

	ENGINEER: AI Engineers	SIGNATURE/ BLOCK:	PROJECT TITLE: MCGEE
D	919 MIDDLE STREET MIDDLETOWN, CT 06457 Filename: C01 - GENERAL SITE PLAN & DETAILS.DWG		OUTDO





ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

1.1 GENERAL

- A. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF LOCAL AND STATE AGENCIES AND UTILITY D. MINIMUM SIZES SHALL BE AS FOLLOWS: COMPANIES. THIS CONTRACTOR SHALL BEAR THE COST OF ALL FEES, PERMITS, LICENSES AND TAXES. ALL EQUIPMENT INSTALLED SHALL BE UL LISTED.
- B. NEW WORK:
- 1. PROVIDE COMPLETE ELECTRICAL LIGHTING & POWER AS INDICATED ON THE CONTRACT DRAWINGS.
- 2. PROVIDE ALL ELECTRICAL WORK NECESSARY TO POWER OWNER-SUPPLIED EQUIPMENT. PROVIDE ALL RECEPTACLES, POWER WIRING, CORE DRILLS, ETC., NECESSARY FOR A COMPLETE INSTALLATION. 3. SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, TESTED, APPROVED AND READY FOR OPERATION.
- C. WORK BY OTHERS:
- 1. THE GENERAL/CIVIL CONTRACTOR SHALL PROVIDE CONDUIT STUB-UPS, CUTTING AND CONDUIT TRENCHES,

1.3 SHOP DRAWING SUBMITTALS

- A. SUBMIT SHOP DRAWINGS ON EQUIPMENT AND MATERIALS TO THE ENGINEER FOR APPROVAL. THE DRAWINGS SHALL INCLUDE RATINGS, G. WHERE MC CABLE IS ALLOWED, EMT SHALL BE INSTALLED FROM ELECTRICAL PANELS TO A COLLECTOR BOX AND FROM THE COLLECTOR BOX TO THE PERFORMANCE INFORMATION, OPERATING DATA AND WIRING DIAGRAMS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR WORK FIRST DEVICE IN EACH CIRCUIT, OR TO A SEPARATE JUNCTION BOX INSTALLED IN AN ACCESSIBLE CEILING SPACE DIRECTLY ABOVE THE FIRST DEVICE. PERFORMED OR EQUIPMENT SUPPLIED THAT IS NOT IN AGREEMENT WITH APPROVED SHOP DRAWINGS
- B. THE FOLLOWING LIST OF ELECTRICAL ITEMS MUST BE SUBMITTED BY THIS CONTRACTOR FOR APPROVAL
- 1. CIRCUIT BREAKERS
- 2. WIRING DEVICES AND PLATES
- 3. LIGHTING & FAN FIXTURES (SUBMIT SAMPLES AS REQUESTED)
- 1.4 RECORD DRAWINGS
- A. NEATLY AND ACCURATELY RECORD ALL CHANGES TO CONTRACT DOCUMENTS ON RECORD SET OF DRAWINGS FURNISHED BY THE GENERAL CONDUCTORS SHALL BE NEW COPPER WITH 600 VOLT CODE GAUGE INSULATION CONFORMING TO NEC REQUIREMENTS. WIRE #10 AND SMALLER SHALL BE SOLID CONDUCTOR WITH THWN/THHN INSULATION. MINIMUM SIZE WIRE FOR LIGHT AND POWER CIRCUITS SHALL BE #12 AWG. THE 3.5 OPERATIONAL TESTS CONTRACTOR. THESE RECORD "AS-BUILT" DRAWINGS SHALL INCLUDE LOCATIONS OF SPECIFIC ITEMS AS LISTED IN THE VARIOUS SPECIFICATION CONTRACTOR SHALL INCLUDE AN INDIVIDUAL CODE SIZED GREEN INSULATED GROUND CONDUCTOR FOR ALL CIRCUITS; THE USE OF THE CONDUIT DIVISIONS. UPON PROJECT COMPLETION, THESE RECORD DRAWINGS SHALL BE TURNED OVER TO THE ENGINEER. SYSTEM OR CABLE COVERING AS THE SOLE MEANS OF GROUNDING WILL NOT BE PERMITTED.

1.5 DEFINITION

A. AS USED ON CONTRACT DRAWINGS, THE TERM "TO PROVIDE" SHALL MEAN "TO FURNISH, INSTALL AND CONNECT COMPLETELY IN THE SPECIFIED OR APPROVED MANNER THE ITEM OR MATERIAL DESCRIBED."

1.6 GUARANTEE

A. MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL HAVE STANDARD WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP. FAILURES DUE TO DEFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR DESIGN SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THE CONTRACTOR, INCLUDING DAMAGE DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM SUCH FAILURES. GUARANTEE PERIOD SHALL EXTEND FOR ONE YEAR FROM THE DATE OF ACCEPTANCE.

1.7 INSPECTION

A. CONTRACT DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY REQUIRED FITTING, ETC. THE CONTRACTOR SHALL FAMILIARIZE THEIRSELF WITH EXISTING SITE CONDITIONS PRIOR TO SUBMITTING A BID, AND SHALL INCLUDE ALL EQUIPMENT AND ACCESSORIES NECESSARY FOR COMPLETE AND OPERATIONAL SYSTEMS.

