

2014 - NYC BUILDING CODE: MECHANICAL NOTES

BUILDING DEPARTMENT NOTES:

ALL WORK SHALL COMPLY WITH THE APPLICABLE SECTIONS OF THE NEW YORK CITY CONSTRUCTION CODE, EFFECTIVE DECEMBER 31, 2014, AND ALL SUBSEQUENT AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS. INSPECTIONS AND SIGN-OFF OF COMPLETED WORK SHALL BE PERFORMED AS PER ARTICLE 26-116 OF THE GENERAL ADMINISTRATIVE PROVISIONS.

1. THE FOLLOWING SPECIAL INSPECTIONS ARE REQUIRED BY THE NYC BUILDING CODE FOR HVAC SYSTEMS:

- A. MECHANICAL SYSTEMS - BC 1704.16
- B. ENERGY CODE COMPLIANCE - BC 110.3.5 AND 1 RCNY 5000-01

2. THE FOLLOWING PERIODIC SPECIAL INSPECTIONS ARE REQUIRED BY THE NYC BUILDING CODE FOR HVAC SYSTEMS:

- A. ENERGY CODE COMPLIANCE - BC 110.3.5 AND 1 RCNY 5000-01

3. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION MC 107 AND THE FOLLOWING SECTIONS OF THE NEW YORK CITY MECHANICAL CODE:

- A. VENTILATION SYSTEM BALANCING MC 403.8

4. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS

A. UPON COMPLETION OF THE VENTILATION SYSTEM:

- 1) A TEST SHALL BE CONDUCTED IN THE PRESENCE OF AND UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER QUALIFIED TO CONDUCT SUCH TESTS. THE TESTS SHALL SHOW COMPLIANCE WITH THE CODE REQUIREMENTS FOR VENTILATION AND THE PROPER FUNCTIONING OF ALL SMOKE DETECTION, FIRE PROTECTION AND OPERATING DEVICES BEFORE THE SYSTEM IS APPROVED.
- 2) THE LICENSED PROFESSIONAL ENGINEER WHO CONDUCTS THE TESTS SHALL FILE A CERTIFICATE AS TO WHETHER THE SYSTEM COMPLIES WITH THE APPLICABLE LAWS. THEY SHALL ALSO FILE WITH THIS CERTIFICATION A REPORT OF THE TEST. THE TEST AND REPORT SHALL BE MADE IN A MANNER SATISFACTORY TO THE OWNER.

5. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:

- A. STANDARDS OF HEATING - MC 309.1
- B. NOISE CONTROL - MC 309
- C. DUCT CONSTRUCTION, SUPPORT - MC 603
- D. AIR INTAKES, EXHAUSTS AND RELIEFS - MC 401.5
- E. AIR FILTERS - MC 609
- F. FIRE DAMPERS AND SMOKE DAMPERS AND SMOKE DETECTORS - MC 607
- G. MANUAL AND AUTOMATIC, FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - MC 513
- H. PIPING AND INSULATION - MC 1204
- I. GAS FIRED EQUIPMENT - FUEL GAS CODE

6. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG F

7. VENTILATION FOR ALL AREAS SHALL COMPLY WITH MC 401.

8. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATING SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY CODE MC 403.3

9. ALL FIRE DAMPERS SHALL BE ACCEPTED FOR USE BY THE NEW YORK CITY DEPARTMENT OF BUILDINGS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555, STANDARD FOR FIRE DAMPERS AND CEILING DAMPERS.

10. COMBINATION FIRE/SMOKE DAMPERS AND SMOKE DAMPERS SHALL BE ACCEPTED

FOR USE BY THE NEW YORK CITY DEPARTMENT OF BUILDINGS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555S.

11. SMOKE DETECTORS, COMBINATION FIRE/SMOKE DAMPERS AND SMOKE DAMPERS SHALL BE INSTALLED AS REQUIRED TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN/MC 609

12. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.

13. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELEI UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

14. TO THE BEST OF THE APPLICANT'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE.

15. TESTS OF SOUND POWER LEVEL OF MECHANICAL EQUIPMENT SHALL BE CONDUCTED AND RESULTS SUBMITTED WHERE WINDOWS OF A DWELLING UNIT ARE WITHIN 100 FEET OF EQUIPMENT. THE SOUND PRESSURE LEVEL SHALL NOT EXCEED THE LEVELS GIVEN IN MC 028

16. THE CONTRACTOR SHALL REVIEW AND BECOME FAMILIAR WITH THE REQUIREMENTS, AND IMPLEMENT ALL SUCH REQUIREMENTS, OF BUILDING CODE CHAPTER 33 WITH RESPECT TO SAFEGUARDS DURING CONSTRUCTION OR DEMOLITION.

17. THERMOSTATS USED FOR BOTH HEATING AND COOLING SHALL PROVIDE A TEMPERATURE DEADBAND OF AT LEAST 5 DEGREES F. EXCEPT FOR THERMOSTATS REQUIRING MANUAL CHANGEOVER, THIS NOTE IS APPLICABLE TO ALL HYDRONIC FAN COILS USING CHILLED WATER AND HOT WATER AND ALL PACKAGED FLOOR MOUNTED UNITS(NYC ECC C403.2.4.2).

18. THERMOSTATS SHALL BE PROVIDED WITH AUTOMATIC TIME CLOCKS OR PROGRAMMABLE SETBACK CONTROLS EXCEPT FOR ZONES WHICH OPERATE CONTINUOUSLY. SETBACK CONTROLS SHALL BE CAPABLE OF TEMPORARILY OPERATING THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55 DEGREES F OR UP TO 85 DEGREES F. AUTOMATIC TIME CLOCKS OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DAILY SCHEDULES PER WEEK AND RETAINING PROGRAMMING DURING A POWER LOSS OF AT LEAST 10 HOURS. CONTROLS SHALL HAVE A MANUAL OVERRIDE CAPABILITY FOR UP TO 2 HOURS. MANUAL TIMER FOR UP TO 2 HOURS, OR AN OCCUPANCY SENSOR. THIS NOTE IS APPLICABLE TO ALL HYDRONIC FAN COILS USING CHILLED WATER AND HOT WATER AND ALL PACKAGED FLOOR MOUNTED UNITS(NYC ECC C403.2.4.3.2)

19. OUTDOOR AIR OPENING AND EXHAUST OPENINGS IN THE BUILDING ENVELOPE SHALL BE PROVIDED WITH CLASS I MOTORIZED DAMPERS WITH A MAXIMUM LEAKAGE RATE OF 4 CMHFT AT 1.0 INCH WATER GAUGE WHEN TESTED IN ACCORDANCE WITH AMCA5000. OUTDOOR AIR SUPPLY AND EXHAUST MOTORIZED DAMPERS SHALL BE CONFIGURED TO CLOSE AUTOMATICALLY WHEN THE SYSTEMS OR SPACES SERVED ARE NOT IN USE.

20. HYDRONIC HEAT PUMPS CONNECTED TO A COMMON HEAT PUMP WATER LOOP WITH CENTRAL DEVICES FOR HEAT REJECTION AND HEAT ADDITION SHALL HAVE CONTROLS THAT ARE CAPABLE OF PROVIDING A HEAT PUMP WATER SUPPLY TEMPERATURE DEAD BAND OF AT LEAST 2.0°F. BETWEEN INITIATION OF HEAT REJECTION AND HEAT ADDITION BY THE CENTRAL DEVICES.

21. DUCTWORK OPERATING 3" WATER COLUMN OR GREATER REQUIRE AIR LEAKAGE TESTING.

22. ALL REFRIGERATION EQUIPMENT SHALL MEET THE EFFICIENCY REQUIREMENTS AS SPECIFIED IN C403.2.14 IN 2016 NYC ECC.

23. LOW-TEMPERATURE DISPLAY CASES SHALL INCORPORATE TEMPERATURE-BASED DEFOUST TERMINATION CONTROL WITH A TIME-LIMIT DEFAULT. THE DEFOUST CYCLE SHALL TERMINATE FIRST ON AN UPPER TEMPERATURE LIMIT BREACH AND SECOND UPON A TIME LIMIT BREACH.

