SPECIFICATIONS - ELECTRICAL

PART A - GENERAL

1. CODES & REGULATIONS

1.1. ALL WORK SHALL COMPLY WITH THE LATEST EDITIONS OF THE BUILDING CODE, ELECTRICAL CODE, C.S.A. STANDARDS, UNDERWRITERS' LABORATORIES, ALL APPLICABLE LOCAL CODES, AND ALL OTHER AUTHORITIES HAVING JURISDICTION. THESE CODES AND REGULATIONS CONSTITUTE AN INTEGRAL PART OF THE SPECIFICATIONS.

2. BUILDING STANDARDS

2.1. COMPLETE ALL ELECTRICAL WORK IN ACCORDANCE WITH THE RELEVANT SECTIONS OF THE BASE BUILDING SPECIFICATIONS, DRAWINGS, AND STANDARDS TO THE SATISFACTION OF THE CONSULTANT AND/OR THE BUILDING OWNER. THE BASE BUILDING DOCUMENTS WILL BE MADE AVAILABLE FOR REVIEW BY THE BUILDING OWNER IF SO REQUIRED.

3. SITE VISIT

3.1. THIS CONTRACTOR SHALL VISIT THE SITE AND EXAMINE ALL DRAWINGS CAREFULLY TO DETERMINE THE EXTENT OF WORK AFFECTING THE EXISTING BUILDING. DETERMINE AND INCLUDE IN THE TOTAL PRICE, THE TOTAL COST OF LABOUR AND MATERIAL TO DISCONNECT, REMOVE, RELOCATE, BLANK OFF, REROUTE OR MAKE SAFE ALL EXISTING SERVICES, CONDUITS, WIRE, BOXES, LUMINAIRES AND EQUIPMENT AS REQUIRED.

3.2. NO CLAIM FOR EXTRA COST FOR ADDITIONAL WORK WILL BE ENTERTAINED FOR OBVIOUS CONSIDERATIONS THAT MAY HAVE BEEN OVERLOOKED.

4. PERMITS & INSPECTIONS

4.1. THIS CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND INSPECTIONS AS REQUIRED OR REQUESTED.

4.2. ONCE ALL WORK HAS BEEN COMPLETED AND ACCEPTED BY THE OWNER, THIS CONTRACTOR SHALL PROVIDE THE OWNER WITH CERTIFICATES VERIFYING THAT THE WORK HAS BEEN COMPLETED IN ACCORDANCE WITH ALL CODES, BUILDING STANDARDS AND ALL AUTHORITIES HAVING JURISDICTION.

5. INSURANCE

5.1. PROVIDE INSURANCE FOR THE DURATION OF THE PROJECT TO PROTECT THE BUILDING OWNER, AND TRADES FROM ALL CLAIMS. SUBMIT, AT THE TIME OF THE BID, PROOF OF AN AMOUNT ACCEPTABLE TO BUILDING OWNER.

6. CONTRACT DOCUMENTS

6.1. THE DRAWINGS FOR THE WORK OF THIS DIVISION ARE IN PART DIAGRAMMATIC INTENDED TO CONVEY THE SCOPE OF WORK, GENERAL ARRANGEMENT, APPROXIMATE SIZES AND LOCATIONS OF THE EQUIPMENT AND OUTLETS.

6.2. REPORT ANY DISCREPANCIES ON THE ENGINEER'S DRAWING TO THE ENGINEER PRIOR TO INSTALLATION.

6.3. WHENEVER DIFFERENCES OCCUR BETWEEN PLANS AND DIAGRAMS, SCHEMATICS, AND BETWEEN SPECIFICATIONS AND DRAWINGS, THE MAXIMUM CONDITION SHALL GOVERN AND THE TENDER SHALL BE BASED ON WHICHEVER IS THE GREATER AMOUNT.

7. SHOP DRAWINGS

7.1. SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT, ACCESSORIES, AND O/H DOOR SYSTEM, AS REQUESTED BY ENGINEER, UNLESS OTHERWISE NOTED. EACH SHOP DRAWING SHALL BE CHECKED AND STAMPED AS BEING CORRECT BY THE GENERAL CONTRACTOR AND THE APPROPRIATE TRADE BEFORE SUBMISSION TO THE ENGINEER FOR APPROVAL.

8. RECORD DRAWINGS

8.1. KEEP A RECORD SET OF DRAWINGS ON THE SITE ON WHICH SHALL BE CLEARLY INDICATED, THE EXACT LOCATION OF ALL OUTLETS, FIXTURES, FEEDER RUNS, PANELS, CONDUITS, JUNCTION BOXES, PULL BOXES, ETC. INFORMATION ON THESE DRAWINGS SHALL BE INCORPORATED IN THE AS-BUILT DRAWINGS UPON COMPLETION OF THE PROJECT.

9. EXTRA WORK

9.1. IN CASES WHERE EXTRA WORK OF ANY KIND IS REQUIRED, OBTAIN WRITTEN INSTRUCTIONS FROM THE DESIGN CONSULTANT BEFORE PROCEEDING. PAYMENTS WILL BE MADE FOR AUTHORIZED CHANGES ONLY.

9.2. QUOTATION WITH BREAKDOWN OF MATERIAL, LABOUR, OVERHEAD, PROFIT, ETC. SHALL BE SUBMITTED FOR EACH CHANGE. LABOUR UNITS SHALL BE BASED ON THE LATEST NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) LABOUR UNITS COLUMN ONE FOR THE COMPLETE DURATION OF THE PROJECT. MATERIAL PRICES SHALL BE BASED ON THE CURRENT NATIONAL PRICE SYSTEM WITH TRADE DISCOUNTS. HOURLY LABOUR RATE SHALL INCLUDE ALL RELATED CHARGES FOR SUPERVISION, HYDRO INSPECTION, HAND TOOLS, PARKING, CLEAN-UP, AS-BUILT DRAWINGS AND ADDITIONAL BONDING.

10. WARRANTY

10.1. THIS CONTRACTOR SHALL PROVIDE THE TENANT WITH A WRITTEN ONE-YEAR WARRANTY, COMMENCING ON THE DATE OF SUBSTANTIAL PERFORMANCE. THE WARRANTY SHALL COVER THE COMPLETE INSTALLATION. THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DEFECTS IN MATERIALS OR WORKMANSHIP THAT OCCUR DURING THE WARRANTY PERIOD AT A TIME CONVENIENT TO THE TENANT/BUILDING OWNER, AND AT NO EXTRA COST.

11. AS-BUILTS

11.1. PROVIDE AS-BUILT DRAWINGS OF THE ACTUAL INSTALLATION AS ELECTRONIC FILES IN AUTOCAD COMPATIBLE FORMAT. CONTRACTOR MAY OBTAIN CONSULTANT'S AUTOCAD FILES AT A CHARGE OF $50.00 PER DRAWING FILE; MINIMUM CHARGE IS $150.00 PER PROJECT."

11.2. AS-BUILT DRAWINGS SHALL INCORPORATE ALL CHANGES AND DEVIATIONS FROM TENDER DRAWINGS, INCLUDING ALL MAIN CONDUIT RUNS, CABLE TRAYS, JUNCTION BOXES, AND INFORMATION RECORDED ON RECORD DRAWINGS DURING CONSTRUCTION.

11.3. ENGINEER'S STAMP AND COMPANY LOGO SHALL BE REMOVED FROM DRAWINGS. DRAWINGS SHALL BE MARKED "AS-BUILT" ALONG WITH ELECTRICAL CONTRACTOR'S NAME.

12. CLOSE-OUT DOCUMENTS

12.1. AFTER COMPLETION OF THE PROJECT, PROVIDE THE FOLLOWING DOCUMENTS TO THE BUILDING OWNER, AND THE ENGINEER,

12.1.1. THREE SETS OF FULL SIZE AS-BUILT DRAWINGS ALONG WITH PDFS.
12.1.2. HYDRO ELECTRICAL INSPECTION REPORT.
12.1.3. CONTRACTOR'S WRITTEN WARRANTY.
12.1.4. WRITTEN WARRANTY FOR O/H DOOR.

13. APPLICATION OF PAYMENT

13.1. SUBMIT A COMPLETE BREAKDOWN OF THE CONTRACT WITH EACH PROGRESS BILLING, INDICATING PERCENTAGE OF WORK COMPLETE, IN A FORM ACCEPTABLE TO THE OWNER/CONSULTANT.

13.2. THE CONTRACTOR SHALL PROVIDE A WORK BREAKDOWN STRUCTURE TO INCLUDE AN ITEMIZED LIST OF WORK AND ASSOCIATED COST STRUCTURE FOR CONSULTANT REVIEW PRIOR TO THE FIRST BILLING.

13.3. THE WORK BREAKDOWN SEPARATE SUPPLY AND INSTALLATION WHERE MATERIAL COST EXCEEDS $30,000.

13.4. PROGRESS DRAW BREAKDOWNS SHALL INCLUDE BOTH DOLLAR VALUE AND PERCENTAGE VALUE FOR THE FOLLOWING: CONTRACT VALUE, CURRENT BILLING, PREVIOUS BILLING, AND COMPLETE TO DATE CATEGORIES.

13.5. THE CONTRACTOR MAY CLAIM A MAXIMUM OF 95% AGAINST THE SUPPLY CATEGORY UNTIL SUCH TIME AS THE SYSTEM IS INSTALLED AND IS FULLY FUNCTIONAL.

13.6. WHERE INDICATED AS A SEPARATE CATEGORY, ANY SYSTEMS REQUIRING PROGRAMMING OR MANUFACTURER START-UP SHALL BE SUBJECT TO A MINIMUM 10% HOLD IN ADDITION TO THE ABOVE, UNTIL SUCH TIME AS THE SYSTEM IS FULLY FUNCTIONAL.

13.7. WHERE NOT INDICATED AS A SEPARATE CATEGORY, ANY SYSTEMS REQUIRING TESTING OR TEST RESULTS SHALL BE SUBJECT TO A MINIMUM 10% HOLD IN ADDITION TO THE ABOVE, UNTIL SUCH TIME AS THE SYSTEM IS FULLY FUNCTIONAL.

13.8. PROGRESS DRAWINGS SHALL BE ACCOMPANIED WITH COLORED PHOTOGRAPHS SUBSTANTIATING THE PROGRESS DRAW.

14. SUBSTANTIAL PERFORMANCE

14.1. SUBSTANTIAL PERFORMANCE OF THE WORK WILL BE GIVEN BY THE OWNER OR OWNER S DESIGNATED REPRESENTATIVE AND CONSULTANT WHEN:

14.2. THE CONDITIONS AS DEFINED IN THE CCDC2 CONTRACT DOCUMENT HAVE BEEN SATISFIED.

14.3. THE COMPLETE SYSTEM HAS OPERATED FOR THIRTY (30) CONSECUTIVE DAYS WITHOUT A MALFUNCTION OF THE CONTROL EQUIPMENT OR ANY NEW FIELD DEVICE.

