ELECTRICAL GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM AND SPACE CONDITIONS IN ALL CASES.
2. PASS RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY SHALL BE INSTALLED WITHIN 6" OF STEAM OR HOT WATER PIPES OR APPLIANCES (EXCEPT PIPE CROSSINGS WHERE RACEWAY SHALL BE AT LEAST 3" FROM PIPE COVERS).
3. CUT CONDUIT ENDS SQUARE, REAM SMOOTH, PAINT MALE THREAD OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUNT. DRAW UP TIGHT WITH RACEWAY COUPLING.
4. HORIZONTAL OR CROSS RUNS IN PARTITIONS AND WALLS ARE NOT PERMITTED.
5. DO NOT RUN CONDUIT IN PRECAST ROOF SLABS, IN 2" SLABS OR IN TERRAZZO FLOOR FINISH.
6. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT FINAL CONNECTIONS.
7. PROVIDE NYLON FISH WIRE IN ALL EMPTY RACEWAYS OVER 10' LONG.
8. PROVIDE PULL BOXES EVERY 100' AND WHEREVER REQUIRED BY CODE FOR ALL EMPTY RACEWAY RUNS. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES IN FIELD.
9. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
10. LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS AT OR NEAR DOORS. COORDINATE WITH OWNER AND INSTALL SWITCH ON SIDE OPPOSITE HINGE. VERIFY FINAL HINGE LOCATIONS IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.
11. COVERS OF JUNCTION AND PULLBOXES SHALL BE READILY ACCESSIBLE.
12. PROVIDE PULLBOXES WHERE INDICATED, WHERE REQUIRED BY CODE AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES.
13. GENERALLY, DO NOT LOCATE JUNCTION AND PULL BOXES EXPOSED IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT.
14. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE, WITH NO WEIGHT BEARING ON RACEWAYS.
15. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
16. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18" AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
17. PROVIDE 2#14 INDICATING PILOT LIGHT WIRES FROM PILOT LIGHT IN CONTROLLER TO LOAD SIDE OF DISCONNECT SWITCH. RUN WIRES IN BRANCH CIRCUIT CONDUIT AND INCREASE CONDUIT SIZE AS REQUIRED.
18. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES BELOW 32°F. PROVIDE CABLE SUPPORTS FOR WIRE IN RISER CONDUITS AS REQUIRED BY CODE.
19. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS. WHERE COMMON BOXES ARE USED, PROVIDE BARRIERS BETWEEN NORMAL AND EMERGENCY WIRING.
20. WIRE COLOR CODING SHALL BE AS PER CODE AND SPECIFICATION. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING, AND REQUEST PERMISSION FOR OVERLAP COLOR TAPING OF CONDUCTORS (MINIMUM LENGTH 6") IN ALL ACCESSIBLE LOCATIONS. COLOR CODING MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.
21. FIRESTOPPING SHALL BE INSTALLED WHENEVER WIRING OR RACEWAYS CROSS FIRE RATED PARTITIONS.
22. ALL DEVICE ELEVATIONS SHALL BE MOUNTED IN ACCORDANCE WITH ANSI A117. ALL CONTROL DEVICES (IE: SWITCHES, ETC.) SHALL BE MOUNTED NO HIGHER THAN 48" AFF TO TOP OF DEVICE. ALL INSERTION DEVICES (IE: POWER, TELEPHONE, DATA RECEPTACLES, ETC.) SHALL BE MOUNTED NO LOWER THAT 8" AFF TO BOTTOM OF DEVICE. ALL DEVICES MOUNTED ABOVE A COUNTER, NOT DEEPER THAN 24" SHALL BE MOUNTED 46" AFF TO BOTTOM OF DEVICE. OTHER MOUNTING HEIGHTS WILL BE AS NOTED ON THE DRAWINGS.