1.8 INSURANCE

- A. FURNISH INSURANCE CERTIFICATES REQUIRED BY THE OWNER
- 1.9 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS
- A. OBTAIN AND PAY FOR PERMITS, INSPECTIONS, LICENSES AND CERTIFICATES REQUIRED. WORK OF THIS CONTRACT SHALL MEET CURRENT ACCEPTED 1. IF EXCESSIVE GROUND CURRENT FLOWS, MAIN BREAKERS AND/OR CIRCUIT BREAKERS WITH GROUND FAULT SENSING SHALL TRIP TO PROTECT EDITIONS OF THE STATE BUILDING CODE, STATE FIRE SAFETY CODE AND OTHER LAWS, RULES AND REGULATIONS OF LOCAL, STATE AND FEDERAL AGAINST ARCING GROUND FAULTS. AUTHORITIES INCLUDING, BUT NOT LIMITED TO: NATIONAL FIRE PROTECTION ASSOCIATION #13; NATIONAL FIRE PROTECTION ASSOCIATION #90A; NATIONAL FIRE PROTECTION ASSOCIATION #90B; INTERNATIONAL PLUMBING CODE; INTERNATIONAL MECHANICAL CODE; NATIONAL FIRE PROTECTION 2. PROVIDE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION FOR RECEPTACLES LOCATED OUTSIDE AS REQUIRED AND INDICATED. ASSOCIATION #70 (NATIONAL ELECTRICAL CODE); AND LOCAL UTILITY COMPANY REQUIREMENTS. PAY UTILITY COMPANY BACKCHARGES. EQUIPMENT, MATERIALS AND COMPONENTS LISTED IN UL PRODUCT DIRECTORIES, SHALL BEAR UL LABELS. C. MATERIALS
- 1.10 ARRANGEMENT OF WORK
- A. WORK SHALL BE COORDINATED BETWEEN TRADES TO PREVENT INTERFERENCE. WORK SHALL PRESENT A NEAT COORDINATED APPEARANCE. INSTALL WORK AS NECESSARY TO PROVIDE MAXIMUM POSSIBLE HEADROOM, ADEQUATE CLEARANCE AND READY ACCESS FOR INSPECTION. OPERATION, SAFE MAINTENANCE AND REPAIR AND CODE CONFORMANCE. WHERE SPACE APPEARS INADEQUATE, CONSULT WITH THE ENGINEER BEFORE PROCEEDING WITH INSTALLATION.
- 1.11 WORKMANSHI
- A. EQUIPMENT AND MATERIALS SHALL BE NEW, OF FIRST QUALITY, SELECTED AND ARRANGED TO FIT PROPERLY INTO SPACES INDICATED. INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1.12 COORDINATION WITH OWNER

- A. WORK SHALL BE SCHEDULED WITH THE OWNER. INTERRUPTIONS IN OWNER'S ACCESS TO THE SITE SHALL BE SUBJECT TO OWNER LIMITATIONS OF DATE AND DURATION.
- 1.13 OPERATION OF SERVICES AND UTILITIES
- A. SHUTDOWN OF EXISTING SERVICES AND UTILITIES SHALL, WITHOUT EXCEPTION, BE COORDINATED WITH THE PROPER UTILITY AND WITH THE OWNER AS TO DATE, TIME OF DAY, AND DURATION BEFORE ANY SERVICE IS INTERRUPTED. NOTIFY THE OWNER OF ESTIMATED DURATION OF SHUTDOWN PERIOD AT LEAST TEN DAYS IN ADVANCE OF PROPOSED SHUTDOWN.

1.14 PROTECTION

- A. CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUGS DURING CONSTRUCTION TO PREVENT ENTRY OF FOREIGN MATERIAL. PROTECT EXISTING PROPERTY, EQUIPMENT AND FINISHES FROM DAMAGE. REPAIR, TO ORIGINAL CONDITION, EXISTING PROPERTY THAT HAS BEEN DAMAGED DURING EXECUTION OF THE WORK.
- B. CLEANING
- C. WORK SITE MUST BE KEPT CLEAN. RUBBISH, DEBRIS AND LEFTOVER OR EXCESS MATERIALS SHALL BE REMOVED DAILY
- 1.15 PAINTING
- A. EQUIPMENT AND MATERIALS SHALL HAVE STANDARD MANUFACTURER'S FINISH EXCEPT WHERE OTHERWISE NOTED.
- 1.16 CUTTING AND PATCHING
- A. CUTTING AND PATCHING TO BE PERFORMED BY THIS CONTRACTOR. PAINTING OF FINISHED SURFACES AFTER PATCHING SHALL MATCH ADJACENT D. RECEPTACLES SHALL BE MOUNTED 18 INCHES ABOVE FINISHED FLOOR WITH U GROUND UP UNLESS OTHERWISE INDICATED. FINISHES. E. WALL SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR, ON STRIKE SIDE OF DOOR, UNLESS OTHERWISE INDICATED
- 1.17 WATERPROOFING/WEATHERPROOFING
- A. PROVIDE NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS WATERPROOF/WEATHERPROOF.