14.4. THE COMPLETE SYSTEM HAS BEEN INSPECTED, TESTED, AND ACCEPTED IN WRITING BY THE OWNER OR OWNER S DESIGNATED REPRESENTATIVE AND CONSULTANT.

14.5. REQUIRED SUBMITTALS, INCLUDING MAINTENANCE MANUALS, TEST-REPORTS, SPARE PARTS, SPECIAL TOOLS, TRAINING, AND COPIES OF TRAINING CERTIFICATES HAVE BEEN PROVIDED TO, REVIEWED BY AND ACCEPTED IN WRITING BY OWNER AND OWNER S DESIGNATED REPRESENTATIVE AND CONSULTANT.

14.6. TOTAL PERFORMANCE OF WORK WILL BE GIVEN BY THE OWNER S DESIGNEE AND CONSULTANT WHEN:

14.6.1. SUBSTANTIAL PERFORMANCE HAS BEEN ACHIEVED.

PART B - EXECUTION

1. WORKMANSHIP

1.1. ALL WORK SHALL BE CARRIED OUT AND PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE DESIGN CONSULTANT. ANY UNSATISFACTORY WORK BY THIS DIVISION SHALL BE REPLACED WITHOUT EXTRA COST TO THE OWNER.

1.2. THE CONSTRUCTION SITE SHALL BE KEPT CLEAN AND ANY DEBRIS AND CONSTRUCTION MATERIAL SHALL BE REMOVED FROM THE SITE THROUGHOUT THE CONSTRUCTION PERIOD AND ON COMPLETION OF THE WORK.

2. SCHEDULING

2.1. ALL WORK SHALL BE SCHEDULED AND COORDINATED TO AVOID ANY CONFLICTS WITH OTHER TRADES, BUILDING OWNER AND TENANT(S) DURING OR AFTER CONSTRUCTION. ALLOW FOR ALL NECESSARY PREMIUM TIME, ALL ALLOWANCE FOR THIS SHALL BE INCLUDED IN THE TENDER PRICE.

3. DELIVERY OF EQUIPMENT

3.1. DELIVERY SCHEDULE OF ALL MAJOR ITEMS OF EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE SUBMITTED IN WRITING TO THE GENERAL CONTRACTOR AT THE START OF THE PROJECT. FAILURE TO IDENTIFY DELIVERY PROBLEMS MAY RESULT IN DELAY CLAIMS.

4. TEMPORARY POWER

4.1. PROVIDE TEMPORARY ELECTRICAL POWER FOR THE WORK OF THIS TRADE AND OTHER TRADES AS REQUIRED BY THE GENERAL CONTRACTOR OR THE OWNER.

5. LOCATION OF OUTLETS

5.1. THE DESIGN CONSULTANT SHALL HAVE THE RIGHT, AT ANY TIME, TO CHANGE THE LOCATION OF ANY OUTLET UP TO TEN FEET WITHOUT EXTRA COST TO THE TENANT, PROVIDED THAT NOTIFICATION OF SUCH CHANGES ARE ISSUED PRIOR TO THE INSTALLATION OF THE OUTLET.

6. ROUTING OF EQUIPMENT

6.1. NEW CONDUITS AND OTHER NEW SERVICES SHALL BE CAREFULLY ROUTED SO THAT THEY DO NOT INTERFERE WITH ANY EXISTING INSTALLATIONS. ROUTING OF EQUIPMENT IN BUILDINGS SHALL BE REVIEWED AND APPROVED BY BUILDING OWNER PRIOR TO INSTALLATION. ANY EXISTING CONDUITS, CABLE TRAYS, BUS DUCTS OR OTHER SERVICES THAT INTERFERE WITH THE NEW INSTALLATION SHALL BE RELOCATED UNDER THIS CONTRACT.

6.2. SAWCUT AND BACKFILL FOR NEW DUCTBANK.

6.2.1. REFER TO SECTION FOR DIVISION 1 FOR REQUIREMENTS.

7. CUTTING AND PATCHING

7.1. ALL CUTTING AND PATCHING REQUIRED TO THE BUILDING STRUCTURE FOR THE WORK SHALL BE INCLUDED AS PART OF THIS CONTRACT, UNLESS OTHERWISE ADVISED BY THE GENERAL CONTRACTOR.

8. NOISE & VIBRATION

8.1. ALL ELECTRICAL EQUIPMENT SHALL OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION TO THE OWNER'S SATISFACTION.

9. MECHANICAL WIRING

9.1. CONTROL WIRING FOR ALL MOTOR EQUIPMENT TO BE SUPPLIED AND INSTALLED BY THIS CONTRACTOR. ALL STARTERS TO BE SUPPLIED BY AND INSTALLED BY THIS CONTRACTOR UNLESS OTHERWISE NOTED. THIS CONTRACTOR TO PROVIDE ALL POWER WIRING AND REQUIRED DISCONNECT SWITCHES.

10. GROUNDING

10.1. ALL GROUNDING SHALL CONFORM TO THE ELECTRICAL SAFETY CODE AND LOCAL AUTHORITY REQUIREMENTS.

10.2. PROVIDE SEPARATE GREEN INSULATED GROUND CONDUCTOR IN EVERY POWER CONDUIT TO ALL DEVICES, LUMINAIRES, EQUIPMENT, AND WITH ALL FEEDERS.

11. DIRECTORY

11.1. PROVIDE TYPEWRITTEN DIRECTORIES FOR NEW AND EXISTING PANELBOARDS WITHIN THE AREA OF WORK, TO REFLECT THE LATEST REVISIONS. LABELING TO BE BASED ON ROOM NUMBERS AND/OR LOCATION AND LOAD TYPES.

12. DISRUPTION OF EXISTING SERVICES

12.1. THIS CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DISRUPTION TO THE EXISTING SERVICES. THE EXISTING BUILDING MUST BE KEPT IN OPERATION AT ALL TIMES. ARRANGE WORK IN SUCH A MANNER THAT INTERRUPTIONS IN SERVICES OCCUR ONLY AT SCHEDULED TIMES. INTERRUPTIONS SHALL BE SCHEDULED WITH THE DESIGN CONSULTANT AT LEAST 48 HOURS IN ADVANCE. OVERTIME WORK THAT MAY BE REQUIRED TO TIE-IN SERVICES AT NIGHT OR ON WEEKENDS SHALL BE INCLUDED IN THE TENDER AMOUNT.

12.2. MAINTAIN AT LEAST ONE LANE OF ENTRY/EGRESS FOR THE EMERGENCY VEHICLES DURING CONSTRUCTION. IF THE ENTIRE DOORWAY NEEDS TO BE BLOCKED OFF, THE WORK SHALL BE CONDUCTED AFTER HOURS. INCLUDE FOR ALL OVERTIME REQUIRED IN THE BID PRICE.

13. DEFECT OR INTERFERENCE

13.1. EXAMINE THE WORK OF THE OTHER TRADES, AS THEY AFFECT THIS DIVISION, REPORT AT ONCE TO THE DESIGN CONSULTANT ANY DEFECT OR INTERFERENCE THAT MAY AFFECT THE WORK OF THIS DIVISION OR THE GUARANTEE OF THIS WORK.

14. REMOVAL OF EXISTING EQUIPMENT

14.1. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING AND REMOVING ALL EXISTING OVERHEAD DOOR EQUIPMENT FROM AREAS BEING ALTERED OR DEMOLISHED. WIRING, CONDUIT AND EQUIPMENT WHICH IS REQUIRED TO MAINTAIN SERVICE IN OTHER PARTS OF THE BUILDING SHALL BE TEMPORARILY SUPPORTED, REROUTED, SERVICED OR RELOCATED AS REQUIRED. THE ORANGE STRUCTURAL SUPPORT FRAME TO WHICH THE EXISTING DOOR IS INSTALL SHALL REMAIN AND BE PROTECTED DURING THE INSTALLATION OF THE NEW DOOR, PERIPHERALS, TRENCHING, AND CONDUIT AND CABLING.

14.2. OBSOLETE CONDUITS AND CABLES SHALL BE DISCONNECTED FROM THEIR SOURCE OF SUPPLY, CUT BACK AS FAR AS POSSIBLE, AND SHALL BE REMOVED. ALL EXISTING WIRING NOT REMOVED SHALL BE DISCONNECTED, BLANKED-OFF AND MADE SAFE.

14.3. UNLESS OTHERWISE ADVISED, ALL BASE BUILDING LUMINAIRES, TRANSFORMERS, PANELBOARDS AND DISCONNECT SWITCHES WHICH ARE REMOVED SHALL BE HANDED OVER TO THE BUILDING OWNER.

14.4. ALL REMOVED EQUIPMENT AND MATERIALS WHICH ARE NO LONGER REQUIRED, UNLESS OTHERWISE NOTED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UPON COMPLETION OF THE WORK.

14.5. REMOVE ALL OVERHEAD DOOR EQUIPMENT AND ASSOCIATED COMPONENTS WHERE NOT TO BE REUSED, SUCH AS OVERHEAD DOOR, CONTROLLER, MOTOR, CONDUIT, JUNCTION BOXES, ETC.

PART C - MATERIAL

1. GENERAL

1.1. ALL ELECTRICAL EQUIPMENT SHALL BE C.S.A. APPROVED AND BEAR THE C.S.A. STAMP. ALL EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED.

2. WIRE AND CABLE

2.1. ALL WIRE AND CABLE SHALL BE COPPER WITH TYPE RWU-90, X-LINK INSULATION, AND MINIMUM NO.12 AWG WIRE SIZE. NO.10 AND 12 TO BE SOLID, AND NO.8 AND LARGER TO BE STRANDED.

2.2. SIZE ALL WIRE FOR MAXIMUM 3% VOLTAGE DROP AT 80% LOAD AND 90% POWER FACTOR.

3. CONDUIT

3.1. ALL WIRING IN EXTERIOR SHALL BE IN PVC CONDUIT WITH A DURABILITY OF DB2 OR GREATER.

3.2. ALL WIRING IN CEILINGS AND PARTITIONS SHALL BE IN EMT CONDUIT WITH STEEL SETSCREW COUPLING AND CONNECTORS.

3.3. ALL WIRING IN SLABS AND UNDERGROUND SHALL BE IN RIGID PVC CONDUIT, DB-2 (THIN WALL NOT ACCEPTED).

3.4. PROVIDE WATERTIGHT FLEXIBLE METAL CONDUIT FOR CONNECTION TO TRANSFORMERS AND MOTORS, MINIMUM 1M (3') LENGTH.

3.5. ALL CONDUITS FOR COMMUNICATION WIRING SHALL BE INSTALLED WITH BUSHINGS AT EACH END. CONDUITS SHALL BE TERMINATED ON EQUIPMENT RACK, BACKBOARD OR CABLE TRAY WITHIN THE ROOM.

3.6. ALL EMPTY CONDUITS SHALL BE COMPLETE WITH NYLON PULL STRING. DO NOT CADDIE CLIP CONDUITS TO CEILING HANGERS.

4. PULL BOXES

4.1. A MINIMUM OF ONE PULL BOX SHALL BE INSTALLED FOR EVERY 30M (100') OF CONDUIT (EACH 90 DEGREE BEND SHALL EQUATE TO A 9M (30') LENGTH OF CONDUIT). NO MORE THAN TWO 90 DEGREE BENDS SHALL BE INSTALLED BETWEEN TWO PULL BOXES.

