PART 1: GENERAL

- A. THE WORK INDICATED IN THIS DIVISION AND ON THE ELECTRICAL DRAWINGS IS SUBJECT TO THE REQUIREMENTS OF THE INSTRUCTIONS TO BIDDERS AND GENERAL CONDITIONS. THESE ARE HEREBY INCLUDED BY REFERENCE. THE CONTRACTOR IS DIRECTED TO EXAMINE ALL PORTIONS OF THE BID DOCUMENTS AS THEY PERTAIN TO THE WORK COVERED BY THIS DIVISION OF THE SPECIFICATIONS AND TO INCLUDE ALL COSTS IN BID FOR ALL ELECTRICAL WORK AS CALLED FOR BY THE
- B. PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT AND CONTRACTOR SERVICES NECESSARY FOR THE COMPLETE INSTALLATION OF EQUIPMENT INDICATED HEREIN AND ON THE DRAWINGS COMPLETE WITH ALL RELATED SERVICES. REVIEW ALL EXISTING BUILDING CONDITIONS AS THEY RELATE TO ELECTRICAL WORK AND INCLUDE COSTS IN BID. COORDINATE
- REQUIREMENTS WITH OTHER TRADES AS REQUIRED. C. ALL WORK SHALL BE PERFORMED BY EXPERIENCED PERSONNEL QUALIFIED TO CARRY OUT THE WORK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, LOCAL CODES AND AS SPECIFIED HEREIN. THE CONTRACTOR SHALL PROVIDE APPROPRIATE QUALIFICATIONS AND RECORDS OF PAST EXPERIENCE FOR PERSONNEL AND SUBCONTRACTORS WHEN REQUESTED BY THE ENGINEER/ARCHITECT FOR REVIEW AND APPROVAL.
- D. THE ELECTRICAL CONTRACTOR/TRADE SHALL BE RESPONSIBLE FOR COORDINATION AND DISTRIBUTION OF WORK TO HIS
- SUBCONTRACTORS AND SHALL VERIFY COMPLETENESS OF SUBMITTALS AND WORK. E. CONTRACTOR SHALL NOT CUT ANY BEAM OR COLUMNS OR ANY PORTION OF STRUCTURAL SYSTEM WITHOUT SPECIFIC PERMISSION. CONTRACTOR SHALL COORDINATE WITH OWNER/ARCHITECT/ENGINEER.

1.2 CONTRACT DOCUMENTS

- A. THE ELECTRICAL DRAWINGS LISTED IN THE DRAWING INDEX, TOGETHER WITH THESE SPECIFICATIONS, ARE AN INTEGRAL PART OF THE ELECTRICAL CONTRACT. WHAT IS CALLED FOR IN ONE IS AS BINDING AS IF CALLED FOR IN BOTH. IN CASE OF CONFLICT, THE GREATER QUANTITY OR BETTER QUALITY IS TO PREVAIL, SUBJECT TO THE APPROVAL OF THE
- ENGINEER/ARCHITECT. B. THE ELECTRICAL AND MECHANICAL DRAWINGS ARE DIAGRAMMATIC ONLY, BUT ARE TO BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION OF THE PROJECT AND WORK OF OTHER TRADES WILL PERMIT. MINOR CHANGES FROM THESE DRAWINGS. NECESSARY TO COORDINATE WITH THE WORK OF OTHER TRADES AND TO MAKE THE WORK OF THIS CONTRACTOR CONFORM TO THE PROJECT AS CONSTRUCTED. ARE TO BE MADE AT NO ADDITIONAL COST TO THE OWNER.
- C. ELECTRICAL AND MECHANICAL DRAWINGS ARE NOT TO BE SCALED FOR THE PURPOSE OF EQUIPMENT INSTALLATION. ALL MEASUREMENTS TO BE DERIVED FROM ARCHITECTURAL AND SHOP DRAWINGS AND COORDINATED WITH FIELD CONDITIONS. ALL MEASUREMENTS MUST BE VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK FITTING INTO PLACE IN A SATISFACTORY AND WORKMANLIKE MANNER
- D. ONE-LINE DIAGRAMS AND KEY PLANS ARE SHOWN ONLY AS A CONVENIENCE TO THE CONTRACTOR. IN CASE OF CONFLICT BETWEEN A ONE-LINE DIAGRAM AND A PLAN, THE GREATER QUANTITY OR BETTER QUALITY IS TO PREVAIL, SUBJECT TO THE APPROVAL OF THE ENGINEER/ARCHITECT.
- E. INCREASED COST OF WIRING RESULTING FROM INCREASED ELECTRICAL RATINGS OVER THAT SHOWN ON THE ELECTRICAL DRAWINGS IS TO BE BORNE BY THE CONTRACTOR FURNISHING THE EQUIPMENT. F. INCLUDE CONTROL WIRING, AS CALLED FOR ON THE MECHANICAL DRAWINGS AND SPECIFICATIONS (AND INDICATED AS BEING
- BY THE ELECTRICAL CONTRACTOR OR TRADE), AS ELECTRICAL WORK AND COORDINATE WITH THE MECHANICAL CONTRACTOR.