24. ANTI SWEAT HEATER CONTROLS SHALL REDUCE THE ENERGY USE OF THE ANTSWEAT HEATER AS A FUNCTION OF THE RELATIVE HUMIDITY IN THE AIR OUTSIDE THE DOOR OR TO THE CONDENSATION ON THE INNER GLASS PANE.

2016 NYC ENERGY CONSERVATION CODE NOTES:

STATEMENT OF COMPLIANCE:

TO THE BEST OF MY KNOWLEDGE AND PERSONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2016 NEW YORK CITY ENERGY CONSERVATION CODE.

MANDATORY PROVISIONS:

1. HEATING AND COOLING LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN ASHRAE/ACCA 189. (NYC ECC C403.2.1)
2. EQUIPMENT AND SYSTEMS HAVE BEEN SIZED TO NOT EXCEED THE CALCULATED HEATING AND COOLING LOADS. STANDBY EQUIPMENT SHALL HAVE CONTROLS TO OPERATE ONLY WHEN THE PRIMARY EQUIPMENT IS NOT OPERATING. MULTIPLE UNITS OF THE SAME TYPE WITH COMBINED CAPACITY EXCEEDING THE DESIGN LOAD SHALL BE PROVIDED WITH CONTROLS TO SEQUENCE OPERATION BASED ON LOAD. (NYC ECC C403.2.2)
3. HVAC EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS SET FORTH IN THE 2016 NYC ECC. REFER TO EQUIPMENT SCHEDULES FOR EER AND COP VALUES. (NYC ECC C403.2.3)
4. HEATING AND COOLING ENERGY SUPPLIED TO EACH ZONE SHALL BE CONTROLLED BY THERMOSTATS LOCATED IN THE ZONE SERVED. HUMIDIFICATION AND DEHUMIDIFICATION SYSTEMS SHALL BE CONTROLLED BY HUMIDITY SENSORS LOCATED IN THE ZONE SERVED. (NYC ECC C403.2.4.1)
5. HEAT PUMPS PROVIDED WITH SUPPLEMENTAL ELECTRIC HEAT SHALL HAVE CONTROLS THAT PREVENT SUPPLEMENTAL HEAT OPERATION WHEN THE HEAT PUMP CAN MEET THE HEATING LOAD, EXCEPT DURING DEFOUST IF APPLICABLE. (NYC ECC C403.2.4.1.1)
6. THERMOSTATS USED FOR BOTH HEATING AND COOLING SHALL PROVIDE A TEMPERATURE DEADBAND OF AT LEAST 5 DEGREES F. EXCEPT FOR THERMOSTATS REQUIRING MANUAL CHANGEOVER, THIS NOTE IS APPLICABLE TO ALL HYDRONIC FAN COILS USING CHILLED WATER AND HOT WATER AND ALL PACKAGED FLOOR MOUNTED UNITS(NYC ECC C403.2.4.2)
7. THERMOSTATS SHALL BE PROVIDED WITH AUTOMATIC TIME CLOCKS OR PROGRAMMABLE SETBACK CONTROLS EXCEPT FOR ZONES WHICH OPERATE CONTINUOUSLY. SETBACK CONTROLS SHALL BE CAPABLE OF TEMPORARILY OPERATING THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55 DEGREES F OR UP TO 85 DEGREES F. AUTOMATIC TIME CLOCKS OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DAILY SCHEDULES PER WEEK AND RETAINING PROGRAMMING DURING A POWER LOSS OF AT LEAST 10 HOURS. CONTROLS SHALL HAVE A MANUAL OVERRIDE CAPABILITY FOR UP TO 2 HOURS. MANUAL TIMER FOR UP TO 2 HOURS, OR AN OCCUPANCY SENSOR. (NYC ECC C403.2.4.3.2)
8. OUTDOOR AIR AND EXHAUST DUCTS SHALL BE PROVIDED WITH MOTORIZED DAMPERS WHICH ARE INTERLOCKED WITH ASSOCIATED HVAC EQUIPMENT TO AUTOMATICALLY CLOSE WHEN THE SYSTEM OR SPACES SERVED ARE NOT IN USE. DAMPERS SHALL BE MOTORIZED AND BE CLASS I LEAKAGE-RATED WITH A MAXIMUM LEAKAGE RATE OF 4 CFM PER SQFT AT 1.0 INCH W.G. WHEN TESTED IN ACCORDANCE WITH AMCA 5000. (NYC ECC C403.2.4.4)
9. SNOW AND ICE MELTING SYSTEMS SHALL BE PROVIDED WITH AUTOMATIC CONTROLS TO SHUT OFF THE SYSTEM WHEN THE PAVEMENT IS ABOVE 50 DEGREES F AND NO PRECIPITATION IS FALLING, AND A CONTROL TO SHUT OFF THE SYSTEM WHEN THE OUTDOOR TEMPERATURE IS ABOVE 40 DEGREES F. (NYC ECC C403.2.4.5)
10. BUILDING APARTMENTS ARE PROVIDED NATURAL VENTILATION WITH OPERABLE WINDOWS IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE. OTHER OCCUPIED SPACES ARE PROVIDED WITH MECHANICAL VENTILATION IN ACCORDANCE WITH THE NEW YORK CITY MECHANICAL CODE. DEMAND CONTROL VENTILATION SHALL BE PROVIDED AS REQUIRED. (NYC ECC C403.2.5)
11. ALL SUPPLY AND RETURN AIR DUCTS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHEN LOCATED OUTSIDE THE BUILDING. WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R-8 INSULATION. ALL DUCTS, AIR HANDLERS, AND FILTER BOXES SHALL BE SEALED PER SECTION 603.9 OF THE NYC CONSTRUCTION CODES. (NYC ECC C403.2.7)
12. ALL DUCTWORK SHALL BE CONSTRUCTED AND ERECTED IN ACCORDANCE WITH THE NYC MECHANICAL CODE. FOR LOW PRESSURE DUCTWORK, LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS OPERATING AT A STATIC PRESSURE OF LESS THAN OR EQUAL TO 2 INCHES W.G. SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTIC, MASTIC PLUS-EMBEDDED-FABRIC SYSTEMS OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL MEDIUM PRESSURE DUCTS DESIGNED TO OPERATE AT A STATIC PRESSURE GREATER THAN 2 INCHES

