

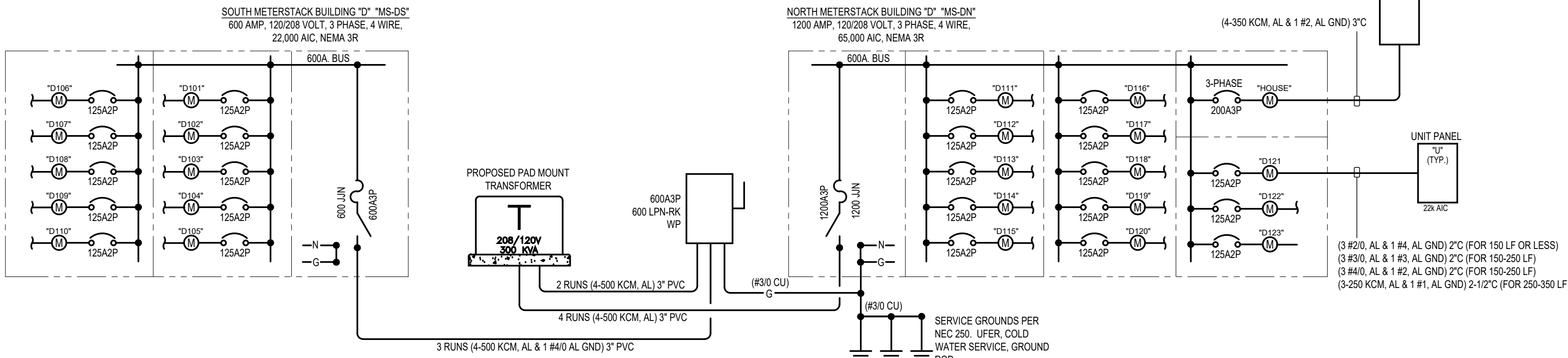
PANEL "UNIT"		HUTCHINSON-PAPESH	
208 / 120 VOLTS, 1 PHASE, 3 WIRE		ENGINEERING CORPORATION	
125 AMPS MLO		CONSULTING ELECTRICAL ENGINEERS	
NEW, SURFACE		V. 303.973.9779 F. 303.973.9759	
NOTES: MAX 125A THIS PANEL		1 A.C. 22,000 OR SERIES	
CIRCUIT DESCRIPTION		CIRCUIT DESCRIPTION	
1 SPECIAL RPT (W/O CU)	2000	30 GFI	20
3 LOWER LEVEL RECEP	1080	20 GFI	20
5 LOWER LEVEL RECEP	720	20 GFI	20
7 MEZZANINE RECEP	1080	20 GFI	20
9 SPARE	20	0	60/2
11 SPARE	20	0	5000
13 SPARE	20	0	5000
15	-	0	-
17	-	0	-
19	-	0	-
21	-	0	-
23	-	0	-
PHASE A		PHASE B	
10512.0		9606.0	
CONN. KVA		DEMAND %	
LIGHTING		125	
RECEPTACLES < 10 KVA		100	
RECEPTACLES > 10 KVA		50	
LARGEST MOTOR		1.25	
MOTORS		100	
HEAT		13.5	
MISCELLANEOUS 2		100	
MISCELLANEOUS 3		100	
MISCELLANEOUS 4		100	
TOTAL KVA		TOTAL AMPS	
21.1		101.2	