A. SEE BID FORM AND DIVISION O AND 1 OF SPECIFICATIONS AS APPLICABLE.

A. HAVE A THOROUGHLY COMPETENT SUPERINTENDENT IN CHARGE OF THE WORK AT ALL TIMES, EXPERIENCED IN THE WORK TO BE DONE UNDER THIS CONTRACT. REPLACE ANYONE NOT DEEMED CAPABLE BY THE ENGINEER/ARCHITECT UPON REQUEST IMMEDIATELY, BY ONE WHO IS SATISFACTORY. A SATISFACTORY SUPERINTENDENT, ONCE ASSIGNED, IS NOT TO BE REMOVED WITHOUT THE CONSENT OF THE ENGINEER/ARCHITECT.

1.5 CODES, STANDARDS AND PERMITS

- A. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES IN FORCE AT TIME OF BIDDING. INCLUDING BUT NOT LIMITED TO THE MICHIGAN CONSTRUCTION RULES AND THE NATIONAL ELECTRICAL CODE. IN ADDITION THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND INSPECTION APPROVALS AS THE WORK PROGRESSES. ANY WORK WHICH IS COMPLETED WITHOUT THESE APPROVALS AND FOUND TO BE UNACCEPTABLE SHALL BE
- CORRECTED BY THE CONTRACTOR, AT NO ADDITIONAL COST. B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF ALL FEES ASSOCIATED WITH INSPECTIONS, PERMITS AND UTILITY
- CONNECTIONS UNLESS OTHERWISE INDICATED. C. ALL STANDARDS REFERENCED IN THIS DIVISION OR ON THE DRAWINGS SHALL COMPLY WITH THE LATEST EDITION IN FORCE. MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED UNDER THESE SPECIFICATIONS WHICH, IN THE OPINION OF THE
- ENGINEER/ARCHITECT, DO NOT COMPLY WITH THE STANDARDS OF THE ORGANIZATIONS LISTED, ARE TO BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER. STANDARDS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
- NATIONAL FIRE PROTECTIVE ASSOCIATION.
- UNDERWRITERS' LABORATORIES NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION.
- INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS ASSOCIATION. INSULATED CABLE ENGINEERS ASSOCIATIONS.
- AMERICAN SOCIETY FOR TESTING AND MATERIALS. ASTM

1.6 DEFINITIONS

- A. CONCEALED: EMBEDDED IN WALLS, CEILINGS, FLOORS OR OTHER SPACES. NOT EXPOSED TO VIEW. EXPOSED: NOT CONCEALED OR INSTALLED UNDERGROUND.
- C. FURNISH, PROVIDE: TO SUPPLY, INSTALL, CONNECT AND PUT INTO OPERATION.
- D. WORK: WIRING, EQUIPMENT, RACEWAYS, COORDINATION, ETC. AS REQUIRED BY THE CONTRACT DOCUMENTS FOR A COMPLETE AND OPERATING SYSTEM.