W.G. BUT LESS THAN 3 INCHES W.G. SHALL BE INSULATED AND SEALED PER #12 ABOVE.

13. THIS PROJECT CONTAINS NO HIGH PRESSURE DUCTWORK. (NYC ECC C403.2.7.1.3)
14. HIGH PRESSURE DUCTWORK SYSTEMS SHALL BE DESIGNED TO OPERATE AT STATIC PRESSURES IN EXCESS OF 3 INCHES WATER GAUGE SHALL BE INSULATED AND SEALED IN ACCORDANCE WITH NYC ECC 4.3.27. IN ADDITION DUCTS AND PLENUMS SHALL BE LEAK-TESTED IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL WITH THE RATE OF LEAKAGE LESS THAN OR EQUAL TO 0.10 AS DETERMINED BY NYC ECC C403.2.7.1.3.
15. ALL PIPING SERVING AS PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH THE FOLLOWING TABLE OR SPECIFICATION SECTION 23 07 19, WHICHEVER IS GREATER:

FLUID	MINIMUM PIPE INSULATION (THICKNESS IN INCHES)	
	NOMINAL PIPE DIAMETER	
STEAM	<= 1.5	> 1.5
	5	5
HOT WATER	1-1/2	2
CHILLED WATER, BRINE, OR REFRIGERANT	1	1-1/2