PANEL "HD"		HUTCHINSON-PAPESH	
208 / 120 VOLTS, 3 PHASE, 4 WIRE		ENGINEERING CORPORATION	
225 AMPS MLO		CONSULTING ELECTRICAL ENGINEERS	
NEW, SURFACE		V. 303.973.9779 F. 303.973.9759	
NOTES: MAX 200A THIS PANEL		1 A.C. 10,000	
CIRCUIT DESCRIPTION		CIRCUIT DESCRIPTION	
1 MEZZ RECEP	1260	20	0
3 LOA. DOOR	1176	20	0
5 RESTROOM RECEP	360	20	0
7 BREAK AC GFI	250	20	0
9 BREAK AC GFI	250	20	0
11 BREAK AC GFI	250	20	0
13 BREAK REF	950	20	0
15 BREAK DISP. OW	1154	20	0
17 FURNACE	1176	20	0
19 "HP-1"	2704	40/2	0
21 "(B, CU)	2704	/	0
23 "EVH-1" WALL HTR	1000	15/2	0
25 MENS RR	1000	/	0
27 "SWH-1" WALL HTR	1000	15/2	0
29 WOMENS RR	1000	/	0
31 EXTERIOR RECEP	180	20	0
33 SPARE	20	0	7.18
35 SPARE	20	0	80/3
37 SPACE	-	0	/
39 SPACE	-	0	/
41 SPACE	-	0	/
PHASE A		PHASE B	
20.3		17.9	
CONN. KVA		DEMAND %	
LIGHTING		125	
RECEPTACLE LOADS < 10 KVA		100	
RECEPTACLE LOADS > 10 KVA		50	
LARGEST MOTOR LOAD		5.4	
MOTOR LOADS		2.6	
HEAT		37.9	
MISCELLANEOUS LOAD 2		100	
MISC. CIRCUITS		100	
MISCELLANEOUS LOAD 4		100	
TOTAL KVA		TOTAL AMPS	
58.1		161.2	

FAULT CURRENT CALCULATIONS	
UTILIZES THE BUSMAN CALCULATION METHOD AND TABLES	
CONTRACTOR IS RESPONSIBLE FOR ACTUAL FEEDER DISTANCES AND FIELD CONDITIONS IN PROJECT BID AND SCOPE	
Description	Voltage Ph Length (FT) # of Run(s) Conductor "C" value Available Fault Current (ISC)
At Xcel Energy	- - - - - 52,000
At "MS-DN"	208 3 18 4 21390 47,663
At House Panel "HD"	208 3 318 1 12862 4,413
At Nearest Unit Panel	208 1 46 1 7301 12,261
At 600A Main Disc	208 3 22 2 21390 42,539
At "MS-DS"	208 3 556 3 21390 10,463

1200A "MS-DN" SERVICE LOAD CALC	
LOAD DESIGNATION	LOAD (AMPS)
UNIT PANELS (21.1 KVA X 13)	= 274.3 KVA
HOUSE PANEL	= 58.1 KVA
SUB TOTAL	= 332.4 KVA
	= 923.7 AMPS
	@208V, 3PH

600A "MS-DS" SERVICE LOAD CALC	
LOAD DESIGNATION	LOAD (AMPS)
UNIT PANELS (21.1 KVA X 10)	= 211.0 KVA
SUB TOTAL	= 211.0 KVA
	= 586.4 AMPS
	@208V, 3PH



ELECTRICAL SPECIFICATIONS:

GENERAL:
THESE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND REQUIRE TRADESMEN SKILLED IN THE COMMERCIAL ELECTRICAL INDUSTRY TO COORDINATE THE NECESSARY INSTALLATIONS WITH OTHER TRADES. PROVIDE THE NECESSARY MATERIALS AND METHODS FOR THESE INSTALLATIONS, ADDITIONAL BLOCKING FOR CORRECT LIGHTING OUTLET AND DEVICE LOCATIONS, ETC. AT NO ADDITIONAL COST.

PROVIDE ALL SERVICE CONDUITS FOR TELEPHONE SERVICE AND VERIFY LOCATION OF UTILITY PEDESTAL / MANHOLE WITH LOCAL UTILITY REP. PROVIDE INSTALLATIONS PER SERVICE PROVIDER'S REQUIREMENTS.