MOUNTING HEIGHTS FROM FLOOR TO CENTERLINE OF OUTLET:

RECEPTACLES AND TELEPHONES:	
GENERALLY	1'-6"
OVER WORK BENCHES	3'-6"
WALL SWITCHES AND	
TELEPHONES	4'-0"
WALL FIXTURES	7'-0"
MOTOR CONTROLLERS	5'-0"
FA SPEAKER/ STROBES (OR 6" BELOW CEILING, WHICHEVER IS LOWER)	6'-8"
FA STROBE LIGHTS (OR 6" BELOW CEILING, WHICHEVER IS LOWER)	6'-8"
FA PULL STATIONS	4'-0"
CLOCKS	7'-6"

POWER DEVICES

- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- CEILING MOUNTED RECEPTACLE
- GFCI TYPE RECEPTACLE
- QUAD RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE, MATCH EQUIPMENT SERVED
- TAMPERPROOF DUPLEX RECEPTACLE
- EXPLOSION PROOF RECEPTACLE
- ISOLATED GROUND RECEPTACLE
- SIMPLEX ISOLATED GROUND RECEPTACLE
- FLOOR OUTLET, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- FLOOR OUTLET WITH STUB UP, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- (P) FIRE RATED FLOOR OUTLET, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- 1 — INDICATES CIRCUIT NUMBER
- WP — INDICATES DEVICE HAS A WEATHERPROOF WHILE IN USE COVER.
- + — INDICATES DEVICE IS MOUNTED ABOVE THE COUNTER.
- ENCLOSED CIRCUIT BREAKER
- UNFUSED DISCONNECT SWITCH 30A/3P — INDICATES SIZE/NUMBER OF POLES
- FUSED DISCONNECT SWITCH 30A/30A/3P — INDICATES SWITCH SIZE/FUSE SIZE/NUMBER OF POLES
- MOTOR STARTER
- MOTOR STARTER WITH CIRCUIT BREAKER
- MOTOR STARTER WITH NON-FUSED DISCONNECT SWITCH
- MOTOR STARTER WITH FUSED DISCONNECT SWITCH
- M DISCONNECT SWITCH BY HVAC CONTRACTOR
- MOTOR
- EMERGENCY POWER OFF SWITCH
- St MOTOR RATED SWITCH WITH THERMAL OVERLOADS

POWER DEVICES

- J CONCEALED JUNCTION BOX
- J SURFACE MOUNTED JUNCTION BOX
- 208V PANEL, U.O.N.
- 480V PANEL, U.O.N.
- SYSTEM PANEL
  FA = FIRE ALARM
  SEC = SECURITY
  LIGHT = LIGHTING CONTROL
- GROUND

LUMINAIRES

AX — FIXTURE TYPE
TYPICAL LUMINAIRE, REFER TO THE LUMINAIRE OR LIGHTING SCHEDULE FOR ADDITIONAL INFORMATION.
XX — CIRCUIT NUMBER, REFER TO THE PANELSCHEDULES FOR ADDITIONAL INFORMATION.
a — LOWER CASE LETTER INDICATES LOCAL SWITCH DESIGNATION.

FIRE ALARM DEVICES

- F FIRE PHONE
- S_F FIRE SPEAKER
- SINGLE DOOR HOLDERS
- SINGLE DOOR HOLDERS
- (F) FIRE ALARM BELL
- (F) C FIRE ALARM STROBE UNLESS OTHERWISE NOTED, ALL STROBES SHALL BE 15CD(CANDELLA) TYPE.
  C = CEILING MOUNTED. TYPICAL ALL FIRE ALARM DEVICES.
- FH FIRE ALARM CHIME
- FS FIRE ALARM SIREN
- FH FIRE ALARM HORN
- F FIRE ALARM PULLSTATION
- D PE FIRE ALARM DEVICE.
  PE = PHOTOELECTRIC TYPE SMOKE DETECTOR
  IO = IONIZATION TYPE SMOKE DETECTOR
  H = HEAT DETECTOR, FIXED 135°F UON
  DD = DUCT SMOKE DETECTOR
  TS = TAMPER SWITCH
  FS = FLOW SWITCH
  MM = MONITOR MODULE
  CO = CARBON MONOXIDE DETECTOR
  RTS = REMOTE TEST SWITCH
  CM = CONTROL MODULE