1.7 MATERIALS AND EQUIPMENT

- A. WHERE "OR PRE-APPROVED EQUAL" CLAUSE IS INDICATED, IT MEANS MATERIAL, APPARATUS, EQUIPMENT AND SUPPLIES HAVING RECOGNIZED STANDARDS OF QUALITY AND PERFORMANCE WHICH, IN THE JUDGEMENT OF THE ENGINEER/ARCHITECT, WILL MEET THE DESIGN AND SPECIFICATION REQUIREMENTS. MATERIAL AND EQUIPMENT BY MANUFACTURERS, OTHER THAN THOSE LISTED IN THE PLANS OR SPECIFICATIONS, MUST BE SUBMITTED FOR APPROVAL AS OUTLINED IN THE INSTRUCTION
- B. WHERE "OR EQUAL" CLAUSE IS INDICATED, IT MEANS MATERIAL AND EQUIPMENT OF EQUAL OR BETTER QUALITY AND PERFORMANCE THAN THAT LISTED IN THE PLANS AND SPECIFICATIONS, EXCEPT THAT NO APPROVAL PRIOR TO BIDDING IS

1.8 SHOP DRAWINGS AND SUBMITTALS

- A. PROVIDE ALL SUBMITTALS AS CALLED FOR IN DIVISION 1 OF THE SPECIFICATIONS INCLUDING SHOP DRAWINGS, SAMPLES, MATERIAL LISTS, SCHEDULE OF VALUE, ETC. SHOP DRAWINGS SHALL BE COMPLETELY REVIEWED AND APPROVED BY THE CONTRACTOR AND TRADE FURNISHING THE EQUIPMENT (INDICATED BY THE CONTRACTORS APPROVAL STAMP) PRIOR TO SUBMITTING TO THE ENGINEER/ARCHITECT.
- B. WHERE SHOP DRAWING SUBMITTALS ARE ASSEMBLED IN A FOLDER OR BOUND SETS, ALL FOLDERS OR SETS ARE TO BE IDENTICAL AND EACH SET MUST CONTAIN AN INDEX OF THE ITEMS ENCLOSED IN THE SET OR FOLDER. QUANTITY OF
- ORIGINAL COLOR SAMPLES REQUIRED SHALL BE COORDINATED WITH THE ARCHITECT. C. REVIEW AND APPROVAL OF SHOP DRAWINGS BY THE ENGINEER/ARCHITECT IS FOR GENERAL CONFORMITY TO DESIGN INTENT ONLY. THIS REVIEW DOES NOT AUTHORIZE CHANGES TO THE CONTRACT SUM OR RELIEVE THE CONTRACTOR IN ANY WAY OF
- HIS CONTRACT OBLIGATIONS. D. PROVIDE SUBMITTALS FOR THE FOLLOWING:

 - FITTINGS
 - CONDUIT BODIES WIRE AND CABLES
- WIRING DEVICES LIGHT FIXTURES
- DISCONNECT SWITCHES 9. OVERCURRENT PROTECTION DEVICES
- A. UNLESS OTHERWISE INDICATED IN OTHER DIVISIONS OF THE SPECIFICATIONS, AT NO ADDITIONAL COST TO THE OWNER, REPAINT ALL PATCHED AREAS TO MATCH ORIGINAL FINISH WHERE HOLES OR CHASES HAVE BEEN CUT TO RECEIVE ELECTRICAL WORK. REPAINT PATCHED AREAS WITH TWO (2) COATS OF PAINT TO MATCH SURROUNDING AREAS; BLEND AS
- B. TOUCH UP MARRED SURFACES OF EQUIPMENT HOUSING WITH ENAMEL OF A COLOR TO MATCH.

- A. ALL LABOR, MATERIALS AND EQUIPMENT SHALL BE GUARANTEED BY THE CONTRACTOR AND WARRANTED BY THE MANUFACTURER FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER, UNLESS LONGER PERIOD IS SPECIFIED FOR SPECIFIC EQUIPMENT.
- B. THE CONTRACTOR SHALL MAKE ALL NECESSARY REPAIRS AND ALTERATIONS DURING THE GUARANTEE PERIOD AS MAY BE REQUIRED BY THE OWNER OR ARCHITECT FOR CORRECT SYSTEM OPERATION AND TO COMPLY WITH THE DRAWINGS AND
- SPECIFICATIONS. THESE REPAIRS AND ALTERATIONS SHALL BE AT NO ADDITIONAL COST TO THE OWNER. C. THE OWNER RESERVES THE RIGHT TO MAKE EMERGENCY SYSTEM REPAIRS WITHOUT VOIDING THE CONTRACTOR'S GUARANTEE.