VERIFY ALL EXISTING SITE AND PROJECT CONDITIONS, UTILITY COMPANY SERVICES AND PROVIDE INSTALLATIONS IN COMPLIANCE WITH THESE CONDITIONS. FIELD VERIFY ALL CONDITIONS AND MAKE ALLOWANCES FOR THESE CONDITIONS IN FINAL PRICING. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER TO RESOLUTION PRIOR TO FINAL PRICING.

PROVIDE ALL NECESSARY INSTALLATION PLANNING, MATERIALS AND LABOR TO ENSURE A COMPLETE AND OPERABLE SYSTEM FOR EACH SYSTEM DESIGN INDICATED ON THE DRAWINGS AND THESE SPECIFICATIONS. ENSURE ALL WORK IS IN COMPLIANCE WITH THE CURRENT LOCAL AND NATIONAL ELECTRICAL CODES, FIRE AND SAFETY CODES. FURNISH TO THE C.C. ALL REQUIRED INSPECTION CERTIFICATES. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES, ETC. AND SHALL ENFORCE WORKERS IDENTIFICATION PER LOCAL AND STATE LAWS.

ALL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANSHIP LIKE MANNER, USING NEW MATERIALS WITH A ONE-YEAR WARRANTY MINIMUM. VERIFY FINISHES OF DEVICES, COVER PLATES, TRIMS, ETC. VERIFY APPROVED ROUTING OF SURFACE CONDUITS WHERE APPLICABLE.

THIS CONTRACTOR IS RESPONSIBLE FOR ACTUAL DISTANCES FOR FEEDERS AND CIRCUIT ROUTES. DO NOT USE THE FAULT CURRENT CALCULATION FOR ORDERING OR BIDDING FEEDERS. CONTRACTOR IS RESPONSIBLE FOR FIXTURE COUNTS. DO NOT USE THE COMCHECK FOR BIDDING OR ORDERING LIGHTING FIXTURES.

MATERIALS AND METHODS:
ALL ELECTRICAL EQUIPMENT, DEVICES, LIGHT FIXTURES, CONTROLS, ETC. SHALL BE INSTALLED WITHIN MANUFACTURER'S REQUIREMENTS AND INSTRUCTIONS. ENSURE WORKING CLEARANCES FOR GEAR AND PANELS AND ACCESS TO CONNECTIONS OFF ALL TERMINATIONS.

BRANCH CIRCUITRY AND GROUNDING SHALL COMPLY WITH CODES FOR LOCATION, USE AND SPECIAL OCCUPANCIES. CONDUITS AND FITTINGS SHALL BE AS REQUIRED AND ALLOWED FOR EACH LOCATION.

COORDINATE WITH THE ARCHITECT AND ALL TRADES FOR INTENDED AND ACTUAL LOCATIONS OF EQUIPMENT, CEILING LAYOUTS AND MATERIALS, STRUCTURAL AND MECHANICAL EQUIPMENT AND DUCTS PRIOR TO ROUGH-IN AND ORDERING OF EQUIPMENT OR LIGHTING FIXTURES.

SUBMITTALS:
SUBMIT COMPLETE SHOP DRAWINGS OF ALL DISTRIBUTION GEAR, PANEL BOARDS AND LOAD CENTERS, FUSE TYPES AND BREAKERS WHERE SERIES RATINGS IS REQUIRED AND INDICATED ON THE DRAWINGS. CONTRACTOR TO CHECK AND CORRECT THE SUPPLIER'S SHOP DRAWINGS PRIOR TO SUBMITTING TO ENGINEER.