5. SERVICE EQUIPMENT

5.1. ALL NEW PANELBOARDS, DISCONNECT SWITCHES, SPLITTERS, ETC. TO BE OF THE SAME MANUFACTURER. RATING AND TYPE TO COMPLY WITH BASE BUILDING EQUIPMENT WHERE POSSIBLE. MOULDED CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE. ALL PANELBOARDS SHALL HAVE LOADS BALANCED ON THE FEEDERS (OPERATING AT NORMAL BUSINESS HOURS), ADJUST BRANCH CIRCUITS AS REQUIRED. DISCONNECT SWITCHES SHALL BE OF QUICK-MAKE/QUICK-BREAK TYPE.

5.2. PROVIDE NEW BREAKERS TO MATCH MAKE OF EXISTING PANEL AND KAIC TO MATCH

6. FUSES

6.1. FUSES SHALL BE BUSSMAN 'FUSETRON' DUAL ELEMENT SLOW BLOW TYPE, SIZED AS NOTED.

no.	issued/revisions	date
2.	ISSUED FOR TENDER	2024/08/21
1.	ISSUED FOR CLIENT REVIEW	2024/07/31

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SPECIFICATIONS - ELECTRICAL

drawn: T.H.	scale:	drawing no.: E-1
checked: T.H.	date:	
project no.: 2024-0141		

SPECIFICATIONS - COMMS AND SECURITY

COMMUNICATIONS

PART 1: GENERAL SPECIFICATIONS AND REQUIREMENTS FOR COMMUNICATIONS

1.1 GENERAL

1. THIS DOCUMENT SPECIFIES THE USE OF A CAT6A FT6 COPPER END TO END STRUCTURED CABLING PLATFORM AS MANUFACTURED AND WARRANTED BELDEN. NO SUBSTITUTIONS ARE PERMITTED.
2. CONTRACTOR MUST BE A CERTIFIED INSTALLER OF THE PROPOSED SOLUTION AND CAPABLE OF PROVIDING THE WARRANTY ON MATERIALS AND LABOUR DIRECTLY FROM THE PROPOSED CABLING SYSTEM SOLUTION MANUFACTURER.
3. CERTIFICATION BY THIRD PARTY OR ANY OTHER MEANS IS NOT ACCEPTABLE.
4. THE CONTRACTOR SHALL SUPPLY A MINIMUM 20 YEAR MANUFACTURER WARRANTY.
5. CONTRACTOR SHALL SUBMIT THEIR CERTIFICATION DOCUMENTS FOR THEIR PROPOSED SOLUTION AT TIME OF BID.
6. CONTRACTOR MUST IDENTIFY ALL PRODUCTS WITH THEIR BIDS INCLUDING MANUFACTURER AND PART NUMBERS.
7. CONTRACTOR SHALL CONTACT THE DESIGNER FOR ANY CLARIFICATION ON SCOPE, MATERIALS, AND ANY DISCREPANCIES ENCOUNTERED ON THE PROJECT.
8. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS AND CLEARANCES PRIOR TO ORDERING AND INSTALLING EQUIPMENT.
9. ANY NETWORK EQUIPMENT IS TO BE PROVIDED AND INSTALLED BY THE CLIENT UNLESS SPECIFICALLY NOTED OTHERWISE.
10. ANY COST INCURRED BY FAILING THE POINTS STATED ABOVE WILL HAVE TO BE COVERED BY THE CONTRACTOR

1.2 SITE CONDITIONS

1. CONTRACTOR IS RESPONSIBLE FOR COMPLETE HANDLING, DELIVERY, STORAGE, AND INSTALLATION OF ALL MATERIALS USED IN THE PERFORMANCE OF THE WORK.
2. CONTRACTOR IS RESPONSIBLE FOR KEEPING THE WORKPLACE CLEAN, SAFE, AND FREE FROM DEBRIS AT ALL TIMES. ALL DEBRIS MUST BE REMOVED FROM THE SITE ON A DAILY BASIS.
3. COSTS FOR CLEANING ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. CONTRACTOR WILL BEAR ANY COSTS FOR DAMAGE CAUSED BY THEM OR CLEAN-UPS AND DEBRIS REMOVAL THAT REMAIN ON SITE ONE DAY AFTER THE COMPLETION OF THE COMMUNICATIONS CABLING INSTALLATION.
5. CONTRACTOR TO NEATLY BUNDLE AND SECURE LOOSE CABLES WITH SPLIT LOOM. SPIRAL WRAP IS NOT ACCEPTABLE.
6. ROUTE HORIZONTAL CABLING THROUGH IN-CEILING CONDUIT. SEE DRAWINGS FOR DETAILS.
7. CONTRACTOR IS NOT PERMITTED TO INSTALL OR DE-INSTALL EQUIPMENT ON CUSTOMER PREMISES WITHOUT PRIOR APPROVAL FROM OWNER OR GENERAL CONTRACTOR.
8. CONTRACTOR IS NOT ALLOWED TO REMOVE ANY EQUIPMENT INSTALLED BY ANOTHER TRADE. WHERE THE MOVEMENT OF EQUIPMENT NOT CONTROLLED BY THE CONTRACTOR IS REQUIRED, THE CONTRACTOR MUST INFORM THE OWNER OR THE GENERAL CONTRACTOR AND THEY WILL DIRECT ACCORDINGLY.
9. CONTRACTOR IS REQUIRED TO CONSIDER WHERE CABLES WILL BE INSTALLED AND IF ANY LIFTS OR ADDITIONAL EQUIPMENT IS REQUIRED TO INSTALL THE CABLING.
10. CONTRACTOR SHALL HAVE WORKING AT HEIGHTS AND WHIMIS CERTIFICATION.
11. CONTRACTOR IS NOT PERMITTED TO CORE/DRILL OR PENETRATE ANY WALLS, CEILINGS, FLOORS OR ANY OTHER AREAS WITHOUT PERMISSION FROM THE OWNER OR GENERAL CONTRACTOR.
12. ANY CABLES PASSING THROUGH A FIRE RATED PARTITION MUST BE FIRE STOPPED WITH A UL/CSA LISTED ASSEMBLY.

1.3 DOCUMENTATION / PROJECT CLOSE OUT

1. CONTRACTOR SHALL SUBMIT WARRANTIES, CERTIFICATIONS, AS-BUILT DRAWINGS, AND ALL CABLE TEST RESULTS AS PART OF THE PROJECT CLOSEOUT DOCUMENTATION.
2. CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS IDENTIFYING ALL VOICE/DATA OUTLETS, PATCH PANELS, AND IDC CONNECTIONS AS PER THE REQUIREMENTS OF ANSI/TIA 606-C.
3. AS-BUILT DRAWINGS SHALL BE PROVIDED IN AUTOCAD (VERSION 2010 OR LATER), SOFT COPY FORMAT, PDF, AND HARD COPY FULL SIZE DRAWINGS.
4. DRAWINGS SHALL DESCRIBE CABLE IDs ON DRAWINGS.
5. AS-BUILT DRAWINGS SHALL INCLUDE FLOOR LAYOUTS AND BACKBONE DIAGRAMS.
6. THIS PROJECT REQUIRES THE CONTRACTOR TO PROVIDE THE MANUFACTURER WARRANTY, WHICH COMBINES AN EXTENDED PRODUCT WARRANTY WITH AN APPLICATIONS ASSURANCE WARRANTY, ALONG WITH CONTRACTOR'S WARRANTY.
7. CONTRACTOR SHALL PROVIDE THE WARRANTY CERTIFICATE AS THE FINAL DELIVERABLE TO SIGNIFY COMPLETION OF WORK.
8. DOCUMENTATION FOR TEST RESULTS SHALL INCLUDE SOFT COPIES AND ONE (1) BINDER WITH COLOUR DOCUMENTS.
9. THE DOCUMENTATION BINDER AND SOFT COPY CASE SHALL BE MARKED WITH THE PROJECT NAME, PROJECT DESCRIPTION, AND DATE OF PROJECT COMPLETION (DAY, MONTH, AND YEAR).
10. TEST RESULTS SHALL INCLUDE FULL TEST RESULTS AND SUMMARY, IN THE NATIVE FORMAT OF THE CERTIFICATION TESTER, WITH INCLUDED READER SOFTWARE, ON FLASH DRIVE.
11. CABLE ID ON THE TEST RESULTS SHALL MATCH THE ID ON THE AS-BUILT DRAWINGS.

1.4 WARRANTY

1. PRODUCT SHALL BE WARRANTED FREE OF DEFECTS IN MATERIAL OR WORKMANSHIP.
2. PRODUCT SHALL BE WARRANTED TO PERFORM THE INTENDED FUNCTION WITHIN DESIGN LIMITS.
3. FIELD-APPLIED PAINT COATINGS ON RACEWAY, BOXES, PLATES OR FITTINGS SHALL BE EXCLUDED FROM RACEWAY MANUFACTURER'S WARRANTY.
4. INSTALLED CABLING COMPONENTS SHALL BE GRANTED A PERMANENT LINK OR CHANNEL WARRANTY BY THE MANUFACTURER UNDER THE CONDITIONS STATED BELOW.
5. CONSTRUCTION IS PERFORMED BY AN INSTALLER THAT IS CERTIFIED BY THE MANUFACTURER'S TRAINING PROGRAM.
6. CONTRACTORS PERFORMING THE CERTIFIED INSTALLATION ARE PROPERLY REGISTERED IN THE MANUFACTURER'S WARRANTY PROGRAM.
7. PERMANENT LINK OR CHANNEL COMPONENTS ARE SUPPLIED ENTIRELY BY THE MANUFACTURER (INCLUDING PATCH CORDS FOR CHANNEL).
8. A WARRANTY FROM THE CONTRACTOR IS NOT ACCEPTED IN LIEU OF MANUFACTURER WARRANTY/CERTIFICATION.
9. CONTRACTOR TO PROVIDE HARD COPY EVIDENCE OF MANUFACTURER'S CERTIFICATION WITH TENDER SUBMISSION AND UPON COMPLETION OF THE PROJECT.
10. CONTRACTOR TO PROVIDE THE MANUFACTURER'S WARRANTY UNDER THE CLIENT'S NAME AND SHALL BE TRANSFERABLE.

PART 2: SCOPE OF WORK FOR STRUCTURED CABLING COMMUNICATIONS

2.1 THE SPECIFIC STRUCTURED CABLING SCOPE OF WORK FOR THIS PROJECT INCLUDES BUT IS NOT LIMITED TO THE SUPPLY AND INSTALL OF:

1. HORIZONTAL CABLING
2. CONDUITS
3. ALL FIRESTOP MATERIALS/MECHANISMS FOR ALL COMMUNICATIONS CABLING PENETRATIONS
4. ALL CLOSEOUT DOCUMENTATION REQUIREMENTS NEEDED AS PER PART 1.

