMERCIAL GRADE, 15A. PROVIDE 20A SWITCHES WHERE INDICATED. ALL SWITCHES SHALL BE WHITE, UNLESS OTHERWISE NOTED.
16.2. CEILING MOUNTED OCCUPANCY SENSORS SHALL BE SENSORSWITCH CMR PDT 9 DUAL TECHNOLOGY
16.3. WALL MOUNTED OCCUPANCY SENSOR SHALL BE SENSORSWITCH WSX PDT 2P FAN WH
16.4. RECEPTACLES SHALL BE COMMERCIAL GRADE, 15A, WHITE FINISH.
16.5. WIRING DEVICES AND COVERPLATES SHALL BE OF ONE MANUFACTURER; BRYANT, G.E., HUBBELL, LEVITON OR P & S.
16.6. ALL COVER PLATES SHALL BE THERMOPLASTIC IN FINISHED AREAS. PROVIDE STAMPED METAL COVER PLATES IN OTHER AREAS. PROVIDE WEATHERPROOF 'WHILE IN–USE' COVERS FOR EXTERIOR RECEPTACLES.
16.7. GROUND FAULT CIRCUIT INTERRUPTING (GFI) DUPLEX RECEPTACLES SHALL BE COMMERCIAL GRADE COMPLETE WITH LED INDICATOR LIGHT.

17. LIGHTING
17.1. EXCEPT AS NOTED, PROVIDE ALL LUMINAIRES AND LAMPS AS INDICATED ON THE LUMINAIRE SCHEDULE, AND ALL SUPPORTS AND WIRING AS REQUIRED TO MAKE OPERATIONAL THE LIGHTING SYSTEM AS INDICATED ON THE DRAWINGS.

18. EXIT AND EMERGENCY LIGHTING
18.1. PROVIDE AN EXIT AND EMERGENCY LIGHTING SYSTEM CONSISTING OF INDIVIDUAL SOLID STATE BATTERY UNITS, REMOTE HEADS AND EXIT LIGHTS IN ACCORDANCE WITH THE LOCAL BUILDING CODE AND LOCAL REQUIREMENTS AND/OR BYLAWS.
18.2. BATTERY UNITS SHALL BE EQUAL TO AIMLITE EBST SERIES COMPLETE WITH LONG LIFE LEAD BATTERIES, TYPE 6W LED 12V INTEGRAL HEADS. PROVIDE WHITE FINISH. CAPACITIES TO BE SIZED TO SUITE.
18.3. REMOTE HEADS SHALL BE EQUAL TO AIMLITE RMMD DOUBLE COMPLETE WITH 6W 12V LED. PROVIDE WHITE FINISH.
18.4. INTERLOCK EMERGENCY UNIT EQUIPMENT WITH NORMAL LIGHTING CIRCUIT IN AREA TO ACTIVATE EMERGENCY LIGHTING UPON LOSS OF POWER.
18.5. WIRING TO REMOTE HEADS AND EXIT LIGHT DC SOCKETS SHALL BE SIZED TO PREVENT VOLTAGE DROP IN EXCESS OF 5%. CONNECT TO BATTERY UNITS AS INDICATED. PROVIDE SEPARATE CIRCUITS FOR ALL EXIT LIGHTING USING SEPARATE RACEWAYS FROM NON–EMERGENCY WIRING.
18.6. FOLLOWING COMPLETION OF THE EXIT AND EMERGENCY LIGHTING INSTALLATION, CONDUCT TESTS OF EACH SYSTEM COMPONENT. UPON COMPLETION OF THE TESTS, ISSUE TO THE ENGINEER A COPY OF THE TEST REPORT LISTING LOCATION OF EACH COMPONENT AND CONFIRMATION THAT IT WILL REMAIN OPERATIONAL FOR 30 MINUTES.
18.7. APPROVED ALTERNATE MANUFACTURERS ARE BEGHELLI, AND LUMACELL.

19. MECHANICAL AND OTHER EQUIPMENT
19.1. PROVIDE WIRING, CONNECTIONS, STARTERS, DISCONNECTS AND CONTROLS FOR MECHANICAL EQUIPMENT AND FOR OTHER EQUIPMENT SUPPLIED AND INSTALLED BY OTHERS.
19.2. PROVIDE FLEXIBLE CONNECTIONS TO MECHANICAL EQUIPMENT FOR VIBRATION ISOLATION. NMD–90 MAY BE USED FOR CONNECTIONS TO CEILING MOUNTED EXHAUST FANS WHERE PERMITTED BY CODE. CONNECTIONS TO EQUIPMENT ROOF MOUNTED OR IN OTHER DAMP OR WET LOCATIONS SHALL BE LIQUID–TIGHT.
19.3. IN GENERAL, ALL CONTROL WIRING WILL BE BY MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED. WHERE 120 VOLT POWER IS REQUIRED FOR MECHANICAL EQUIPMENT, WIRING TO THE EQUIPMENT TERMINALS IS THE WORK OF THE ELECTRICAL CONTRACTOR.
19.4. REFER TO THE MECHANICAL DRAWINGS AND SPECIFICATIONS TO CONFIRM ELECTRIC CHARACTERISTICS AND CONTROLS FOR ALL MECHANICAL EQUIPMENT AND SYSTEMS.
19.5. RECEPTACLES FOR MAINTENANCE OF EQUIPMENT LOCATED ON ROOF SHALL BE

PROVINCE OF MANITOBA
2019.10.17
M. G. ZUBACH
Member
24380
REGISTERED PROFESSIONAL ENGINEER

Smith + Andersen
2031 Portage Avenue 2nd Floor Winnipeg Manitoba R3J 0K8
204 885 8666 smithandandersen.com

REV	DESCRIPTION	DATE	BY
5	RE–ISSUED FOR CONSTRUCTION	2019.10.17	
4	ISSUED FOR CONSTRUCTION	2019.10.11	
3	ISSUED FOR 90% REVIEW	2019.09.13	
2	ISSUED FOR REVIEW	2019.09.05	
1	ISSUED FOR REVIEW	2019.09.03	MZ

SEAL:

APEGM
Certificate of Authorization
SMITH + ANDERSEN
No. 5990

DRAWING:
ELECTRICAL SPECIFICATIONS

PROJECT:
Interior Reno - Washroom
KILDONAN PARK CLUBHOUSE
2015 Main Street, WPG, MB

Neil Cooper Architect
109-374 River Avenue, Winnipeg, Manitoba R3L 0E4

DRAWN BY:	CHECKED BY:	SHEET NO:	REV NO:
MZ	MZ	E5.1	

DATE: JAN 29, 2019
SCALE: NTS
FILE: H:\2019\19482\Current–E\E5.0 ELECTRICAL SPECIFICATION.dwg