DISTRIBUTION GEAR AND PANELS:
PROVIDE A COMPLETE SERVICE DISTRIBUTION SYSTEM PER THE ONE LINE DIAGRAM. ENSURE CODE CLEARANCES, CONCRETE PADS, PROTECTION AND APPROVED LOCATIONS IN EQUIPMENT ROOMS. FUSES AND BREAKERS NOTED FOR SERIES RATINGS SHALL BE INSTALLED AS SPECIFIED TO ENSURE PROPER BREAKER BRACING PER THE FAULT CURRENT CALCS. CONTRACTOR IS RESPONSIBLE FOR ADDITIONAL ENGINEERING DUE TO SUBSTITUTIONS OF WIRE TYPES THAT AFFECT NC CALCS AND SERIES RATED STUDIES. ALL GEAR SHALL BE LABELED WITH PLQUES AND PANEL INDEXES TYPED WITH ACCURATE LOADS IDENTIFIED.

PROVIDE FUSED AND NON-FUSED (WHERE APPROVED) DISCONNECT SWITCHES, RATED FOR LOCATION AND USE FOR ALL MECHANICAL AND SPECIAL EQUIPMENT.

PROVIDE SERVICE GROUNDING PER THE CURRENT N.E.C. ARTICLE 250. COORDINATE THE UPPER GROUNDING INSTALLATION PRIOR TO FOUNDATION POUR. ALL FEEDERS AND BRANCH CIRCUITS SHALL BE EQUIPPED WITH GROUNDING CONDUCTORS AND GROUNDED PER NEC 250. ENSURE GROUNDING JUMPERS AND BONDING THROUGHOUT THE SYSTEM.

ELECTRICAL DEVICES:
ALL DEVICES SHALL BE RATED FOR THE OVER CURRENT PROTECTION. VERIFY FINISHES AND DEVICE TYPES WITH ARCHITECT PRIOR TO ORDERING / BID. ENSURE GROUND FAULT DEVICES PER CODE AND ENSURE W.P. DEVICES ON EXTERIOR WALLS AND ON ROOF. ALL DEVICES SHALL BE RATED FOR USE IN SPECIAL OCCUPANCY USE AND LOCATIONS.