COMMUNICATION DEVICES

- TELEPHONE OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING TO THE NEAREST ACCESSIBLE CEILING SPACE.
- VOICE/DATA OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING TO THE NEAREST ACCESSIBLE CEILING SPACE.
- DATA OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING TO THE NEAREST ACCESSIBLE CEILING SPACE.

WIRING DEVICES

- HOMERUN
- CONCEALED CIRCUIT
- CIRCUIT UNDER FLOOR OR GROUND
- BUZZER
- PUSH BUTTON
- CLOCK - DOTS INDICATE NUMBER OF FACES
- DS SECURITY DEVICE
  DS = DOOR SWITCH
  CR = CARD READER
  KS = KEY SWITCH
  MD = MOTION DETECTOR
  ML = MAGNETIC LOCK
  PB = PANIC BUTTON
  KP = KEY PAD

LUMINAIRE SWITCHES

- S LUMINAIRE SWITCH
- S_3 3-WAY LUMINAIRE SWITCH
- S_4 4-WAY LUMINAIRE SWITCH
- S_P LUMINAIRE SWITCH WITH A PILOT LIGHT
- S_D DIMMER TYPE LUMINAIRE SWITCH
- S_K CAPTIVE KEY TYPE SWITCH
- S_a LUMINAIRE SWITCH — INDICATES LUMINAIRES IT WILL SWITCH
- M_S MOTION SENSOR TYPE LUMINAIRE SWITCH
  NOTE: THE MOTION SENSOR SHALL TURN OFF THE LUMINAIRE WITHIN 30 MINUTES OF AN OCCUPANT LEAVING THE SPACE.
- (PC) PHOTOCELL

NOT ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS PLAN ARE USED IN THE PROCEEDING DRAWINGS.

ABBREVIATIONS

A - AMP
AF - AMP FRAME
AFC - AVAILABLE FAULT CURRENT
AIC - AMP INTERRUPTING CURRENT
AT - AMP TRIP
ATS - AUTOMATIC TRANSFER SWITCH
C - CONDUIT
C/B - CIRCUIT BREAKER
CD - CANDELA
CT - CONTROL TRANSFORMER
DP - DISTRIBUTION PANELGFP - GROUND FAULT PROTECTION
EX - EXISTING TO REMAIN
F - FOOT
G.B. - GLASS BREAK
GFCI, GFI - 5MA GROUND FAULT CIRCUIT INTERRUPTER
GFP - 30mA GRAOUND FAULT PROTECTION DEVICE
GND - GROUND
LTG - LIGHTING
MCC - MOTOR CONTORL CENTER
MDP - MAIN DISTRIBUTION PANEL
NL - NIGHT LIGHT
PT - POTENTIAL TRANSFORMER
RE - REMOVE EXISTING
REC - RECEPTACLE
REX - RELOCATE EXISTING
SLD - SINGLE LINE DIAGRAM
U.O.N., UON - UNLESS OTHERWISE NOTED
V - VOLT
WP - WEATHERPROOF, WHILE IN USE **IN AN AREA WHERE DIRECT WATER HOSE SPRAY WILL OCCUR THIS WILL MEAN THE DEVICE IS NEMA 4X RATED FOR HOSE DOWN.
W - WALL MOUNTED
XFMR - TRANSFORMER
3P - THREE(3) POLES
2P - TWO(2) POLES
1P - ONE(1) POLE
3R - NEMA 3R TYPE ENCLOSURE
4X - NEMA 4X TYPE ENCLOSURE