1.19 FIREPROOFING

- A. PENETRATIONS OF WALLS, FLOORS, AND ROOFS FOR THE PASSAGE OF ELECTRICAL RACEWAYS SHALL BE PROPERLY SEALED SO AS TO MAINTAIN THE B. ALL EXISTING LIGHTING FIXTURES TO REMAIN IN THE CONSTRUCTION AREA SHALL BE RE-LAMPED WITH NEW LAMPS TO MATCH BUILDING STANDARD WATERPROOF INTEGRITY, AND FIRE OR SMOKE RATING OF THE STRUCTURE. FOR TYPE AND COLOR AND CLEAN ALL REFLECTING SURFACES, DIFFUSERS AND LOUVERS.
- 1.20 ACCESS
- A. PROVIDE ADEQUATELY SIZED ACCESS DOORS, FOR ACCESS TO CONCEALED EQUIPMENT AND COMPONENTS REQUIRING SERVICING OR INSPECTION. DOORS SHALL HAVE FIRE RATINGS EQUAL TO CONSTRUCTION IN WHICH THEY ARE LOCATED.
- 1.21 SYSTEMS OPERATION AND MAINTENANCE
- A. UPON COMPLETION OF THE WORK AND AT A TIME DESIGNATED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH INSTRUCTION MANUALS INCLUDING DATA. WARRANTIES. ETC., AND SHALL INSTRUCT THE OWNER OR HIS REPRESENTATIVE AS TO THE ARRANGEMENT, LOCATION AND OPERATION OF ALL EQUIPMENT AND SYSTEMS FURNISHED AND INSTALLED UNDER THE ELECTRICAL CONTRACT.

PART 2 - PRODUCTS

2.1 WIRE CABLE AND RACEWAYS

A. RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE USED FOR ALL EXTERIOR WIRING AND WHERE SUBJECT TO DAMPNESS, EXCEPT AS NOTED BELOW OR AS SPECIFICALLY NOTED ON THE DRAWINGS. CONNECTORS AND COUPLINGS SHALL BE GALVANIZED STEEL THREADED TYPE LISTED FOR RMC PART 3 - EXECUTION USF

					-
					DESIGNER/DRAFTER:
				THE INFORMATION, INCLUDING ESTIMATED	ZR
				QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED	CHECKED BY:
				INVESTIGATIONS BY THE STATE AND IS	ТР
				THE CONDITIONS OF ACTUAL QUANTITIES	
				OF WORK WHICH WILL BE REQUIRED.	
					SCALE AS NOTEL
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/22/2023	

- B. ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED FOR FEEDERS RUN ABOVE GROUND IN DRY AREAS. CONNECTORS AND COUPLINGS SHALL BE GALVANIZED STEEL, EITHER COMPRESSION TYPE OR HEAVY-DUTY SET SCREW-TYPE, LISTED FOR EMT USE. INDENT OR CRIMP-TYPE CONNECTORS ARE NOT ALLOWED.
- C. EMT OR RGS SHALL BE USED FOR ALL CIRCUIT HOMERUNS.
- 1. CONDUIT AND EMT: 3/4" UNLESS OTHERWISE NOTED
- FLEXIBLE METAL CONDUIT: 1/2"
- 3. WIREWAY: 4" X 4".
- 4. CABLE LADDER: 12"
- TYPE MC METAL-CLAD CABLE MAY BE USED FOR BRANCH WIRING TO LIGHT FIXTURES, RECEPTACLES AND SWITCHES. WHEREVER MC CABLE IS USED FOR LIGHT FIXTURE WIRING, LEAVE SUFFICIENT SLACK FOR FUTURE REMOVAL OR SERVICING OF FIXTURES IN FINISHED CEILINGS. THE MC CABLE SHALL BE UL LISTED, 600V, 90 DEGREE C RATED, METAL CLAD WITH THHN INSULATION AND GREEN INSULATED GROUND WIRE. CONNECTORS AND 3.3 GENERAL WIRING TESTS FITTINGS SHALL BE GALVANIZED STEEL, LISTED FOR MC CABLE USE. ALL CABLES SHALL BE RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURE AT LEAST 4' O.C. AND WITHIN 12" FROM EVERY FITTING AND SHALL RUN IN LINES PARALLEL OR PERPENDICULAR TO BUILDING STRUCTURAL MEMBERS. CABLE SHALL NOT REST ON THE CEILING OR STRUCTURE.
- F. TYPE MC CABLE SHALL NOT BE USED FOR HOMERUNS. CABLE SHEATH OF INTERLOCKED ALUMINUM IS NOT ACCEPTABLE. TYPE AC ARMORED CABLE SHALL NOT BE PERMITTED ON THE JOB.
- H. FLEXIBLE METALLIC CONDUIT (FMC) OR LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) SHALL BE USED FOR CONNECTIONS TO VIBRATING EQUIPMENT AND FURNITURE PARTITIONS. CONNECTORS, FITTINGS AND CLAMPS FOR FMC SHALL BE GALVANIZED STEEL, LISTED FOR FMC USE. 3.4 GROUNDING SYSTEM TESTS CONNECTORS AND COUPLINGS FOR LFMC SHALL BE ZINC PLATED MALLEABLE IRON OR STEEL, WITH ENGAGEMENT WINDOW LOCKNUT AND SEALING RING: LIQUID, OIL, AND RAIN-TIGHT; SUITABLE FOR WET LOCATIONS, LISTED FOR LFMC USE: ACCEPTABLE EQUIVALENT TO O-Z/GEDNEY "TYPE 4Q".
- 1. BLUE TYPE LA LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC) SHALL BE USED FOR ALL WIRING BENEATH RAISED FLOOR.
- 2. GREY/TAN TYPE LA LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC) SHALL BE USED FOR FINAL CONNECTIONS TO VIBRATING EQUIPMENT AND TO B. GROUND FAULT CIRCUIT INTERRUPTION SHALL BE TESTED AFTER INSTALLATION BY RANDOM CONNECTION OF PLUG-IN TESTER TO VARIOUS FURNITURE PARTITIONS FROM UNDERELOOR DUCT ACTIVATION FITTINGS
- J. COMMON NEUTRALS SHALL NOT BE USED FOR RECEPTACLE CIRCUITS, UNLESS OTHERWISE NOTED ON PLANS. WHEN USED, COMMON NEUTRAL CONDUCTOR AMPERE RATING SHALL BE DOUBLE THE PHASE CONDUCTOR RATING.
- K. ALL CONDUITS AND WIRING SHALL BE RUN CONCEALED INSIDE WALLS WHERE POSSIBLE. EXPOSED CONDUITS WHERE ALLOWED SHALL BE RUN NEATLY IN LINES PARALLEL OR PERPENDICULAR TO BUILDING WALLS. L. ALL SPLICES FOR #10 OR SMALLER SHALL BE MADE WITH "SCOTCHLOK" SPRING CONNECTORS OR EQUAL
- M. PROVIDE NYLON PULL LINES FOR ALL EMPTY CONDUITS.
- 2.2 GROUNDING AND BONDING
- A. EQUIPMENT GROUNDS
- 1. GROUNDING SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH NFPA 70 (NEC) AND TO SATISFACTION OF LOCAL ELECTRICAL INSPECTOR OR D. PROVIDE ARC FLASH HAZARD WARNING SIGNAGE AT NEW ELECTRICAL EQUIPMENT, SUCH AS BUT NOT LIMITED TO, PANELBOARDS, DISCONNECT ENGINEER
- 2. PROVIDE GREEN THHN INSULATED COPPER EQUIPMENT GROUNDING CONDUCTOR BETWEEN THE GROUND BUS OF THE SOURCE PANELBOARD E. PROVIDE FIELD MARKING ON SERVICE EQUIPMENT: MAXIMUM AVAILABLE FAULT CURRENT AND DATE THE FAULT CURRENT WAS CALCULATED. AND EACH LOAD BEING SERVED. CONDUCTOR SHALL BE SIZED ACCORDING TO NEC. PROVIDE SEPARATE GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT. UNLESS OTHERWISE INDICATED ON CONTRACT DRAWINGS.
- 3. MAINTAIN ELECTRICAL CONTINUITY OF RACEWAYS.