PART 3: FIRE STOPPING FOR COMMUNICATIONS PATHWAY AND CABLING

3.1 ANY CABLES PASSING THROUGH A FIRE RATED PARTITION MUST BE FIRE STOPPED WITH A UL/CSA LISTED ASSEMBLY.

PART 4: PATHWAYS FOR COMMUNICATIONS SYSTEMS

4.1 CONDUIT

1. CONDUIT TO BE INSTALLED PARALLEL WITH OR PERPENDICULAR TO THE BUILDING GRID.
2. CONDUIT SUPPORT: CONDUIT SUPPORTS TO BE PROVIDED BY THE CONTRACTOR AT 4' FEET INTERVAL.
3. CONDUIT CAPACITY SIZING AND INSTALLATION GUIDELINES MUST MEET THE MANUFACTURER GUIDELINES.
4. VELCRO WRAPS
5. CONTRACTOR TO USE VELCRO TIES TO TIE BUNDLES OF CABLE, NYLON CABLE TIES WILL NOT BE ACCEPTED.
6. VELCRO WRAPS SHALL BE SUPPLIED AND INSTALLED TO SUPPORT AND NEATLY BUNDLE ALL HORIZONTAL AND VERTICAL CABLING.

PART 5: IDENTIFICATION FOR COMMUNICATIONS SYSTEMS

1. CONTRACTOR SHALL LABEL EACH CABLE BY USING SELF-ADHESIVE, SELF-LAMINATING LABELS IN ACCORDANCE WITH THIS SPECIFICATION AND ANSI/TIA-606-C.
2. ALL LABELS SHALL BE MACHINE-GENERATED; HAND WRITTEN LABELS ARE NOT ACCEPTABLE.
3. CABLE LABELING: ALL CABLING SHALL BE LABELED IN FOUR (4) LOCATIONS, EACH END OF THE CABLE FOUR (4) INCHES FROM THE END, ON THE CORRESPONDING FACEPLATE, AND PATCH PANEL/IDC MOUNT.
4. PATCH CORD LABELING: ALL PATCH CABLES SHALL BE LABELED IN TWO (2) LOCATIONS, EACH END OF THE CABLE.
5. CONTRACTOR SHALL CONTINUE LABELING SCHEME TO MATCH EXISTING.

PART 6: COMMISSIONING OF STRUCTURED CABLING SYSTEMS

1. THE INSTALLATION SHALL BE TESTED AND WARRANTED TO THE CATEGORY OF CABLE BEING INSTALLED AND TESTED TO THE STANDARDS AS DETAILED IN ANSI/TIA DOCUMENTS 568.0-D, 568.1-D, 568.2-D, AND 568.3-D.
2. COPPER CATEGORY CABLES MUST BE TESTED AS PER TIA-1152 AND THE MANUFACTURER'S REQUIREMENTS TO MEET THE CATEGORY CABLE LEVEL SPECIFIED IN THIS DOCUMENT AND AS NECESSARY TO BE ELIGIBLE FOR THE MANUFACTURER'S 20+ YEAR WARRANTY.
3. PRE-APPROVED LEVEL IV CABLE CERTIFICATION TESTERS ARE THE FLUKE VERSIV DSX RANGE AND THE IDEAL NETWORKS LANTEK IV.
4. TESTER SHALL HAVE LATEST VERSIONS OF FIRMWARE AND SOFTWARE.
5. LINKS OR CHANNELS IN THE INSTALLATION ARE PROPERLY DOCUMENTED AND TESTED WITH A 'PASS' RESULT, CONDITIONAL/MARGINAL PASSES ('PASS*') MUST BE FIXED AND RETESTED UNTIL THEY ACHIEVE A CLEAN PASS.
6. REQUIRED TEST RESULTS AND PROJECT DOCUMENTATION SHALL BE SUBMITTED TO MANUFACTURER BY THE REGISTERED CONTRACTOR, IN ORDER TO OBTAIN PROPER SYSTEM CERTIFICATION.

PART 7: COMMUNICATIONS TERMINATION BLOCKS AND PATCH PANELS

1. ALL HORIZONTAL UTP CABLING SHALL BE TERMINATED ON MODULAR, BLACK PATCH PANELS.
2. ALL MODULAR PATCH PANELS SHALL BE POPULATED WITH UTP MODULES WITH THE CATEGORY MEETING THE REQUIREMENTS SET OUT IN PART 9.
3. ALL UTP MODULES SHALL MEET THE COLOUR REQUIREMENTS SET OUT IN PART 9.
4. BLANK FILLER STRIPS SHALL BE PROVIDED FOR ALL UNUSED OPENINGS.

PART 8: COMMUNICATIONS COPPER HORIZONTAL CABLING

1. ALL CABLING MUST BE TERMINATED USING ANSI-TIA 568A CONFIGURATION, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ALL CABLE SLACK SHALL BE NEATLY COILED AND SECURED TO THE PATHWAY WITH VELCRO.
3. CONTRACTOR SHALL ENSURE THAT ALL INSTALLED SPECIFIED CATEGORY CABLING DOES NOT EXCEED 90 METERS/295 FEET OR THE MINIMUM BEND RADIUS AT ANY POINT IN THE LINK.
4. ALL CABLE BUNDLES SHALL NOT EXCEED 12 CABLE PER BUNDLE.
5. ALL UTP CABLES SHALL BE OF COLOUR TO MATCH BASE BUILDING STANDARDS FOR RESPECTIVE SYSTEM.

PART 9: COMMUNICATIONS FACEPLATES AND CONNECTORS

1. UTP TERMINATION MODULES SHALL BE OF THE SAME CATEGORY AS THE UTP CABLING SOLUTION TO ENSURE THAT THE MANUFACTURER'S END-TO-END WARRANTY.
2. ALL WPO (WEATHERPROOF OUTLET) SHALL BE INSTALLED WITH CORROSIVE RESISTANT UTP JACK MODULE.
3. ALL UTP CONNECTORS MATCH EXISTING.
4. WORKSTATION FACEPLATES AND ADAPTERS:
   - 4.1. WORKSTATION OUTLETS SHALL BE OF THE SAME MANUFACTURER AND STYLE TO SUIT THE CONNECTORS INSTALLED.
   - 4.2. DECORA/FACEPLATES SHALL HAVE A MINIMUM OF TWO (2) PORTS AND BLANKS SHALL BE INSTALLED FOR ALL UN-USED PORTS.
   - 4.3. SURFACE MOUNTED BOXES SHALL HAVE A MINIMUM OF TWO (2) PORTS AND BLANKS SHALL BE INSTALLED FOR ALL UN-USED PORTS.

PART 10: COMMUNICATIONS PATCH CORDS, STATION CORDS, AND CROSS-CONNECT WIRE

1. CONTRACTOR SHALL SUPPLY ALL PATCH CORDS AT BOTH ENDS.
2. PATCH CORDS SHALL BE OF THE SAME MANUFACTURER AND CATEGORY TO PROVIDE A COMPLETE END TO END SOLUTION.
3. CONTRACTOR SHALL ASSUME ALL PORTS SHALL BE PATCHED AND USED CABLE MANAGEMENT/VELCRO WHILE MAINTAINING CABLE BEND RADIUS.
4. SUPPLY AND INSTALL TWO (2) FT4 RATED PATCH CORDS FOR EVERY HORIZONTAL CABLE INSTALLED.
5. COLOUR TO MATCH HORIZONTAL RUN.

SECURITY

PART 1: GENERAL SCOPE OF WORK

1.1 SUPPLY AND INSTALL ALL MATERIALS, EQUIPMENT, PROGRAMMING, TESTING, AND COMMISSIONING NECESSARY TO PROVIDE A TURN-KEY BUILDING SECURITY SYSTEM (BSS) SOLUTION, INCLUDING ALL SYSTEMS, EQUIPMENT, AND FUNCTIONALITY DESCRIBED ON THESE DOCUMENTS.

1.2 CONNECT BSS COMPONENTS TO BUILDING FIRE ALARM SYSTEM (FAS) AND COORDINATE WITH BUILDING FAS TO ENSURE ALL INSTALLATIONS ARE COMPLIANT WITH BUILDING CODES. INCLUDE ALL NECESSARY FEES AND LABOUR FOR PERMITS AND INSPECTIONS REQUIRED WITH AUTHORITIES HAVING JURISDICTION (AHJ).

1.3 INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND INDUSTRY BEST PRACTICES.

1.4 INSTALL ALL BSS EQUIPMENT IN COMPLIANCE WITH TYPICAL DETAILS AND SCHEMATICS ISSUED WITHIN THESE DOCUMENTS.

1.5 ENSURE ALL EQUIPMENT IS GROUNDED AND BONDED TO THE PROVIDED GROUNDING SYSTEM.

1.6 PROVIDE THE END-USER WITH TRAINING FOR ALL SYSTEMS PROVIDED. PROVIDE TWO (2) TRAINING SESSIONS OF FOUR (4) HOURS EACH. INCLUDE SYSTEM ADMINISTRATION, CONFIGURATION, OPERATOR, AND SYSTEM MAINTENANCE TRAINING. SUBMIT TRAINING AGENDA TO OWNER AND CONSULTANT TWO (2) WEEKS PRIOR TO TRAINING DATE FOR APPROVAL AND SCHEDULING AS FOLLOWS:

1.7 THE FIRST TRAINING SESSION WILL TAKE PLACE AT OR NEAR SUBSTANTIAL COMPLETION, TO TRAIN THE OWNER'S STAFF ON USAGE OF THE SYSTEM(S).

1.8 THE SECOND TRAINING SESSION WILL TAKE PLACE AT AN AGREED DATE AFTER SUBSTANTIAL COMPLETION, TO REVIEW USAGE OF THE SYSTEM(S) ONCE OPERATIONAL.

1.9 PROVIDE WARRANTY FOR ALL BSS COMPONENTS PROVIDED. WARRANTY SHALL BE EFFECTIVE FOR ONE (1) YEAR PAST THE AGREED TO SUBSTANTIAL COMPLETION DATE. MAINTENANCE DURING THE WARRANTY PERIOD SHALL BE INCLUDED IN THE BSS CONTRACT.

1.10 COORDINATE ALL INSTALLATIONS WITH OWNER, ARCHITECT, AND CONSULTANT TO ENSURE AND MAINTAIN INTEGRITY AND CONSTRUCTION OF SECURE DOORS, WALLS, AND ENCLOSURES.

1.11 PROVIDE LABELLING FOR ALL ICP'S, RFTS , OTHER PANELS, ENCLOSURES AND CABLING. INDICATED ON THE RECORD DOCUMENTATION.

1.12 COMPLETE A COMPREHENSIVE COMMISSIONING PROCESS WITH THE OWNER AND CONSULTANT TO ENSURE EACH SYSTEM PERFORMS TO THE FUNCTIONALITY AS SPECIFIED IN THESE DOCUMENTS.