SINGLE LINE DIAGRAM

- XXXAF / XXXAT — CIRCUIT BREAKER
- XXXAF / XXXAT (GFP) — GFP CIRCUIT BREAKER
- DISCONNECT SWITCH
- ENCLOSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- ENCLOSED FUSED DISCONNECT SWITCH
- TRANSFORMER
- CONTACTOR
- RESISTIVE TYPE LOAD
- CT
- ? — RELAY - NUMBER TO CORRESPOND TO IEEE STANDARDS

SINGLE LINE DIAGRAM

- ISOLATED GROUND TRANSFORMER
- ENCLOSED MOTOR STARTER
- ENCLOSED MOTOR STARTER WITH DISCONNECT SWITCH
- ENCLOSED MOTOR STARTER WITH FUSED DISCONNECT SWITCH
- CONTROL PANEL — CONTROL PANEL WITH DISCONNECT SWITCH
- CONTROL PANEL — CONTROL PANEL
- M CLIENT METER
- KWH UTILITY METER
- PANEL NAME — PANELBOARD
  AP = APPLIANCE
  LP = LIGHTING
  PP = POWER PANEL
  EL = EMERGENCY LIFESAFETY
  EC = CRITCAL EMERGENCY
  EE = ESSENTIAL EQUIPMENT
- E ELECTRIC INTERLOCK
- K KEY INTERLOCK

GENERAL NOTES

THE CONTRACTOR SHALL CONFORM TO THE LATEST BUILDING CODES:

IBC 2006 WITH NEW JERSEY AMENDMENTS

NEC 2005

APPLICABLE CODES

SYMBOL LEGENDS

PROVIDE UNIT PRICING FOR THE FOLLOWING ITEMS:

1. #12 THHN/THWN $_____/FT PROVIDED.
2. #10 THHN/THWN $_____/FT PROVIDED.
3. 3/4" CONDUIT $_____/FT. PROVIDED.
4. SINGLE GANG JUNCTION BOX $_____/EACH PROVIDED.
5. RECEPTACLE $_____/EACH PROVIDED.

THE OWNER WILL PROVIDE THE CONSTRUCTION MANAGEMENT SERVICES FOR THIS PROJECT. ALL RFI's, SHOP DRAWINGS AND FIELD COORDINATION SHALL BE REVIEWED WITH OWNER. THE TERM "ARCHITECT" IS USED FOR DIAGRAMMATIC PURPOSES ONLY.

THE SPACE ABOVE THE CEILING IS A RETURN PLENUM AND ALL ELECTRICAL DEVICES ABOVE THE CEILING SHALL BE PLENUM RATED.

DRAWING LIST

E1.1 ELECTRICAL COVER SHEET
E1.2 ELECTRICAL SPECIFICATION
E1.3 ELECTRICAL SPECIFICATION
E2.1 LIGHTING PLAN
E3.1 POWER PLAN
E3.2 HVAC POWER PLAN
E4.1 ELECTRICAL ONE LINE DIAGRAM
ES1.1 ELECTRICAL SITE PLAN
FA1.1 FIRE ALARM PLAN, RISER AND NOTES

no.	by	description	date
-	-	Issued For Permit & Construction	6/03/09
-	-	Issued For Client Review	3/24/09

revisions

New Shop & Office Building for Shupper-Brickle Equipment Co.
11 Burnt Tavern Road
Millstone Township, NJ 08535
Block: 57
Lot: 14.01

BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801

DATE: June 3, 2009

BD engineering

NJ CERTIFICATE OF AUTHORIZATION - 24GA28116100
BD Engineering, LLC 732-886-5432
1825 Swarthmore Ave. Lakewood, NJ 08701
Project No. 080056

DRAWN BY:	CHECKED BY:	SCALE:
LEF	BT	NONE

DRAWING TITLE
ELECTRICAL COVER SHEET

DRAWING NO.
E1.1