2.1 RACEWAYS, FITTINGS, BOXES, AND CONDUIT BODIES

- A. PROVIDE AND INSTALL RACEWAYS AS REQUIRED FOR THE NEW WORK. ALL RACEWAYS WILL BE EXPOSED (CONCEALED FROM VIEW AS MUCH AS PRACTICAL BY FOLLOW THE STRUCTURAL ELEMENTS OF THE BUILDING). RACEWAYS SHALL BE INTERMEDIATE METALLIC CONDUIT (IMC) AND LIQUID-TIGHT FLEXIBLE METAL CONDUIT AS ALLOWED BY THE NEC. MINIMUM RACEWAY SIZE WILL BE THREE-QUARTER (3/4) INCH.
- B. PROVIDE AND INSTALL FITTINGS, JUNCTION'S BOXES, AND CONDUIT BODIES AS REQUIRED FOR NEW WORK. JUNCTION BOXES WILL BE CAST ALUMINUM WITH WEATHERPROOF COVER PLATES. IMC CONDUIT FITTINGS WILL BE THREADLESS COMPRESSION TYPE. WHERE USED LOCKNUTS WILL BE O-RING GASKETED TYPE. CONDUIT BODIES WILL BE CAST ALUMINUM WITH GASKETED

- A. CONDUCTORS WILL BE THHN, THWN, OR XHHW, SIZED AS INDICATED AND INSTALLED IN ACCORDANCE WITH THE NEC. NO. 12 AWG WILL BE THE MINIMUM CONDUCTOR SIZE ALLOWED FOR BRANCH CIRCUIT WIRING. BRANCH CIRCUIT LENGTHS EXCEEDING ONE HUNDRED FEET (100') FOR 120-VOLT CIRCUITS, AND TWO HUNDRED THIRTY FEET (230') FOR 277-VOLT CIRCUITS, WILL HAVE A MINIMUM WIRE SIZE OF NO. 10 AWG.
- B. CLASS 1 REMOTE-CONTROL AND SIGNAL CIRCUIT CONDUCTORS WILL NOT BE LESS THAN NO. 14 AWG. CLASS 2 LOW-ENERGY REMOTE-CONTROL AND SIGNAL CIRCUIT CONDUCTORS WILL NOT BE LESS THAN NO. 16 AWG.

2.3 BRANCH/DISTRIBUTION PANELBOARDS A. PROVIDE NEW DIRECTORIES IN PANELBOARDS TO WHICH NEW BRANCH CIRCUITS ARE CONNECTED OR TO WHICH EXISTING

- CIRCUITS ARE CHANGED. DIRECTORIES WILL BE TYPED. 2.4 GROUNDING AND BONDING A. PROVIDE GROUNDING CONDUCTORS IN ALL METALLIC AND NONMETALLIC RACEWAYS. NOTE; THAT GROUNDING CONDUCTORS
- B. PROVIDE BONDING CONDUCTORS BETWEEN NEW AND EXISTING STRUCTURAL STEEL OF THE BUILDING. REFER TO THE NEC FOR CORRECT BONDING CONDUCTOR SIZING AND REQUIREMENTS.

ARE NOT INDICATED ON THE DRAWINGS (WHERE WIRE COUNTS ARE SHOWN) BUT ARE REQUIRED TO BE PROVIDED IN ALL

PART 3: EXECUTION

3.1 COORDINATION

- A. TO AVOID CONFLICTS, COORDINATE EXACT PLACEMENT OF ELECTRICAL ITEMS AND ELEVATION OF CONDUIT ROUTES WITH OTHER TRADES PRIOR TO INSTALLATION. ANY CONFLICTS THAT CANNOT BE RESOLVED BETWEEN TRADES MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT IN
- WRITING AND RESOLVED BEFORE PROCEEDING. B. PROVIDE APPROPRIATE FIRESTOPPING MATERIAL AROUND ALL PENETRATIONS THROUGH FIRE RATED

C. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, UL LISTING

REQUIREMENTS AND ACCEPTED PRACTICES. D. TEMPERATURE CONTROL WIRING AS CALLED FOR OR REFERENCED BY THE ELECTRICAL DRAWINGS AND SPECIFICATIONS WILL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. ALL ADDITIONAL WIRING REQUIRED TO PROVIDE A COMPLETE SYSTEM OF TEMPERATURE REGULATION IS TO BE PROVIDED BY THE TEMPERATURE CONTROL TRADE. THE TEMPERATURE CONTROL TRADE WILL PROVIDE ALL NECESSARY DRAWINGS AND COORDINATION TO THE ELECTRICAL CONTRACTOR FOR DETERMINING PANEL LOCATIONS, CONNECTION POINTS, WIRE COUNTS, ETC.