B. GROUND FAULT PROTECTION

- 1. WIRE SHALL BE STRANDED BARE COPPER OR INSULATED COPPER, AS INDICATED ON CONTRACT DRAWINGS
- 2. BUSHINGS AND PRESSURE LUGS SHALL BE BY T&B, O.Z./GEDNEY OR ACCEPTABLE EQUIVALENT
- 3. PIPE CLAMPS SHALL BE BY O.Z./GEDNEY OR ACCEPTABLE EQUIVALENT.

2.3 OUTLET AND JUNCTION BOXES

- A. SWITCH AND RECEPTACLE OUTLET BOXES IN PARTITIONS WHERE WIRING IS CONCEALED SHALL BE STANDARD 4 INCHES SQUARE, 1-1/2 INCHES DEEP HOT-DIPPED, GALVANIZED STEEL, WITH DEVICE RING FOR BOXES INSTALLED IN SHEETROCK WALLS. USE 1-1/2 INCH DEEP SQUARE CORNER TILE WALL EXTENSION FOR BOXES INSTALLED IN TILE, EXPOSED BRICK OR EXPOSED BLOCK MASONRY WALLS.
- B. BOXES SHALL BE SECURELY FASTENED TO THE BUILDING STRUCTURE. SUITABLE MEANS SHALL BE PROVIDED TO SUPPORT OUTLET BOXES TO TAKE THE WEIGHT OF FIXTURES. RECESSED OUTLET BOXES OR THEIR EXTENSION COVERS SHALL BE SET FLUSH WITH FACE OF FINISHED WALL, BUT IN NO CASE SET GREATER THAN 1/4 INCH BEHIND FINISHED FACE OF WALL.
- C. JUNCTION BOXES SHALL BE SIZED IN ACCORDANCE WITH CODE REQUIREMENTS.
- D. JUNCTION AND OUTLET BOXES WHERE EXPOSED TO THE WEATHER AND WET LOCATIONS SHALL BE THREADED HUB TYPE AND PROVIDED WITH WATERTIGHT SCREW-ON COVERS AND GASKETS.
- 2.4 SWITCHES, RECEPTACLES AND PLATES
- A. SWITCHES AND RECEPTACLES SHALL BE AS MANUFACTURED BY HUBBELL, ARROW-HART, LEVITON OR PASS AND SEYMOUR AND EQUIVALENT TO THE FOLLOWING SPECIFICATION GRADES, WITH COLOR MATCHING THE CITY OF WATERBURY STANDARD:
- 1. SINGLE-POLE SWITCHES SHALL BE HUBBELL #1221.
- 2. MOMENTARY CONTACT SWITCHES SHALL BE SINGLE-POLE, DOUBLE-THROW EQUIVALENT TO HUBBELL #1557
- 3. DUPLEX GROUNDING TYPE RECEPTACLES SHALL BE 20 AMPERE HUBBELL #5362.
- 4. GROUND FAULT TYPE RECEPTACLES SHALL BE HUBBELL #GF-5362 FEED-THROUGH RECEPTACLES ..
- B. PROVIDE WALL PLATES EQUAL TO BUILDING STANDARD ON ALL SWITCHES AND RECEPTACLES. WHEN NO STANDARD EXISTS PROVIDE SPECIFICATION **GRADE STAINLESS STEEL (TYPE 302)**
- C. WHERE THERE ARE MULTIPLE DEVICES IN ONE LOCATION, DEVICES SHALL BE GANGED UNDER ONE COVER PLATE. ALL WALL SWITCHES SHALL BE FLUSH MOUNTED, WHERE APPLICABLE.