1.13 PROVIDE AS-BUILT DOCUMENTATION, INCLUDING DRAWINGS, OPERATOR, AND MAINTENANCE MANUALS FOR ALL BSS COMPONENTS.

PART 2: PHYSICAL ACCESS CONTROL SYSTEM (PACS)

2.1 PACS ARE C-CURE (EXISTING)

PART 3: TELEPHONE ENTRY SYSTEM (TES)

3.1 TES SHALL BE AIPONE.

1. IX-MV7-HW
2. IX-DV-IP

3.2 TES SHALL BE CAPABLE OF:

1. CONNECTION TO AN OWNER-PROVIDED VOICE-OVER-IP (VOIP).
2. PERFORMING DOOR UNLOCK FUNCTIONS VIA TOUCH TONE BUTTONS FROM THE RECEIVING INTERCOM STATION.

3.3 CONTRACTOR SHALL:

1. SUPPLY AND INSTALL TES UNIT IN LOCATION SHOWN ON DRAWINGS.
2. SUPPLY TES COMPLETE WITH BUILT-IN AXIS CAMERA INTEGRATED TO THE VMS.
3. CONNECT DOOR RELEASE OUTPUT FROM THE TES TO THE PACS AND SEQUENCE TO ENSURE APPROPRIATE RELEASE OF ASSOCIATED DOOR WITHOUT TRIGGERING PACS ALARM.
4. CONFIGURE INITIAL MENU SYSTEM WITH INPUT FROM THE OWNER.
5. COMPLETE THE COMMISSIONING PROCESS WITH THE OWNER AND CONSULTANT BY DEMONSTRATING THE TES UNIT'S INTELLIGIBILITY AND CLARITY OF COMMUNICATION.

PART 4: FIELD DEVICES

4.1 CARD READERS

1. CARD READERS SUPPLIED SHALL BE CAPABLE OF READING MULTIPLE CREDENTIAL FORMATS AND TECHNOLOGIES.
2. HID SIGNO 40.

4.2 REQUEST TO EXIT MOTION DETECTOR

1. REQUEST TO EXIT MOTION DETECTOR SHALL BE PROGRAMMED ONLY TO SHUNT DOOR CONTACT ALARM, AND SHALL NOT RELEASE DOOR LOCK.
2. BOSCH DS160.

4.3 MONITORING CONTACTS (DOORS)

1. SHALL BE RECESS MOUNTED, EITHER 3/4" OR 1" IN DIAMETER.
2. GE 1078 SERIES.

PART 5: DOOR HARDWARE

1. SUPPLY ALL DOOR HARDWARE AT PACS DOORS, INCLUDING BUT NOT LIMITED TO TRANSFER HINGES, DOOR CONTACTS, ETC.
2. PROVIDE ALL LOCKSMITH SERVICES NECESSARY FOR CLEAN AND COMPLETE INSTALLATION OF ALL DOOR HARDWARE.

no.	issued/revisions	date
2.	ISSUED FOR TENDER	2024/08/21
1.	ISSUED FOR CLIENT REVIEW	2024/07/31

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21-Aug-2024
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title:
SPECIFICATIONS - COMMS AND SECURITY

drawn: T.H.	scale:	drawing no.: E-2
checked: T.H.	date:	
project no.: 2024-0141		

SPECIFICATIONS - ELECTRIC OVERHEAD ROLLING DOOR

ELECTRIC OVERHEAD ROLLING DOOR

PART 1 GENERAL

1.1 SYSTEM DESCRIPTION

A. DESIGN REQUIREMENTS:

1. WIND LOADING:

a. SUPPLY DOORS TO WITHSTAND UP TO 1.18 KPA (24.64 PSF) MINIMUM WIND LOAD

2. CYCLE LIFE:

a. DESIGN DOORS OF CONSTRUCTION FOR HIGH CYCLE USE OF UP TO 1,000,000 CYCLES FOR THE LIFE OF THE PRODUCT

b. DESIGN DOORS OF CONSTRUCTION FOR HIGH SPEED OPERATION TO ACHIEVE OPERATIONAL SPEED UP TO 24 INCHES PER SECOND OPEN AND UP TO 12 INCHES PER SECOND CLOSE

1.2 SUBMITTALS

1. PRODUCT DATA

2. SHOP DRAWINGS: INCLUDE SPECIAL CONDITIONS NOT DETAILED IN PRODUCT DATA. SHOW INTERFACE WITH ADJACENT WORK.

3. QUALITY ASSURANCE/CONTROL SUBMITTALS:

a. PROVIDE PROOF OF MANUFACTURER ISO 9001:2015 REGISTRATION

b. PROVIDE PROOF OF MANUFACTURER AND INSTALLER QUALIFICATIONS - SEE 1.4 BELOW

c. PROVIDE MANUFACTURER'S INSTALLATION INSTRUCTIONS

d. PROVIDE MANUFACTURER'S HEALTH PRODUCT DECLARATION (HPD) FOR EACH PRODUCT

4. CLOSEOUT SUBMITTALS:

a. OPERATION AND MAINTENANCE MANUAL

b. CERTIFICATE STATING THAT INSTALLED MATERIALS COMPLY WITH THIS SPECIFICATION

1.3 QUALITY ASSURANCE

A. QUALIFICATIONS:

1. MANUFACTURER QUALIFICATIONS: ISO 9001:2015 REGISTERED AND A MINIMUM OF FIVE YEARS EXPERIENCE IN PRODUCING SLATTED COILING DOORS

2. INSTALLER QUALIFICATIONS: MANUFACTURER'S APPROVAL

1.4 DELIVERY STORAGE AND HANDLING

A. FOLLOW MANUFACTURER'S INSTRUCTIONS

1.5 WARRANTY

A. STANDARD WARRANTY: FIVE YEARS OR 1 MILLION CYCLES, WHICHEVER COMES FIRST, FROM DATE OF SHIPMENT, AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP, ON MECHANICAL COMPONENTS, OPERATOR AND CONTROL PANEL.

B. MAINTENANCE: SUBMIT FOR OWNER'S CONSIDERATION AND ACCEPTANCE OF A REQUIRED PREVENTATIVE MAINTENANCE SCHEDULE AND SERVICE AGREEMENT FOR INSTALLED PRODUCTS.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. MANUFACTURER:

1. CORNELL-COOKSON; CLOPAY BUILDING PRODUCTS: 24 ELMWOOD AVENUE, MOUNTAIN TOP, PA 18707. TELEPHONE: (800) 233-8366.
a. MODEL: EPD1024

SUBSTITUTIONS: NOT PERMITTED

2.2 MATERIALS

A. CURTAIN:

1. FABRICATION:

a. STEEL FENESTRATED SLATS: 22 GAUGE, INTERCONNECTED STRIP STEEL SLATS CONFORMING TO ASTM A-653, TO PROVIDE SECURITY AND LONG TERM SUSTAINABILITY. CURTAIN IS FULLY FENESTRATED WITH 10" X 1 5/8" OPENINGS IN A STRAIGHT PATTERN ACROSS THE ENTIRE EXTENT OF THE DOOR.

2. FINISH:

a. CYCLESHIELD™/ (STOCK COLORS):

1) POWDER COATING SYSTEM WITH LOW COEFFICIENT OF FRICTION WEAR-RESISTANCE TO INCLUDE A GALVANIZED BASE COAT CONSISTENT WITH ASTM A-653, ZIRCONIUM TREATED AND BONDERIZED FOR PRIME COAT ADHESION, WITH A GRAY BAKED-ON POLYESTER POWDER COAT RUST INHIBITING PAINT WITH A MINIMUM 2 MILS (0.0508 MM) CURED FILM THICKNESS.

B. BOTTOM BAR:

1. CONFIGURATION:

a. STEEL: TWO 2X2X3/16 INCH (50X50X3.2 MM) STRUCTURAL STEEL ANGLES

2. FINISH: MATCH CURTAIN SLATS

C. ENDLOCKS:

FABRICATE INTERLOCKING SECTIONS WITH MALLEABLE STEEL ENDLOCKS ON ALTERNATE SLATS EACH SECURED TWO 1/4" HIGH STRENGTH LOW PROFILE RIVETS. WINDLOCK MATERIAL AS REQUIRED BASED ON SYSTEM DESCRIPTION AND MANUFACTURER'S RECOMMENDATION. PROVIDE WINDLOCKS AS REQUIRED TO MEET SPECIFIED WIND LOAD.

D. GUIDES:

1. FABRICATION:

a. STRUCTURAL STEEL ANGLE: MINIMUM 3/16" THICK ASTM A36 STRUCTURAL STEEL ANGLES BOLTED TOGETHER WITH 1/2" FASTENERS TO FORM A CHANNEL FOR THE CURTAIN TO TRAVEL. SEALING, SELF LUBRICATING UHMW ANTI-WEAR STRIPS AND BLOCK MATERIALS PROVIDED. THE WALL ANGLE PORTION SHALL BE CONTINUOUS AND FASTENED TO THE SURROUNDING STRUCTURE WITH EITHER MINIMUM 1/2" FASTENERS OR WELDS, BOTH ON 36" CENTERS MAXIMUM. THE GUIDES MUST BE PRE-NOTCHED TO ALLOW ACCURATE INSERTION OF PRE-ASSEMBLED COIL BOX.

2. FINISH:

a. HIGH CYCLE POWDER COAT: ZIRCONIUM TREATMENT FOLLOWED BY A [TAN] AS SELECTED BY ARCHITECT; BAKED-ON POLYESTER POWDER COAT RUST INHIBITING PAINT; MINIMUM 2 MILS (0.0508 MM) THICKNESS.

E. SHAFT ASSEMBLY:

1. BARREL: MINIMUM 6" STEEL TUBING CAPABLE OF SUPPORTING CURTAIN LOAD WITH MAXIMUM DEFLECTION OF 0.03 INCHES PER FOOT (2.5 MM PER METER) OF WIDTH

2. SPRINGLESS DESIGN: SYSTEM SHALL BE DESIGNED TO OPERATE SAFELY WITHOUT THE USE OF A COUNTERBALANCE SYSTEM. DOOR DESIGNED WITH SPRINGS IS NOT ACCEPTABLE. A DIRECT CONNECT INERTIA BRAKE SHALL BE MOUNTED DIRECTLY TO THE DRIVE BARREL SHAFT ON THE NON-DRIVE SIDE TO HELP PREVENT CURTAIN FREE-FALL. ENGAGEMENT OF THE INERTIA BRAKE SHALL DISABLE THE ELECTRICAL CONTROL CIRCUIT. A CHAIN DRIVEN INERTIA BRAKE IS NOT ACCEPTABLE.

F. BRACKETS:

1. CONFIGURATION:

a. CONSTRUCTED OF STEEL NOT LESS THAN 5/16" THICK AND SHALL BE BOLTED TO THE WALL ANGLE WITH MINIMUM 1/2" FASTENERS. THE BRACKETS ARE PART OF THE COIL BOX ASSEMBLY. BOTH DRIVE AND TENSION BRACKETS ARE TO BE FURNISHED WITH PRECISION BALL BEARINGS. THE UNITIZED BARREL, BRACKET, AND CURTAIN UNIT TO HAVE A TENSION SIDE ACCESS HATCH FEATURE TO ALLOW REMOVAL OF BARREL AND BEARING COMPONENTS FOR REPLACEMENT OR SERVICING.