3.2 CUTTING AND PATCHING

A. LAY OUT WORK CAREFULLY IN ADVANCE, AND WHERE CUTTING, CHANNELING, OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES IS NECESSARY FOR THE PROPER INSTALLATION, SUPPORT, OR ANCHORAGE OF THE CONDUIT, RACEWAYS, OR OTHER ELECTRICAL WORK, THE WORK IS TO BE CAREFULLY DONE AND ANY DAMAGE TO THE BUILDING, PIPING, OR EQUIPMENT REPAIRED BY SKILLED MECHANICS OF THE TRADE INVOLVED, AT NO ADDITIONAL COST TO THE OWNER.

3.3 RECORD DRAWING

A. PROVIDE ELECTRICAL RECORD DRAWINGS AS CALLED FOR IN DIVISION 1 AND INCLUDE ALL PERTINENT INFORMATION NOT SHOWN AND ALL CHANGES FROM THE ORIGINAL PLANS: ROUTE OF ALL UNDERGROUND AND OVERHEAD FEED CONDUITS FROM THE MAIN SWITCHBOARD TO THE VARIOUS PANELS AND EQUIPMENT; INTERCONNECTING CONDUITS BETWEEN BRANCH CIRCUIT, JUNCTION BOXES, AND PANELS (ACTUAL ROUTE OF CONDUIT IS NOT REQUIRED, ONLY HOW THE VARIOUS BRANCH ITEMS ARE INTERCONNECTED WITH CONDUIT AND NUMBER OF WIRES); CIRCUIT NUMBERS FOR ALL ITEMS WHERE THEY DO NOT AGREE WITH THE PLANS. CIRCUIT NUMBERS ON RECORD DRAWINGS AND PANELBOARD DIRECTORIES MUST AGREE.

3.4 CHANGES, CONTRACT DOCUMENTS

A. THE CONTRACT DOCUMENT MAY BE SUPERSEDED BY LATER REVISED DRAWINGS OR SPECIFICATION ADDENDA PREPARED BY THE ENGINEER/ARCHITECT, AND ALL REASONABLE CHANGES (UP TO 3 FEET) IN LOCATION OF EQUIPMENT PRIOR TO ITS INSTALLATION, SHALL BE MADE WITHOUT ADDITIONAL COST

3.5 OPERATING AND MAINTENANCE MANUALS AND INSTRUCTION

- A. PROVIDE TWO (2) BOUND SETS OF COMPLETE INSTALLATION, OPERATING, AND MAINTENANCE INSTRUCTIONS AS OUTLINED IN DIVISION 1 OF THESE SPECIFICATIONS. MANUALS SHALL ALSO INCLUDE COMPLETE PARTS LISTS. OPERATING INSTRUCTIONS, COPIES OF ORIGINAL SHOP DRAWINGS. SUBCONTRACTOR LISTS, WARRANTIES, WARNINGS, ETC. GENERIC INSTRUCTIONS SHALL HIGHLIGHT APPLICABLE SECTIONS WHEN NEEDED TO DIFFERENTIATE FROM NON-RELEVANT EQUIPMENT.
- B. UPON COMPLETION OF THE WORK AND AT A DESIGNATED TIME, PROVIDE INSTRUCTIONS TO THE INSTITUTION'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF ALL MECHANICAL EQUIPMENT.
- NOTIFY ENGINEER/ARCHITECT OF SCHEDULED TIME AND PLACE. C. TURN OVER TO THE OWNER ALL TOOLS SUPPLIED WITH EQUIPMENT.

- A. INSTALL ALL MATERIALS AND EQUIPMENT IN A NEAT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AS APPROVED BY THE ENGINEER/ARCHITECT TO CONFORM WITH THE CONTRACT DOCUMENTS.
- 3.7 ACCESSIBILITY A. MAINTAIN ACCESSIBILITY TO ALL EQUIPMENT FOR OPERATION, MAINTENANCE AND REPAIR.