2.5 LIGHTING FIXTURES

- A. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL LIGHTING EQUIPMENT AS SHOWN ON THE DRAWINGS AND SPECIFIED ON DRAWINGS COMPLETE WITH LAMPS READY FOR OPERATION.
- C. FIXTURES NOT NOTED AS BEING REUSED WILL BE TURNED OVER TO THE BUILDING OWNER, OR DISPOSED OF PER THE OWNER'S DIRECTION DURING CONSTRUCTION.
- D. INSTALLATION OF LIGHTING FIXTURES:
- 1. FIXTURES SHALL BE SECURELY ATTACHED TO THE BUILDING STRUCTURE BY MECHANICAL MEANS AND BY SAFETY WIRE. PROVIDE BOX-MOUNTED STUDS AND ADDITIONAL STRUCTURAL SUPPORTS AS REQUIRED. PROVIDE TWO SAFETY WIRES PER FIXTURE. EACH SAFETY WIRE SHALL BE CAPABLE OF SUPPORTING FOUR TIMES THE WEIGHT OF THE FIXTURE. SAFETY WIRE SHALL BE ADJUSTED TO BE IN SLACK TENSION.

2. INSTALL SEISMICALLY RATED CLIPS TO SECURE RECESSED GRID-SUPPORTED LUMINAIRES IN PLACE. PROVIDE FOUR CLIPS PER FIXTURE.

2.6 CIRCUIT BREAKERS

A. ALL NEW CIRCUIT BREAKERS SHALL MATCH EXISTING IN STYLE, MANUFACTURER AND INTERRUPTING RATING FOR PANEL IN WHICH THEY ARE BEING INSTALLED. UNLESS NOTED OTHERWISE.

ENGINEER



- 3.6 LABELING
- PANELBOARDS WITHIN THE SCOPE OF WORK.

MINIMUM TEST PERIOD OF ONE HOUR.

- B. ALL MANUFACTURER'S NAMEPLATES SHALL BE KEPT CLEAN AND FREE OF PAINT.
- C. ALL PANELS SUPPLIED BY FEEDERS SHALL BE MARKED TO INDICATE WHERE THE POWER ORIGINATES.

END OF SECTION

LOAD BALANCE

3.2 CIRCUIT BREAKER TESTING/SETTING

UNLESS NOTED OTHERWISE.

WIRE AND LARGER.

Filename: E02.DWG

A. THE ELECTRICAL CONTRACTOR SHALL BALANCE THE LOADS ON THE THREE PHASES IN THE ELECTRICAL PANELBOARD.

A. FEEDER CIRCUIT BREAKERS SHALL BE TESTED BY AN INDEPENDENT TESTING FIRM WITH 10 YEARS EXPERIENCE, PRIOR TO INSTALLATION.

B. TESTS SHALL BE PERFORMED AT SPECIFIED TRIP SETTING TO ENSURE PROPER OPERATION.

C. RESULTS OF TEST SHALL BE FURNISHED TO OWNER FOR RECORD. D. VERIFY FINAL TRIP SETTINGS FOR ADJUSTABLE OR INTERCHANGEABLE CIRCUIT BREAKER ELEMENTS. INSTANTANEOUS SETTINGS SHALL BE MINIMUM

A. AT THE TIME OF FINAL INSPECTION AND TEST, ALL WIRING AND CONNECTIONS THROUGHOUT THE RENOVATION AREAS MUST BE COMPLETED, DEVICES AND EQUIPMENT PROPERLY OPERATING, LIGHTING FIXTURES INSTALLED, AND POWER AND LIGHTING CIRCUIT AND CONTROL WIRING CLEARLY IDENTIFIED WITH APPROVED TAGS READY FOR ACCEPTANCE. EACH SYSTEM SHALL TEST FREE FROM SHORT CIRCUIT AND GROUNDS. B. INSULATION RESISTANCE FOR LOW VOLTAGE CABLES AND WIRING SHALL BE PERFORMED AT 1000 VOLT D.C. FOR ONE (1) MINUTE. WHEN INSULATION RESISTANCE MUST BE DETERMINED, SWITCHBOARDS, PANELBOARDS, SWITCHES AND OVERCURRENT DEVICES SHALL BE IN PLACE, AND THE INSULATION RESISTANCE WHEN TESTED AT 1000 VOLTS D.C. SHALL BE NO LESS THAN 100,000 OHMS FOR #14 AND #12 WIRE AND 250,000 OHMS FOR #10