2. FINISH:

a. HIGH CYCLE POWDER COAT: ZIRCONIUM TREATMENT FOLLOWED BY A TAN AS SELECTED BY ARCHITECT; BAKED-ON POLYESTER POWDER COAT RUST INHIBITING PAINT; MINIMUM 2 MILS (0.0508 MM) THICKNESS.

G. PRE-ASSEMBLED COIL BOX: FACTORY PRE-ASSEMBLED COIL BOX TO CONTAIN FULLY WRAPPED CURTAIN ON BARREL AND STRUCTURALLY SUPPORTED BRACKETS. WELDED TRUSS SHALL BRACE ENDPLATES TOGETHER AT THE TOP AND BOTTOM WITH STEEL CHANNEL AND FLATBAR DIAGONAL BRACING.

H. HOOD: 24 GAUGE GALVANIZED STEEL WITH REINFORCED TOP AND BOTTOM EDGES

1. FINISH:

a. POWDER COATING SYSTEM STOCK COLORS:

1) GALVANIZED BASE COAT CONSISTENT WITH ASTM A-653, ZIRCONIUM TREATED AND BONDERIZED FOR PRIME COAT ADHESION, WITH A TAN BAKED-ON POLYESTER POWDER COAT, AS SELECTED BY ARCHITECT, RUST INHIBITING PAINT WITH A MINIMUM 2 MILS (0.0508 MM) CURED FILM THICKNESS.

I. PERIMETER SEALING: TO PROVIDE ENVIRONMENTAL SEPARATION AND HELP PREVENT INFILTRATION

1. BOTTOM BAR: NEOPRENE ASTRAGAL EXTENDING FULL WIDTH OF DOOR BOTTOM BAR

2.3 OPERATION

A. PRO-FDG OPERATOR CONSISTING OF SEW EURODRIVE, TEFC, BRAKE MOTOR/REDUCER WITH SEPARATE WALL MOUNTED CONTROL PANEL:

1. PLC CONTROLLER WITH VARIABLE FREQUENCY DRIVE FEATURING SOFT-START AND SOFT-STOP AT BOTH ENDS OF LIMIT TRAVEL. DOORS WITHOUT A FREQUENCY DRIVE WILL NOT ACCEPTED.

2. PROVIDE 60HZ, 208V, 3P, 1.5 HP MOTOR PACKAGE.

3. NEMA - 4/12 WALL MOUNTED CONTROL PANEL WITH OPEN/CLOSE/MUSHROOM HEAD STOP ON CONTROL PANEL COVER

4. UL LISTED OPERATOR WITH B2 CONTROLS WITH 1.5 SEC DELAY ON REVERSE AND TIMER TO CLOSE

5. FLEXIBLE CONDUIT ON WALL MOUNTED STARTER PRE-POPULATED WILL ALL WIRES (TERMINATED AND MARKED) NECESSARY FOR INTERCONNECTION BETWEEN MOTOR LIMIT BOX AND WMS CONDUIT TO MAINTAIN SAME NEMA RATING AS SELECTED ABOVE. LENGTH TO BE EQUAL TO DOOR HEIGHT PLUS 3 FEET.

6. RUN TIME LIMITING TIMER

7. PRIMARY FUSE BLOCK INSIDE PANEL

8. CIRCUIT SUPPLIED FOR ACTIVATION OF WARNING ANNUNCIATOR WHEN CLOSING

9. NON-RESETTABLE CYCLE COUNTER

10. LARGER TERMINAL BLOCKS PROVIDED FOR HIGH VOLTAGE /POWER SUPPLY CONNECTIONS

11. ANGLED TERMINAL BLOCKS TO SIMPLIFY EXTERNAL FIELD WIRING CONNECTIONS

12. HIGH PERFORMANCE MOTOR BRAKE

13. MOTOR SELECTION, GEAR REDUCER GEAR-SET AND SIZE, WITH SPROCKET AND ROLLER CHAIN SELECTION BASED ON MANUFACTURER'S RECOMMENDATION, CAPABLE OF STARTING AND STOPPING FROM ANY POSITION IN EITHER DIRECTION

14. MOTOR OPERATOR AND CONTROL SYSTEM SHALL BE DESIGNED FOR A SUSTAINED CONTINUOUS DUTY CYCLING.

15. SEW - HELICAL GEAR REDUCER

16. SYNTHETIC EXTENDED TEMPERATURE GEAR OIL IN REDUCER FOR INCREASED OPERATING TEMPERATURE RANGE.

17. POWDER COATED NEMA 4 LIMIT BOX WITH TERMINAL STRIP AND HONEYWELL HD LIMIT SWITCHES

18. LIMIT SPROCKETS AND DRIVE SPROCKET WITH QD BUSHING INSTALLED ON OPERATOR

19. VARIABLE FREQUENCY DRIVE WITH BRAKING RESISTOR

20. LIMIT CHAIN AND SPROCKETS

B. ENTRAPMENT PROTECTION: THE FOLLOWING PROTECTION SAFETY DEVICES PROVIDED STANDARD:

1. UL325-2010 COMPLIANT NEMA 4X PHOTO EYE SENSORS CONSISTING OF A TRANSMITTER AND RECEIVER THAT ARE TO BE MOUNTED WITHIN 6" (152.4 MM) OF THE FLOOR, PROJECTING AN IR BEAM ACROSS THE ENTIRE WIDTH OF THE DOOR. INTERRUPTION OF BEAM BEFORE DOOR FULLY CLOSES SHALL CAUSE DOOR TO IMMEDIATELY STOP DOWNWARD TRAVEL AND REVERSE DIRECTION TO THE FULLY OPENED POSITION.

2. SAFETYGARD™/ LIGHT CURTAIN TECHNOLOGY CONSISTING OF AN INTEGRAL 6' (1828.8MM) HIGH LIGHT CURTAIN, IF WHERE AN OBJECT BREAKS THE PLANE OF THE LIGHT CURTAIN, THE DOOR REVERSES TO THE OPEN POSITION. DOORS PROVIDED WITHOUT A LIGHT CURTAIN WILL NOT ACCEPTED.

2.4 ACCESSORIES: NONE

PART 3 EXECUTION

3.1 EXAMINATION

A. EXAMINE SUBSTRATES UPON WHICH WORK WILL BE INSTALLED AND VERIFY CONDITIONS ARE IN ACCORDANCE WITH APPROVED SHOP DRAWINGS

B. COORDINATE WITH RESPONSIBLE ENTITY TO PERFORM CORRECTIVE WORK ON UNSATISFACTORY SUBSTRATES

C. COMMENCEMENT OF WORK BY INSTALLER IS ACCEPTANCE OF SUBSTRATE

3.2 INSTALLATION

A. GENERAL: INSTALL DOOR AND OPERATING EQUIPMENT WITH NECESSARY HARDWARE, ANCHORS, INSERTS, HANGERS AND SUPPORTS

B. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS

3.3 ADJUSTING

A. FOLLOWING COMPLETION OF INSTALLATION, INCLUDING RELATED WORK BY OTHERS, LUBRICATE, TEST, AND ADJUST DOORS FOR EASE OF OPERATION, FREE FROM WARP, TWIST, OR DISTORTION

3.4 CLEANING

A. CLEAN SURFACES SOILED BY WORK AS RECOMMENDED BY MANUFACTURER

B. REMOVE SURPLUS MATERIALS AND DEBRIS FROM THE SITE

3.5 DEMONSTRATION

A. DEMONSTRATE PROPER OPERATION TO OWNER'S REPRESENTATIVE

B. INSTRUCT OWNER'S REPRESENTATIVE IN MAINTENANCE PROCEDURES

3.6 ACTUATORS

A. PROVIDE CARD READER, PUSH BUTTON, IN SLAB LOOP SENSOR, TRAFFIC LIGHT, INTERFACE TO SECURITY PANEL IN SECURITY ROOM FOR A COMPLETE AND OPERATING SENSOR.

END OF SECTION

no.	issued/revisions	date
2.	ISSUED FOR TENDER	2024/08/21
1.	ISSUED FOR CLIENT REVIEW	2024/07/31

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title:
SPECIFICATIONS - ELECTRIC ROLLING OVERHEAD DOOR

drawn: T.H.	scale:	drawing no.: E-3
checked: T.H.	date:	
project no.: 2024-0141		

PROJECT NOTES

1. GENERAL

1.1. DO NOT SCALE DRAWINGS. LOCATIONS OF ITEMS ARE APPROXIMATE AND INTENDED TO BE USED FOR COORDINATION. EXACT LOCATIONS ARE DEPENDENT UPON SITE CONDITIONS. REVIEW ANY REVISIONS WITH CONSULTANTS.

2. POWER

2.1. REMOVE AND DISPOSE OF THE EXISTING O/H DOOR SYSTEM AND ASSOCIATED COMPONENTS SUCH AS CONTROL PANEL, SENSORS, TRAFFIC SIGNAL, POWER CONNECTIONS, ETC.

2.2. EXISTING ORANGE STEEL FRAME TO REMAIN AND BE RE-USED. PROVIDE PRIMER AND TWO COATS OF EXTERIOR PAINT. COORDINATE NEW COLOUR WITH OWNER.

2.3. BURIED WIRE AND CONDUIT FROM THE ELECTRICAL ROOM TO THE DOOR TO BE REPLACED WITH NEW. WIRING TO BE SIZED ACCORDING TO NEW OVERHEAD DOOR MANUFACTURER'S RECOMMENDATIONS, AND ACCOUNT FOR VOLTAGE DROP NOT TO EXCEED 2%.

2.4. PROVIDE NEW BREAKERS IN PANEL EL3 IN NORTH ELECTRICAL ROOM TO SUIT NEW OVERHEAD DOOR CONNECTION.

2.5. ABOVE GROUND WIRING AND CONDUIT DOWNSTREAM OF NORTH JUNCTION BOX TO BE REPLACED.

2.6. ALL WIRING SHALL BE IN CONDUIT, EXPOSED WIRING NOT ACCEPTABLE.

2.7. EXTERIOR JUNCTION BOXES SHALL BE STAINLESS STEEL NEMA 4X TYPE.

3. VOICE/DATA SYSTEM

3.1. THE SUPPLY AND INSTALLATION OF THE VOICE/DATA CABLING, DEVICES AND EQUIPMENT SHALL BE BY THIS CONTRACTOR. COORDINATE WITH THE OWNER AND THE COMMUNICATION CONTRACTOR PRIOR TO ROUGH IN. PROVIDE CONDUIT, WIRING, CABLE TRAYS, SLEEVES, JUNCTION BOXES, 120V/208V POWER AND ALL NECESSARY ACCESSORIES FOR THE COMPLETE VOICE/DATA SYSTEM.