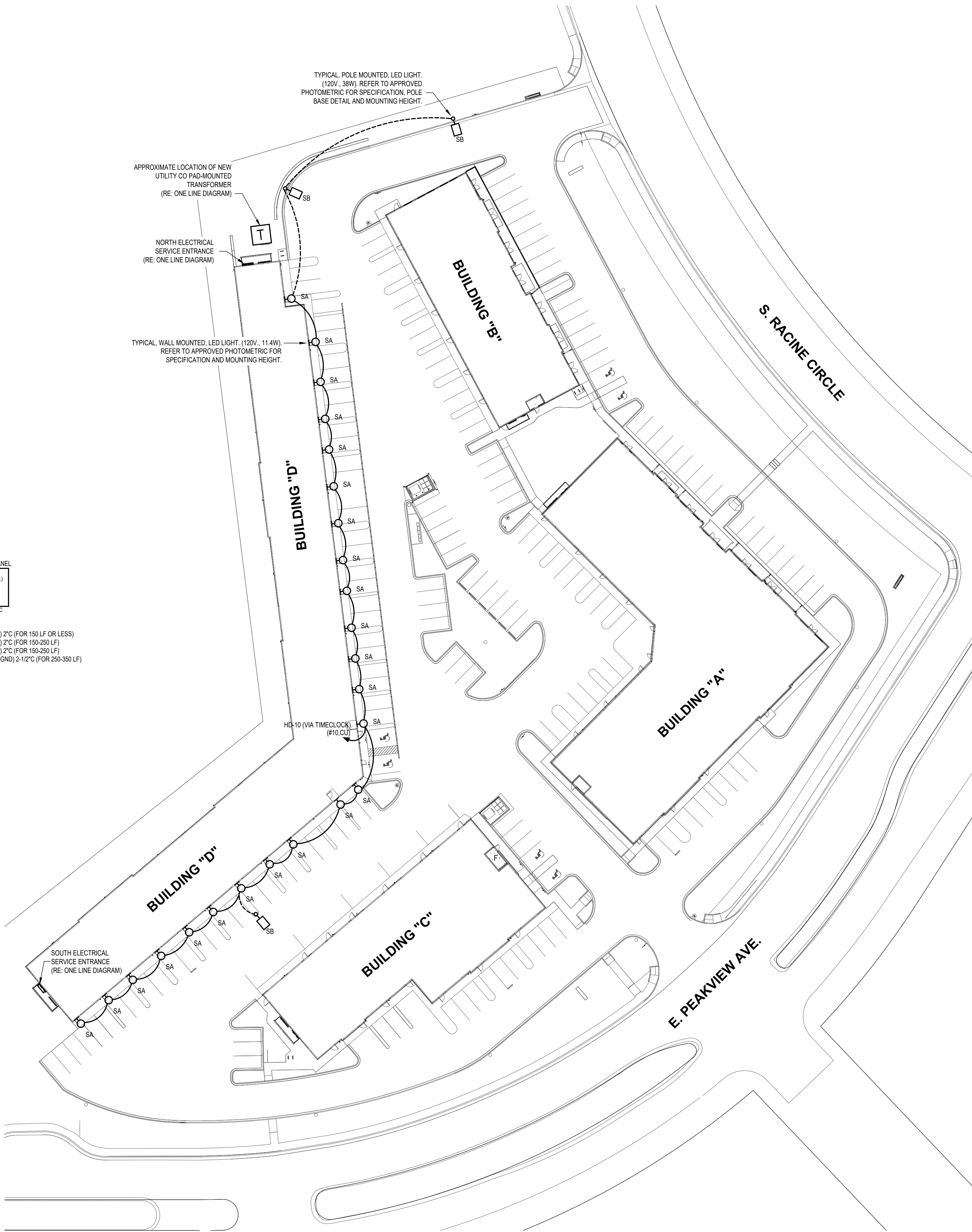
MECHANICAL EQUIPMENT:
REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EQUIPMENT LOCATIONS, EQUIPMENT SCHEDULE AND COORDINATE VOLTAGES AND NAMEPLATE OVER CURRENT PROTECTION. VERIFY UNITS FURNISHED WITH DISCONNECTS, STARTERS, ETC. ENSURE WIRE AND FUSE / BREAKER SIZES FOR UNITS. PROVIDE MAINTENANCE RECEPTACLES WHERE REQUIRED. ENSURE LIGHT SWITCH AND GFI OUTLET IN ATTIC SPACES, CRAWL SPACES FOR MAINTENANCE.

FIRE ALARM AND DETECTION:
FIRE ALARM SYSTEM AND DETECTION IS CONSIDERED AS DESIGN-BUILD WITH THE CONTRACTOR'S SELECTED EQUIPMENT SUPPLIER. PROVIDE SHOP DRAWINGS AND COORDINATE WITH THE LOCAL CODE OFFICIALS FOR THE BUILDING TYPE AND OCCUPANCY FOR THE REQUIRED SYSTEM RULING. WHERE A NEW SYSTEM IS REQUIRED, PROVIDE DEDICATED POWER SUPPLY AND PHONE LINE CONDUIT TO THE TELEPHONE BOARD.

GENERAL NOTES:

- REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL WORK AND CLARIFICATIONS.
- ALL POWER AND LIGHTING DEVICE LOCATIONS AND CONTROLS ARE AS PER THE ARCHITECTURAL DRAWINGS. ENSURE THAT ALL LOCATIONS AND HEIGHTS ARE AS PER NEC AND ADA REQUIREMENTS. ALL CIRCUITRY SHALL BE AS PER NEC.
- ENSURE ALL MATERIALS AND METHODS OF CONSTRUCTION TO COMPLY WITH CURRENT N.E.C. (2017), I.B.C. NFPA, I.E.C. AND LOCAL ADOPTED OR AMENDED CODES.
- COORDINATE WITH UTILITY COMPANY FOR FINAL TRANSFORMER SIZE, VOLTAGE, AND LOCATION. ANY DISCREPANCIES IN UTILITY TRANSFORMER SIZING AND / OR LOCATION SHALL BE REPORTED TO ENGINEER FOR REVISED FAULT CURRENT CALCULATIONS AND POSSIBLE RE-SPECIFICATION OF EQUIPMENT A/C RATINGS.
- SUBMIT ELECTRICAL PLANS TO UTILITY COMPANY REPRESENTATIVE FOR FINAL REVIEW AND COORDINATION PRIOR TO WORK.
- COORDINATE METERING INSTALLATION AND REQUIREMENTS WITH UTILITY COMPANY PRIOR TO WORK.
- FIRE ALARM AND DETECTION DESIGN IS EXCLUDED. SUBMIT DRAWINGS TO FIRE PREVENTION CODE OFFICIALS FOR REVIEW AND SYSTEM DETERMINATION FOR THIS CONSTRUCTION AND CONDITIONS. IF REQUIRED, E.C. TO SUBMIT FIRE ALARM DETECTION AND NOTIFICATION SYSTEM DESIGN IN THE FORM OF SUPPLIER SHOP DRAWINGS FOR FIRE ALARM SEPARATE PERMIT.
- CONTRACTOR SHALL COORDINATE DIRECTLY WITH LOW VOLTAGE CONSULTANT (TEL. DATA, AV, SECURITY / BURGLAR ALARM, ETC.) FOR SPECIFIC REQUIREMENTS FOR EACH RESPECTIVE SYSTEM. ANY EMPTY RACEWAYS REQUIRED BY THESE SYSTEMS SHALL BE COORDINATED DIRECTLY WITH THE CONSULTANT / SUPPLIER. ANY ADDITIONAL LINE VOLTAGE POWER REQUIRED AND NOT SHOWN ON THESE DRAWINGS SHALL BE REPORTED AND COORDINATED WITH ELECTRICAL ENGINEER.
- ELECTRICAL CONTRACTOR SHALL UPSIZE ALL 120V BRANCH CIRCUITS EXCEEDING 75 LINEAR FEET OF RUN LENGTH TO #10, CU TO ACCOMMODATE VOLTAGE DROP.

LEGEND	
⊙	JUNCTION BOX
\$	SINGLE POLE SWITCH
\$3	THREE WAY SWITCH
\$06	WALL-BOX OCCUPANCY SENSOR
⊕	DUPLEX RECEPTACLE MIN. STD. WALL HEIGHT
⊕	4-PLEX RECEPTACLE MIN. STD. WALL HEIGHT
⊕	SPECIAL PURPOSE RECEPTACLE
⊕	TELECOMM / DATA OUTLET W/ 3/4" C. STUB-UP (CONDUIT, BOX AND MUDRING BY E.C.)
⊕	T.V. COAX OUTLET PRE-WIRED BY SERVICE PROVIDER
⊕	MOTOR
⊕	DISCONNECT-RATED FOR USE
WP	WEATHER-PROOF
GFI	GROUND FAULT INTERRUPTER, PROTECT DOWNSTREAM
AC	ABOVE COUNTER
HOR	MOUNT RECEPTACLE HORIZONTALLY.



BUILDING "D" SITE ELECTRICAL PLAN
SCALE: 1"=40'-0"

Date
8/2/2021

Submission / Revision
FOR CONSTRUCTION

construction company, inc.

9808 East 62nd Avenue • Denver, Colorado 80218 • 303.987.5252 • Fax 303.987.3897 • www.dcbi.com

43330

REGISTRATION NO. 43330

8/2/2021

A NEW BUILDING FOR:

GARAGECONDOS at RACINE CIR.

SMALL BUSINESS SOLUTIONS

BUILDING D

6507 S. RACINE CIRCLE, CENTENNIAL CO 80111

Design Project No.

19-907

Drawing Title

BLDG "D" SITE ELEC & ONE LINE DIA.

Drawing No.

E1.0D