A. TEST AND INSPECT THE MAIN GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH SECTION 7.13 OF THE NETA HANDBOOK FOR ELECTRICAL TESTING PROCEDURES. PERFORM A RESISTANCE TO GROUND TEST AND INSURE THAT RESISTANCE IS NO GREATER THAN 5 (FIVE) OHMS. INVESTIGATE AND SUPPLEMENT GROUNDING SYSTEM WHERE RESISTANCE EXCEEDS RECOMMENDED VALUES AND RE-TEST AS REQUIRED. PROTECTED RECEPTACLES, AS DIRECTED BY ENGINEER.

A. EACH PIECE OF ELECTRICAL EQUIPMENT, INCLUDING LIGHTING FIXTURES, MOTORS AND CONTROLS SHALL BE OPERATED CONTINUOUSLY FOR

B. DEMONSTRATE BY OPERATING EQUIPMENT THAT CIRCUITS AND DEVICES ARE IN GOOD OPERATING CONDITION. EACH ITEM OF CONTROL EQUIPMENT SHALL BE OPERATED MINIMUM OF FIVE TIMES. DEMONSTRATION SHALL BE PERFORMED AFTER WIRING TESTS.

A. LABEL ALL NEW DISCONNECTS, STARTERS, MOTORS, IN A MANNER ACCEPTABLE TO THE ENGINEER. PROVIDE UPDATED PANEL SCHEDULES IN ALL

SWITCHES, METER SOCKET ENCLOSURES, ETC. SIGNAGE SHALL COMPLY WITH NEC AND NFPA 70E, AND SHALL BE A MINIMUM OF 4" X 5".

PRELIMINARY DESIGN REVIEW

DRAWING

McGEE MIDDLE SCHOOL OUTDOOR CLASSROOM

ELECTRICAL SPECIFICATIONS

BERLIN

PROJECT NO.
3718
DRAWING NO.
E-02
SHEET NO.
2 of 2



METAL ROOFING NOTES:

CLEAR PROTECTIVE FILM MUST BE REMOVED FROM ALL METAL PRIOR TO INSTALLATION.

METAL ROOFING SHOULD BE STORED INDOORS OR WHEN STORED OUTSIDE IT SHOULD BE STORED UP ON BLOCKS WITH



ZONE	PRESSURE	SUCTION	AREA
2	47.0 PSF	43.3 PSF	≤ 36 ft ²
2	30.4 PSF	28.0 PSF	> 36 ft ²
3	60.9 PSF	56.0 PSF	≤ 9 ft ²
3	47.0 PSF	43.3 PSF	> 9 ft ² , ≤ 36 ft ²
3	30.4 PSF	28.0 PSF	> 36 ft ²



STEEL & HARDWARE SHOP NOTES: 1. All steel plate to be ASTM A572 Grade 50.

All steel members must be properly braced until the complete structural system has been constructed. Correction of minor misfits and a reasonable amount of reaming or alignment with drift pins will be considered a legitimate expense of erection.

In the event of error, defect in materials, and/or workmanship of shop work which prevents proper assembling and fitting up of parts by the moderate use of drift pins, or reaming, immediately report to the seller and obtain seller's approval of the

NOTE: This building has been designed as a free standing, open structure. If walls are to be added, or if the building is to adjoin another structure, or if other modifications are to be made, the structure must be re-engineered prior to these

CONTRACT NOTE: Reference accepted proposal and/or executed contract for identification of items furnished. Any item not specifically included shall be provided by owner, installer or others. Some items are specifically noted as N.I.C. (not in contract).

2. Steel tubes to be ASTM A500 Grade C.

3. All welding is to be done in accordance with latest AWS standards. If welds are not specified, all welds are to develop full strength of all component parts.

7. Hardware (bolts, nuts, washers, etc.) to be hot-dipped galvanized (HDG). Shop to verify hole tolerances and tolerances of



TS-G2430-04	BERLIN PUBLIC SCHOOLS (110076)	BERLIN, CT		
IROOM	GIBSONIA, PA 15044	www.fifthroom.com www.gazebocreations.com		
	5410 ROUTE 8	Phone 888-293-2339 Fax 724-444-5301		
PROJ. NO.: 23-142-A DRAWN: DPS 6-16-23 CHK'D: REV 1: REV 2: REV 3: REV 4:				

of **6**

HIS PRINT IS THE PROPERTY OF THE

MANUFACTURER AND IS NOT TO BE USED COPIED, OR REPRODUCED WITHOUT THEIR EXPRESSED WRITTEN PERMISSION.





THICKENED SLAB EDGE DETAIL



 $M_{O.T. DL+0.6*WL} = 8,200#-ft$

- 2. Prepare slab with min. 8" compacted sand, gravel, or crushed rock.

- 6. Install crack control joints (3/16" wide x 1" deep) at 8' to 12' o.c.

- 9,000 psi.
- provided to furnish support for bars.

ELECTRICAL CONDUIT NOTE: electrical contractor.