4. SECURITY SYSTEM

4.1. THE SUPPLY AND INSTALLATION OF THE SECURITY CABLING, DEVICES AND EQUIPMENT SHALL BE BY THIS CONTRACTOR. COORDINATE WITH THE OWNER PRIOR TO ROUGH IN. PROVIDE CONDUITS, WIRING, CABLE TRAYS, SLEEVES, JUNCTION BOXES, 120V POWER AND ALL NECESSARY ACCESSORIES FOR THE COMPLETE SECURITY SYSTEM.

5. DEMOLITION

5.1. VISIT THE SITE. EXAMINE THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE EXTENT OF THE NECESSARY REMOVAL, RELOCATION, RECONNECTING, AND REROUTING OF O/H DOOR SYSTEM, ELECTRICAL EQUIPMENT AND WIRING AS NECESSARY FOR THE COMPLETION OF THE PROJECT.

5.2. REROUTE AND REWORK AS REQUIRED TO MAINTAIN CONTINUITY FOR ALL SYSTEMS TO REMAIN WHICH ARE AFFECTED BY THE ALTERATION OR DEMOLITION.

5.3. INCLUDE IN DEMOLITION WORK FOR REMOVAL OF ALL COMMUNICATION DEVICES, OUTLETS, CABLES, ETC., WHICH ARE NOT TO BE REUSED. REMOVE ALL UNNECESSARY CABLES AND EQUIPMENT WITH EXTREME CARE TO AVOID ANY ACCIDENTAL SHUTDOWN TO EXISTING SERVICES SERVING OTHER PARTS OF THE BUILDING.

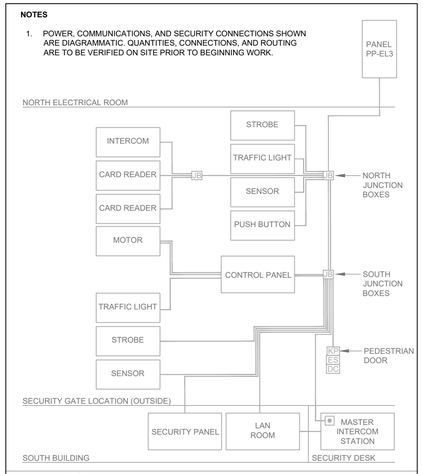
6. OPEN WAREHOUSE WITH EXPOSED CEILING. NEW CONDUIT TO BE RUN ON UNDER SIDE OF ROOF. NOTE THAT THIS IS HIGH CEILING, INCLUDE IN TENDER PRICE FOR LIFT AS REQUIRED TO REACH THE HIGH CEILING.

7. TRENCH INTO DRIVEWAY TO INSTALL IN-GROUND VEHICLE DETECTOR LOOP, PATCH AND MAKE GOOD.

8. PROVIDE NEW WIRING AND CONDUIT TO THE EXISTING CARD READERS TO REMAIN.

NOTES

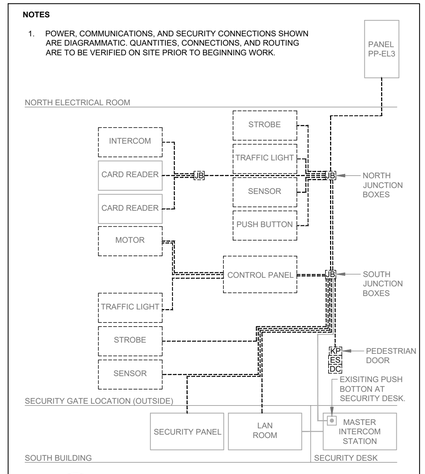
1. POWER, COMMUNICATIONS, AND SECURITY CONNECTIONS SHOWN ARE DIAGRAMMATIC. QUANTITIES, CONNECTIONS, AND ROUTING ARE TO BE VERIFIED ON SITE PRIOR TO BEGINNING WORK.



1 E-4 CONTROLS RISER - EXISTING
SCALE: N.T.S.

NOTES

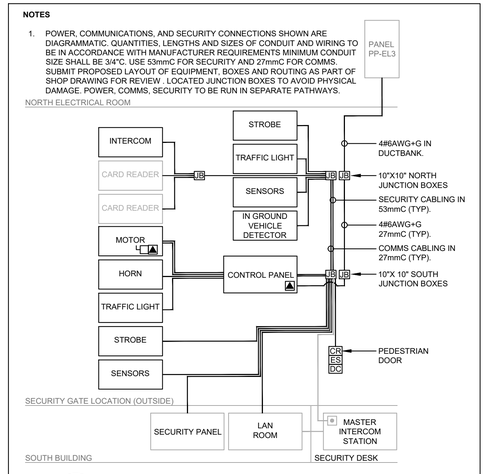
1. POWER, COMMUNICATIONS, AND SECURITY CONNECTIONS SHOWN ARE DIAGRAMMATIC. QUANTITIES, CONNECTIONS, AND ROUTING ARE TO BE VERIFIED ON SITE PRIOR TO BEGINNING WORK.



2 E-4 CONTROLS RISER - DEMO
SCALE: N.T.S.

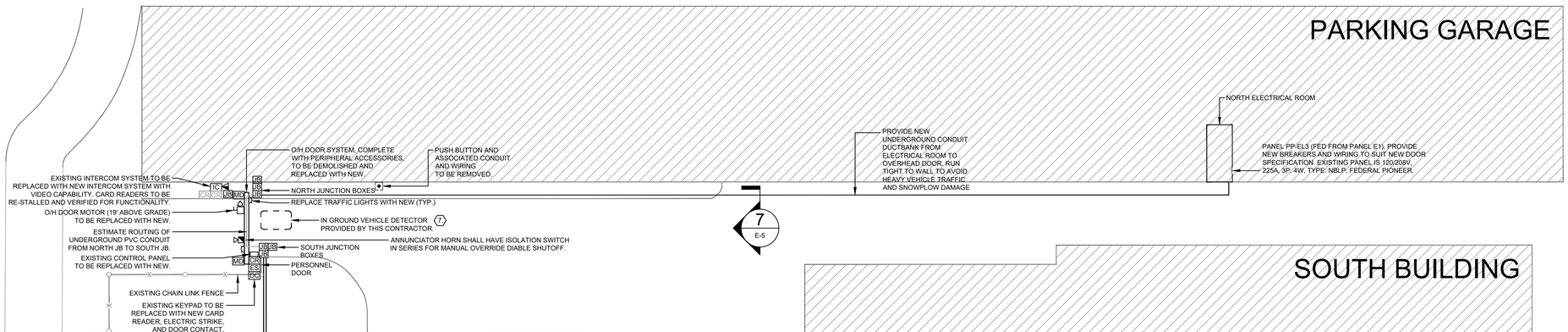
NOTES

1. POWER, COMMUNICATIONS, AND SECURITY CONNECTIONS SHOWN ARE DIAGRAMMATIC. QUANTITIES, LENGTHS AND SIZES OF CONDUIT AND WIRING TO BE IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS MINIMUM CONDUIT SIZE SHALL BE 3/4"C. USE 53mmC FOR SECURITY AND 27mmC FOR COMMS. SUBMIT PROPOSED LAYOUT OF EQUIPMENT, BOXES AND ROUTING AS PART OF SHOP DRAWING FOR REVIEW . LOCATED JUNCTION BOXES TO AVOID PHYSICAL DAMAGE. POWER, COMMS, SECURITY TO BE RUN IN SEPARATE PATHWAYS.



3 E-4 CONTROLS RISER - NEW
SCALE: N.T.S.

PARKING GARAGE

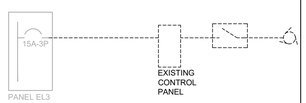


ELECTRICAL LEGEND

	120V, SINGLE PHASE DIRECT CONNECTION
	208V, SINGLE PHASE DIRECT CONNECTION
	208V, THREE PHASE DIRECT CONNECTION
	600V, SINGLE PHASE DIRECT CONNECTION
	600V, THREE PHASE DIRECT CONNECTION
	DISCONNECT SWITCH - NON-FUSED
F	DISCONNECT SWITCH - FUSED
XX	DISTRIBUTION BOX. 'JB' DENOTES JUNCTION BOX OR PULL BOX, 'LB' DENOTES LIGHTING JUNCTION BOX, 'PB' DENOTES POWER DISTRIBUTION BOX.
	ELECTRICAL PANELBOARD - SURFACE MOUNTED
KP	KEYPAD
IC	INTERCOM STATION
CR	CARD READER
	THREE PHASE MOTOR
	TRAFFIC LIGHT
	PUSH BUTTON
MD	SENSOR
ES	ELECTRIC STRIKE
CTV	CLOSED CIRCUIT TELEVISION (SECURITY CAMERA)
	EXISTING
	TO BE REMOVED
	NEW
PB	WEATHER PROOF ANNUNCIATOR HORN
	CAT6A CABLE WITH JACK & FACEPLATE. RUN IN CONDUIT BACK TO NEAREST LAN ROOM. TERMINATE ON PATCH PANEL.
	DISCONNECT SWITCH
	MOULDED CASE CIRCUIT BREAKER

NOTES

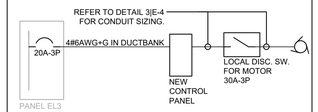
1. POWER CONNECTIONS SHOWN ARE DIAGRAMMATIC. QUANTITIES, CONNECTIONS, AND ROUTING ARE TO BE VERIFIED ON SITE PRIOR TO BEGINNING WORK.



4 E-4 SINGLE LINE DIAGRAM-DEMO
SCALE: N.T.S.

NOTES

1. POWER CONNECTIONS SHOWN ARE DIAGRAMMATIC. QUANTITIES, CONNECTIONS, AND ROUTING ARE TO BE VERIFIED ON SITE PRIOR TO BEGINNING WORK.



5 E-4 SINGLE LINE DIAGRAM-NEW
SCALE: N.T.S.

DOOR INSTALLATION GENERAL NOTES:

1. PRODUCT HAS BEEN RECONFIGURED FOR A CUSTOM LAYOUT BY CORNELL-COOKSON. MANUFACTURER CONTACT: JOHN KEHL 1-800-233-8366x4593 - JKEHL@CLOPAY.COM
2. PREPARE SHOP DRAWINGS FOR ALL ELEMENTS AND SUBMIT FOR APPROVAL BY PRIME CONSULTANT AND/OR CLIENT PRIOR TO INSTALLATION AND ORDERING. INCLUDE SPECIAL CONDITIONS AND THOSE NOT LISTED IN PRODUCT DATA. SHOW INTERFACE WITH ADJACENT WORK
3. CONTRACTOR IS RESPONSIBLE TO SITE VERIFY ALL DIMENSIONS FOR A GOOD FIT OF THE OVERHEAD DOOR ON THE ORANGE FRAME.
4. DRAWINGS ARE PROVIDED FOR DESIGN INTENT ONLY, ALL FINAL DIMENSIONS SHALL BE APPROVED THROUGH CORNELLCOOKSON OR A LICENSED REPRESENTATIVE.
5. FINISHES AS FOUND ON THE DRAWING SPECIFICATION PAGE ON E-3.
6. CONTRACTOR TO NOTIFY PRIME CONSULTANT OF ANY INCONSISTENCIES PRIOR TO PROCEEDING WITH ANY WORK.
7. INSTALLATION SHALL BE BY AUTHORIZED MANUFACTURER INSTALLER. FOR QUALITY ASSURANCE, PROVIDE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PROOF OF MANUFACTURER INSTALLER QUALIFICATIONS.
8. PROVIDE OPERATION AND MAINTENANCE MANUAL PRIOR TO CLOSE-OUT

SEQUENCE OF OPERATIONS - O/H DOOR

1. VISITOR:

1.1. ACTIVATE OUTDOOR VIDEO INTERCOM.
1.2. SECURITY GUARD PRESSES RELEASE BUTTON AT FRONT SECURITY DESK.
1.3. OVERHEAD DOOR OPENS.
1.4. ANN. HORN SOUNDS WHILE DOOR IS IN MOTION.
1.5. TRAFFIC LIGHT TURNS GREEN WHEN FULLY OPEN.
1.6. SENSORS DETECT VEHICLE HAS CLEARED DOOR.
1.7. TRAFFIC LIGHT TURNS RED.
1.8. CLOSE DOOR, SOUND HORN WHILE DOOR IS IN MOTION.