3.8 TESTS

A. AFTER THE INSTALLATION IS COMPLETED, AND AT SUCH TIME AS THE ENGINEER/ARCHITECT MAY DIRECT, THE CONTRACTOR IS TO CONDUCT AN OPERATING TEST FOR APPROVAL. DEMONSTRATE EQUIPMENT TO OPERATE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION. PERFORM TESTS IN THE PRESENCE OF THE ENGINEER/ARCHITECT OR HIS AUTHORIZED REPRESENTATIVE. THE CONTRACTOR IS TO FURNISH ALL INSTRUMENTS AND PERSONNEL REQUIRED FOR THE TESTS.

FURNISH AND MAINTAIN TEMPORARY POWER AND LIGHTING SYSTEM FOR WORK WITHIN BOUNDARIES OF CONSTRUCTION. REMOVE AT COMPLETION OF PROJECT. VERIFY SAFE USE OF SYSTEM. TEMPORARY LIGHTING SHALL MEET OSHA MINIMUM LEVELS FOR TYPE OF WORK BEING PERFORMED.

A. THE TERM UTILITY SHALL APPLY TO ELECTRICAL, TELEPHONE, NATURAL GAS OR CABLE TELEVISION

UTILITIES AS REQUIRED BY WORK OF THIS CONTRACT. B. COORDINATE ANY ELECTRIC OUTAGE WITH THE OWNER AND OTHER TRADES. FURNISH TEMPORARY POWER CONNECTIONS AS REQUIRED TO MAINTAIN OPERATIONS FOR EXTENDED OUTAGES EXCEEDING

END OF SECTION

ELECTRICAL LEGEND

<u> </u>					
A.F.F. B.F.C. C C.B. DISC. E.C. EXT'G G.C. L.I.G. LTG. MFG'R. M.C. M.D.P. O.L. RCPT. T.T.B.	ABOVE FINISHED FLOOR BELOW FINISHED CEILING CONDUIT CIRCUIT BREAKER DISCONNECT ELECTRICAL CONTRACTOR/TRADE EXISTING ITEM GENERAL CONTRACTOR/TRADE LAY IN GRID LIGHTING MANUFACTURER MECHANICAL CONTRACTOR/TRADE MAIN DISTRIBUTION PANELBOARD OVERLOAD RECEPTACLE TELEPHONE TERMINAL BOARD		MOTOR LOCATION NON-FUSED DISCONNECT SWITCH. 30A OR AS INDICATED. FUSED DISCONNECT SWITCH. 30A DISC. WITH XXXA FUSE OR AS INDICATED. CEILING MOUNTED DUAL TECHNOLOGY MOTION SENSOR JUNCTION BOX HAND DRYER 240 VOLT 20AMP RELAY IN NEMA 1 ENCLOSURE. THERMOSTAT SURFACE MOUNTED PANELBOARD RECESSED PANELBOARD TRANSFORMER		
T.T.C. XFMR	TELEPHONE TERMINAL CABINET TRANSFORMER	⊢⊘	SPEAKER, WALL MOUNTED		
₩.₽. *	WEATHERPROOF EXISTING BRANCH CIRCUIT		P.A. SYSTEM SPEAKER, CEILING MOUNTED		
S S ² S ^M	SINGLE POLE SWITCH TWO POLE SWITCH WALL MOUNTED DUAL TECHNOLOGY MOTION SENSOR/SWITCH	⊠ 6≡8	"A", "B-B" = LIGHT FIXTURE TYPE FROM SCHEDULE WIRE AND CONDUIT SIZE OTHER THAN MINIMUM SPECIFIED.		
=	20A, 125V DUPLEX RECEPTACLE	3/10 - 3/4°C	CONDUIT SIZE		
o ⊕ [™]	SPECIALTY RECEPTACLE. COORDINATE AMPACITY AND NEMA CONFIGURATION WITH NEW AND EXISTING EQUIPMENT AS REQUIRED. "TL" AT ANY RECEPTACLE SYMBOL INDICATES IT IS A TWISTLOCK DEVICE.		WIRE SIZE NUMBER OF WIRES		
\$₩P	"WP" AT ANY RECEPTACLE SYMBOL INDICATES IT IS A WEATHERPROOF		CONDUIT AND WIRE		
=	DEVICE WITH INTEGRAL GROUND FAULT CURRENT PROTECTION. DOUBLE DUPLEX RECEPTACLE	who o	WIRE TURNED UP WIRE TURNED DOWN		