<u>CONCRETE NOTES:</u> 1. Remove all organic material and topsoil from slab area. Verify suitability of subgrade. Footings are to bear on undisturb natural soil or engineered fill. Both are to be compacted to 95% Proctor density.

3. Concrete slab to be 4" thick. Reinforce slab with 6x6-w1.4xw1.4 welded wire fabric at mid-depth. Lap splices 8". Alt.: I mesh admixture (min. 1.5#/c.y., fibrillated polypropylene).

4. Edge of slab to be thickened to min. 8" deep x 8" wide reinforced with 2-#4 continuous rebars. Lap splices min. 24". 5. In locations subject to frost, install isolation joint, max. 1/8" wide, around column piers using diamond or circular layout. Wire mesh shall be interrupted at isolation joints.

7. Concrete slabs in open areas are to be sloped for drainage from center to edge and away from columns. Surface is to l lightly broomed or have a wood troweled finish.

8. Concrete slabs in enclosed areas are to have positive drainage to floor drains and have a troweled finish.

9. Concrete slab, foundation, re-bar, wire mesh, leveling nuts, grout & anchor bolts (if required) are N.I.C. 10. All concrete reinforcing steel to be grade 60, deformed bars.

11. F'c of concrete to be 3000 psi @ 28 days for foundation. F'c of concrete to be 3500 psi @ 28 days for slab, air-entrained 12. All concrete work to be in accordance w/ latest ACI code.

13. Assumed allowable soil bearing pressures: 2000 psf vertical bearing, 150 pcf passive lateral bearing. It is the Owner's responsibility to verify that the allowable soil bearing values at the site meet or exceed these assumed values. If the ac values are lower than the assumed values, the foundations must be redesigned (N.I.C.).

14. Leveling nuts have been shown under column base plate. Adjust leveling nuts as required to ensure all column bases a at the same elevation. Fill void between column base plate and top of foundation with non-shrink grout. 15. Grout shall be non-shrink, non-metallic, factory pre-mixed grout in accordance with ASTM C1107 with F'c of not less the

16. Reinforcement shall be securely held in place while placing concrete. If required, additional bars, stirrups or chairs shall

If electrical access is required; install conduit in foundation and align with access hole in column base plate. Coordinate w

rbed, Fiber	MANUFACTURER AND IS NOT TO BE USED, COPIED, OR REPRODUCED WITHOUT THEIR EXPRESSED WRITTEN PERMISSION.			
ut. o be ed. s actual s are than all be with	TS-G2430-04	BERLIN PUBLIC SCHOOLS (110076)	BERLIN, CT	
	ROOM	GIBSONIA, PA 15044	www.fifthroom.com www.gazebocreations.com	
		5410 ROUTE 8 G	Phone 888-293-2339 Fax 724-444-5301	
	PROJ. NO.: 23- DRAWN: [CHK'D:	-142 DPS	2-A 6-16-23	
	REV 1: REV 2: REV 3: REV 4: SHOP DWG NC: EEC JOB NO.: SHEET NO.: 2)) • OF	14733R2 14733 R 6	







CONN S-1 2-req'd.

- 1 MK-100 WELDED ASSEMBLY
- 4 3/4"Ø x 3" BOLT (WITHOUT NUT) 8 - 3/4"Ø x 3 1/2" BOLT (WITHOUT NUT)
- 4 3/4"Ø x 3 1/2" BOLT
- 4 3/4"Ø HEX NUT



CONN S-2 4-req'd.

- 2 CPA-1 4 1/2" SQUARE COVERPLATE ASSEMBLY
- 1 CPA-3 5 1/2" SQUARE COVERPLATE ASSEMBLY 4 - 1/2"Ø x 1 3/4" BOLT (WITHOUT NUT)
- 2 3/4"Ø x 8" BOLT
- 2 3/4"Ø HEX NUT

	HARDWARE PARTS LIST					
QUANTITY	Loose OR Attach	HARDWARE DESCRIPTION	PART NO.	REMARKS		
16	L	1/2"Ø x 1 3/4" BOLT	H325G 050 0175			
16	A	1/2"Ø HEX NUT	HN325G 050-13			
8	L	3/4"Ø x 3" BOLT	H325G 075 0300			
24	L	3/4"Ø x 3 1/2" BOLT	H325G 075 0350			
16	L	3/4"Ø x 8" BOLT	H325G 075 0800			
24	A	3/4"Ø HEX NUT	HN325G 075-10			
24	L	3/4"Ø HEX NUT	HN325G 075-10			
16	L	4 1/2" SQ. COVERPLATE ASSEMBLY	CPA-1			
4	L	5 1/2" SQ. COVERPLATE ASSEMBLY	CPA-3			
16	L	3/4"Ø x 24" (F1554 GR. 36) THREADED ROD		N.I.C., HDG		
16	L	1/4" x 3" SQ. WASHER		N.I.C., HDG		
64	L	3/4"Ø HEX NUT A563A (ANCHOR & LEVELING)		N.I.C., HDG		



CONN S-3 4-req'd.