2. STAFF ENTERING:

2.1. PRESENT VALID CARD TO CARD READER.
2.2. OVERHEAD DOOR OPENS.
1.4. ANN. HORN SOUNDS WHILE DOOR IS IN MOTION.
1.5. TRAFFIC LIGHT TURNS GREEN WHEN FULLY OPEN.
1.6. SENSORS DETECT VEHICLE HAS CLEARED DOOR.
1.7. TRAFFIC LIGHT TURNS RED.
1.8. CLOSE DOOR, SOUND HORN WHILE DOOR IS IN MOTION.

2. EXITING:

2.1. VEHICLE DRIVES OVER VEHICLE DETECTOR LOOP.
2.2. SIGNAL SENT TO CONTROLLER TO OPEN O/H DOOR.
2.3. OVERHEAD DOOR OPENS.
1.4. ANN. HORN SOUNDS WHILE DOOR IS IN MOTION.
1.5. TRAFFIC LIGHT TURNS GREEN WHEN FULLY OPEN.
1.6. SENSORS DETECT VEHICLE HAS CLEARED DOOR.
1.7. TRAFFIC LIGHT TURNS RED.
1.8. CLOSE DOOR, SOUND HORN WHILE DOOR IS IN MOTION.

no.	issued/revisions	date
2.	ISSUED FOR TENDER	2024/08/21
1.	ISSUED FOR CLIENT REVIEW	2024/07/31

LICENCED PROFESSIONAL ENGINEER
A. TAN
100087772
21-Aug-2024
PROVINCE OF ONTARIO

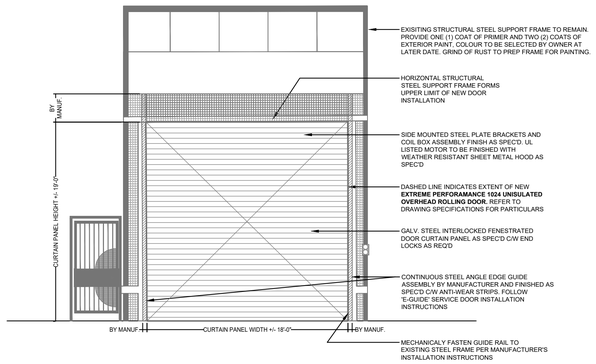
N

THE HIDI GROUP
155 Gordon Baker Road, Suite 200
Toronto, ON M2H 3N5 Canada
t. 416 364 2100 | HIDI.com

project:
SECURITY GATE REPLACEMENT
4330 DUFFERIN STREET
TORONTO, ONTARIO

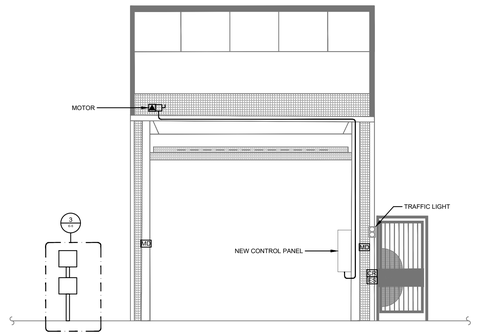
title:
POWER & SYSTEMS LAYOUT AND RISER

drawn:	T.H.	scale: 1:250	drawing no.: E-4
checked:	T.H.	date:	
project no.:	2024-0141		



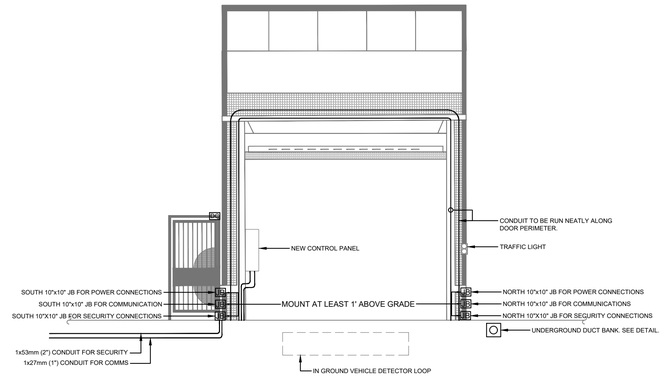
3 E-5 OVERHEAD DOOR - INSTALLATION INSTRUCTIONS

SCALE: N.T.S



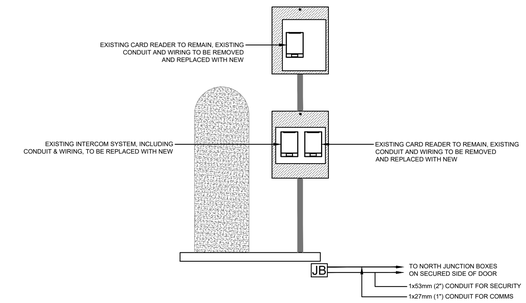
2 E-5 OVERHEAD DOOR - UNSECURED SIDE - POWER AND SYSTEMS

SCALE: N.T.S



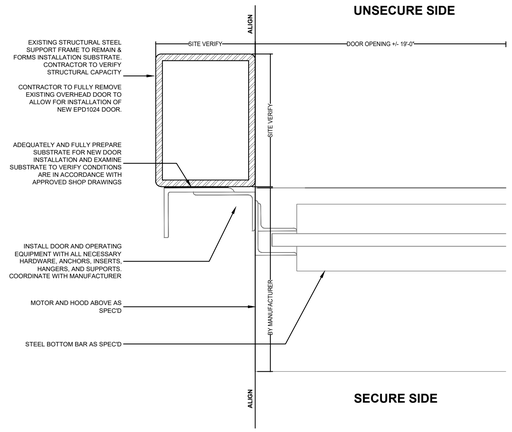
1 E-5 OVERHEAD DOOR - SECURED SIDE - POWER AND SYSTEMS

SCALE: N.T.S



6 E-5 INTERCOM PEDESTAL - UNSECURED SIDE

SCALE: N.T.S



5 E-5 OVERHEAD DOOR - MOUNTING INSTRUCTIONS

SCALE: N.T.S

HIDI

PROJECT NAME: **EMS HEADQUARTERS SECURITY GATE**
PROJECT NUMBER: **2024-0141**
DATE: 08/21/2024
ENGINEER/DESIGNER Tyler Hunt

PANEL: PP-EL3
PAGE: 1 of 1
LOCATION: Electrical Room

Panel Mains:	225 A	SC Rating:	As per Spec	Voltage:	120 / 208	Ph/Wire:	3ϕ /4W	Fed from:	DP-E1

BRKR	*	DESCRIPTION	C [W]	cct	PHASE A	B	C	cct	C [W]	DESCRIPTION	*	BRKR
15A-1P	S	SEC. CONT. BOXES AND PANEL RECEPT.		1	●			2		SPRINKLER COMPRESSOR	S	20A-3P
15A-1P	S	SPARE		3		●		4				
15A-1P	S	GATE OPERATOR WEST		5			●	6				
15A-1P	S	LTS. LOWER LEVEL MIDDLE		7	●			8		20A PLUG LOWER LEVEL	S	15A-1P
15A-1P	S	LTS. LOWER LEVEL EAST & STAIRS EAST		9		●		10		CO DETECTION UNIT P_S_#7	G	20A-1P
15A-1P	S	LTS. LOWER LEVEL WEST & STAIRS WEST		11			●	12		GATE OPERATOR WEST	S	15A-3P
		SPACE		13	●			14				
		SPACE		15		●		16				
		SPACE		17			●	18		SPACE		
		SPACE		19	●			20		SPACE		
		SPACE		21		●		22		SPACE		
		SPACE		23			●	24		SPACE		
20A-3P	S	NEW OVERHEAD SECURITY GATE [WEST]		25	●			26		SPACE		
				27		●		28		SPACE		
				29			●	30		SPACE		
20A-2P	S	YARD GATE OPERATOR (BLUE O/H DOOR)		31	●			32		SPACE		
				33		●		34		SPACE		
20A-2P	S	YARD GATE OPERATOR (BLUE O/H DOOR)		35			●	36		FIRE ALARM PANEL BP #8	S	15A-1P
				37	●			38		EXIT SIGNS	S	15A-1P
15A-1P	S	SPARE		39		●		40		CAMERAS EAST	S	15A-1P
		SPACE		41			●	42		CAMERAS WEST	S	15A-1P

LEGEND:
S : Standard Breaker
G : Ground Fault Circuit Interrupt
3G : 30mA Ground Fault Circuit Interrupt
A : Arc Fault Circuit Interrupt
(L) : Lock-on Device

OPTIONS:
- Main Breaker N/A
- Feed-through/Double-lugs
- Isolated Ground Bus
- Integral SPD

CSA Enclosure Rating: Type 1
Tub Type: Single
Mounting: Surface
Total Circuits: 42

Demand "A"	0 W
Demand "B"	0 W
Demand "C"	0 W
TOTAL DEMAND AMPS	0.0 A
TOTAL CONNECTED LOAD	0.0 kW
TOTAL DEMAND LOAD	0.0 kW

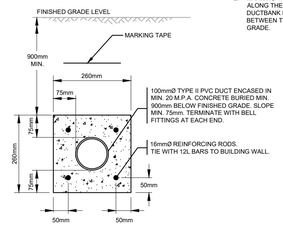
NOTES:

PP-EL3.xlsm

4 E-5 PP-EL3 - PANEL SCHEDULE

SCALE: N.T.S

NOTE:
1. TO STANDARDS & SATISFACTION OF OESC AND ESA INSPECTOR
2. MARKING TAPE TO BE EMPLOYED ALONG THE LENGTH OF THE DUCTBANK INSTALLED HALFWAY BETWEEN THE INSTALLATION AND GRADE.



7 E-5 1x1 UNDERGROUND DUCTBANK

SCALE: N.T.S

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title:
DETAILS

drawn: T.H.	scale: 1:250	drawing no.:
checked: T.H.	date:	E-5
project no.: 2024-0141		