WIRE TURNED DOWN

CONDUIT AND WIRE RUN TO BE CONTINUED

HOME RUN TO PANELBOARD. A1,3 = PANELBOARD

= 3 WIRES. UNLESS OTHERWISE NOTED, THE CONDUIT

AND WIRE SIZES ARE THE MINIMUM AS REQUIRED BY THE SPECIFICATIONS. LONG CROSS LINE = NEUTRAL.

"A", CIRCUITS 1 AND 3, THREE CROSS LINES

CONDUIT AND WIRE WITH ISOLATED GROUND

ON THE DRAWING OF ADJACENT AREAS.

	LIGHTING FIXTURE SCHEDULE							
SYMBOL.	DESCRIPTION	#	LAMP TYPE	VOLT.	MOUNTING	CEILING TYPE	MANUFACTURER	REMARKS
А	2'X4' FLUORESCENT TROFFER, INVERTED ACRYLIC PRISMATIC LENS WITH GASKETS ON BOTH SIDES OF LENS, STEEL HOUSING, FLUSH ALUMINUM DOORS, WHITE FINISH, AND I.S. ELECTRONIC BALLAST, THD <= 10%.	3	F32T8 3500K INSTANT START	120	CEILING RECESSED	L.I.G.	LITHONIA 2GT8 332 FW A12125 MVOLT GEB10IS OR EQUAL	
В	2'X4' FLUORESCENT TROFFER, INVERTED ACRYLIC PRISMATIC LENS WITH GASKETS ON BOTH SIDES OF LENS, STEEL HOUSING, FLUSH ALUMINUM DOORS, WHITE FINISH, AND I.S. ELECTRONIC BALLAST, THD <= 10%.	2	F32T8 3500K INSTANT START	120	CEILING RECESSED	L.I.G.	LITHONIA 2GT8 232 FW A12125 MVOLT GEB10IS OR EQUAL	
С	2'X4' FLUORESCENT TROFFER, ACRYLIC PRISMATIC LENS, STEEL HOUSING, FLUSH ALUMINUM DOORS, WHITE FINISH, I.S. ELECTRONIC BALLAST, THD <= 10%.	3	F32T8 3500K INSTANT START	120	CEILING RECESSED	L.I.G.	LITHONIA 2GT8 332 FW A12125 MVOLT 1/3 GEB10IS OR EQUAL	
D	2'X4' FLUORESCENT TROFFER, ACRYLIC PRISMATIC LENS, FLANGED TRIM STEEL HOUSING, FLUSH ALUMINUM DOORS, WHITE FINISH, I.S. ELECTRONIC BALLAST, THD <= 10%.	2	F32T8 3500K INSTANT START	120	CEILING RECESSED	GYP.	LITHONIA 2GT8 F 232 FW A12125 MVOLT GEB10IS OR EQUAL	
Ē	DECORATIVE EXTERIOR FLUORESCENT FIXTURE, ALUMINUM HOUSING, AND CW EMERGENCY BALLAST. FINISH TO BE SELECTED BY ARCHITECT.	1	F42TRT 4100 INSTANT START	120	Wall Mounted	N/A	LITHONIA WST 1/42 MD 120 ELDCW OR EQUAL	
F	DECORATIVE EXTERIOR METAL HALIDE FIXTURE, ALUMINUM HOUSING, QUARTZ RESTRIKE SYSTEM, AND HIGH POWER FACTOR BALLAST. FINISH TO BE SELECTED BY ARCHITECT.	1	100W MH	120	WALL MOUNTED	N/A	LITHONIA WST 100M MD 120 QRS PE OR EQUAL	
Ø	8" RECESSED COMMERCIAL GRADE FLUORESCENT CAN LIGHT WITH VERTICAL LAMPING, CLEAR POLYCARBONATE LENS, WHITE TRIM AND ELECTRONIC COLD WEATHER EMERGENCY BALLAST. UL LISTED FOR DAMP LOCATIONS.	1	F42TRT . 4100 INSTANT START	120	CEILING RECESSED	CANOPY	LITHONIA LP8FN 42TRT 802 PCL 120 ELDCW OR EQUAL	
Ø	8" RECESSED COMMERCIAL GRADE FLUORESCENT CAN LIGHT WITH VERTICAL LAMPING, CLEAR POLYCARBONATE LENS, WHITE TRIM AND ELECTRONIC BALLAST.	1	F42TRT 4100 INSTANT START	120	CEILING RECESSED	CANOPY	LITHONIA LP8FN 42TRT 802 PCL 120 OR EQUAL	•
\$ \$	EXIT SIGN WITH POLYCARBONATE HOUSING AND NICAD BATTERY, RED LETTERS ON A WHITE FACE, AND NUMBER OF FACES AND ARROWS AS INDICATED ON DRAWINGS.	_	L.E.D.	120/ 277	WALL OR CEILING	N/A	LITHONIA LQM-S-W-3-G-EL N OR EQUAL	
₩ ₩	COMBINATION EM/EXIT SIGN WITH POLYCARBONATE HOUSING, N-CAD BATTERY, RED LETTERS ON A WHITE FACE, AND TWO 5.4 WATTS EMERGENCY HEADS NUMBER OF FACES AND ARROWS AS INDICATED ON DRAWINGS.		L.E.D.	120/ 277	WALL OR CEILING	N/A	LITHONIA LHQM-S-W-3-R-N OR EQUAL	
4	TWIN HEAD EMERGENCY FIXTURE WITH POLYCARBONATE HOUSING, TWO 7.2 WATT WEDGE BASE TUNGSTEN LAMPS, AND 6V NICAD BATTERY.	2	BY MFGR.	120/ 277	WALL MOUNTED	N/A	LITHONIA 6 ELM 2-N OR EQUAL	