- 2 CPA-1 4 1/2" SQUARE COVERPLATE ASSEMBLY
- 2 3/4"Ø x 8" BOLT 2 - 3/4"Ø HEX NUT

		THIS PRINT IS THE PROPERTY OF THE MANUFACTURER AND IS NOT TO BE USED, COPIED, OR REPRODUCED WITHOUT THEIR EXPRESSED WRITTEN PERMISSION.
ERECTOR NOTES: 1. BEFORE ATTACHING COVERPLATE ASSEMBLY, MAKE SURE THAT THE NUBS ON THE BACKER PLATE FACE THE COVER PLATE. 2. LOCK NUT IS PRESET IN SHOP, BUT CAN BE RE-ADJUSTED IN FIELD TO PROVIDE THE NECESSARY TENSION IN SPRING TO OBTAIN ADEQUATE FRICTION BETWEEN PLATE & BEAM FOR ERECTION. 3. PLACE COVERPLATE ASSEMBLIES ON TUBES CAREFULLY SO AS TO NOT SCRATCH THE PAINT ON TUBE. 4. ERECTION OF COVERPLATE ASSEMBLY: A. PUT ONE END OF BACKER PLATE THRU ACCESS HOLE AND BEHIND TUBE WALL. B. SHIFT ASSEMBLY TO ONE SIDE ONLY ACCESS HOLE SO THAT THE OTHER END OF THE BACKER PLATE CAN SLIDE THRU THE ACCESS HOLE AND BEHIND TUBE WALL. B. SHIFT ASSEMBLY TO ONE SIDE ONLY ACCESS HOLE SO THAT THE OTHER END OF THE BACKER PLATE CAN SLIDE THRU THE ACCESS HOLE AND BEHIND TUBE WALL. C. POSITION ASSEMBLY SO THAT IT IS PARALLEL WITH TUBE AND NUBS ON BACKER PLATE BACK AND FORTH INTO POSITION. C. POSITION ASSEMBLY SO THAT IT IS PARALLEL WITH TUBE AND NUBS ON BACKER PLATE SIT INSIDE THE ACCESS HOLE W/ BACKER PLATE ORIENTED AS NEAR VERTICAL AS POSSIBLE. 5. CAULK ALL AROUND COVERPLATE WITH A BEAD OF CLEAR SILICONE CAULK AFTER COVERPLATE IS PROPERLY POSITIONED.	COVERPLATE ASSEMBLY CPA-1 & CPA-3	TS-G2430-04 BERLIN PUBLIC SCHOOLS (110076) BERLIN, CT
		FIFTHROOM FIFTHROOM 5410 ROUTE 8 GIBSONIA, PA 15044 Phone 888-293-2339 www.fifthroom.com Fax 724-444-5301 www.gazebocreations.com
	No. 24641 No. 24641 OVAL E-MUNITOR OVAL E-MUNITOR OVAL E-MUNITOR OVAL E-MUNITOR OVAL E-MUNITOR OVAL E-MUNITOR OVAL E-MUNITOR	PROJ. NO.: 23-142-A DRAWN: DPS 6-16-23 CHK'D: REV 1: REV 2: REV 3: REV 4: SHOP DWG NO.: 14733R3 EEC JOB NO.: 14733R3 EEC JOB NO.: 14733 R



	THIS PRINT IS THE PROPERTY OF THE MANUFACTURER AND IS NOT TO BE USED, COPIED, OR REPRODUCED WITHOUT THEIR EXPRESSED WRITTEN PERMISSION.
	TS-G2430-04 BERLIN PUBLIC SCHOOLS (110076) BERLIN, CT
	FIFTHROOM FIFTHROOM 5410 ROUTE 8 GIBSONIA, PA 15044 Phone 888-293-2339 www.fifthroom.com Fax 724-444-5301 www.gazebocreations.com
* CONVC * No. 24641 No. 24641 * CENSED ONAL ELIMININ 6/16/23	PROJ. NO.: 23-142-A DRAWN: DPS 6-16-23 CHK'D: REV 1: REV 1: REV 2: REV 3: REV 4: SHOP DWG NO.: 14733R4 EEC JOB NO.: 14733 R SHEET NO.: 4 OF 6







METAL ROOFING NOTES: CLEAR PROTECTIVE FILM MUST BE REMOVED FROM ALL METAL PRIOR TO INSTALLATION.

METAL ROOFING SHOULD BE STORED INDOORS OR WHEN STORED OUTSIDE IT SHOULD BE STORED UP ON BLOCKS WITH FINISHED FACE UP AND SLOPED TO DRAIN.

DURING INSTALLATION, ALL METAL SHAVINGS MUST BE REMOVED IMMEDIATELY TO AVOID RUSTING OF PANELS.

THIS PRINT IS TH MANUFACTURER COPIED, OR REPI THEIR EXPRESSE	e propef And IS No Roduced D writte	RTY OF THE DT TO BE USED, WITHOUT EN PERMISSION.
TS-G2430-04	BERLIN PUBLIC SCHOOLS (110076)	BERLIN, CT
IROOM	GIBSONIA, PA 15044	www.fifthroom.com www.gazebocreations.com
	5410 ROUTE 8	Phone 888-293-2339 Fax 724-444-5301
PROJ NO -		
DRAWN: CHK'D:	-142 DPS	2-A 6-16-23
 REV 1: REV 2: REV 3: REV 4: SHOP DWG NO	.:	14733R6
EEC JOB NO.: SHEET NO.: 6	OF	14733 R

6/16/23