WHERE DISCREPANCIES BETWEEN DESCRIPTION AND PART NUMBER EXIST, THE GREATER QUANTITY OR BETTER QUALITY SHALL PREVAIL. FOR FIXTURE APPROVAL, SUBMIT CATALOG CUTS AND PHOTOMETRIC INFORMATION IN ACCORDANCE WITH THE SPECIFICATIONS. PROVIDE T BAR CLIP AND SUPPORTS FOR FOR L.I.G. FIXTURES PER SPECIFICATIONS.

4. ALL RECESSED LIGHT FIXTURES SHALL BE ONE HOUR RATED. ALL ACRYLIC LENSES SHALL BE A MINIMUM 1/8" THICK.

ISOLATED GROUND RECEPTACLE

TTC

RECEPTACLE MOUNTING HEIGHT = 1'-6"

UNLESS NOTED "+" AT ANY RECEPTACLE

NETWORK TERMINAL BOARD (EXISTING)

TELEPHONE TERMINAL CABINET (EXISTING)

SYMBOL = 44" MOUNTING HEIGHT OR AS INDICATED

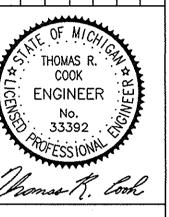
DUPLEX RECEPTACLE WITH INTEGRAL GROUND FAULT INTERRUPTER

TELEPHONE/DATA OUTLET (DOUBLE GANG J-BOX WITH BLANK COVER PLATE)

ALL ELECTRONIC BALLASTS TO BE INSTANT START AND THD <10%. UNLESS OTHERWISE NOTED.

ALL FLUORESCENT FIXTURES MARKED AS NIGHT LIGHT/EMERGENCY LIGHTS (EM/NL) SHALL BE EQUIPPED WITH BATTERY INVERTER BALLAST CONNECTED TO A LOCAL UNSWITCHED CIRCUIT.

///- DESIGN SERVICES MECHANICAL/ELECTRICAL CONSULTING ENGINEERS 120 South Hill Street Mishawaka, Indiana 46544 (574) 256-1914 JOB NO. 545



King nod.

DESIGNED BY: REVIEWED BY:

DRAWN BY:

2/21/2011 JOB NUMBER: 2010-5068

1/4" = 1'-0"