16. MECHANICAL SYSTEMS SHALL BE COMMISSIONED AND COMPLETED IN ACCORDANCE WITH SECTION C408.2 OF THE NYC ECC.
17. EACH SUPPLY AIR OUTLET AND ZONE TERMINAL DEVICE SHALL BE EQUIPPED WITH A VOLUME DAMPER OR SIMILAR DEVICE FOR AIR BALANCING. CONSTANT VOLUME FANS AND VAV FANS LARGER THAN 10 HP SHALL NOT HAVE DISCHARGE DAMPERS. (NYC ECC 408.2.2.1)
18. ALL INDIVIDUAL HEATING AND COOLING COILS SHALL BE EQUIPPED WITH BALANCING VALVES AND PRESSURE TEST CONNECTION PORTS. (NYC ECC 408.2.2.2)
19. THE MECHANICAL CONTRACTOR SHALL PROVIDE OPERATING AND MAINTENANCE MANUALS TO THE BUILDING OWNER. THE MANUALS SHALL CONTAIN THE FOLLOWING AT A MINIMUM:
 - A. EQUIPMENT INPUT AND OUTPUT CAPACITY AND MAINTENANCE REQUIREMENTS.
 - B. EQUIPMENT OPERATION AND MAINTENANCE MANUALS.
 - C. HVAC SYSTEM CONTROL, MAINTENANCE AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, SCHEMATICS, CONTROL SEQUENCES, AND DESIRED SET POINTS.
 - D. A WRITTEN NARRATIVE EXPLAINING HOW EACH SYSTEM IS INTENDED TO OPERATE. (NYC ECC C403.2.9.3)
21. EACH HVAC SYSTEM WITH A TOTAL FAN SYSTEM NAMEPLATE HORSEPOWER EXCEEDING 1 HP HAS BEEN SELECTED TO MEET THE ALLOWABLE FAN HORSEPOWER REQUIREMENTS OF NYC ECC C403.2.10.1 (1)
22. FOR EACH FAN, THE SELECTED FAN MOTOR SHALL BE NO LARGER THAN THE FIRST AVAILABLE MOTOR SIZE GREATER THAN THE BRAKE HORSEPOWER (BHP). THE FAN BRAKE HORSEPOWER (BHP) SHALL BE INDICATED ON THE DESIGN DOCUMENTS TO ALLOW FOR COMPLIANCE VERIFICATION BY THE CODE OFFICIAL.
23. THIS PROJECT DOES NOT CONTAIN ANY SYSTEMS INSTALLED TO PROVIDE HEATING OUTSIDE OF THE BUILDING. (NYC ECC C403.2.11)

SPECIAL INSPECTIONS

- A. MECHANICAL SYSTEMS - BC 1704.16
- B. ENERGY CODE COMPLIANCE - BC 110.3.5 AND 1 RCNY 5000-01
- C. FINAL INSPECTION-BC 110.3.5 AND RCNY 101-10

PROGRESS INSPECTIONS

- A. STANDARDS OF HEATING - MC 309.1
- B. NOISE CONTROL - MC 309
- C. DUCT CONSTRUCTION, SUPPORT - MC 603
- D. AIR INTAKES, EXHAUSTS AND RELIEFS - MC 401.5
- E. AIR FILTERS - MC 609
- F. FIRE DAMPERS AND SMOKE DAMPERS AND SMOKE DETECTORS - MC 607
- G. MANUAL AND AUTOMATIC, FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - MC 513
- H. PIPING AND INSULATION - MC 1204
- I. GAS FIRED EQUIPMENT - FUEL GAS CODE

MECHANICAL EQUIPMENT AND BUILDING SYSTEMS SHALL BE CONSTRUCTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE 2014 NEW YORK CITY MECHANICAL CODE AND THE 2016 NYC ENERGY CONSERVATION CODE

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COMMISSIONING

OWNER SHALL ENGAGE A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY TO PROVIDE COMMISSIONING SERVICES IN COMPLIANCE WITH SECTION C408 OF 2020 NYC ECC. THE SPECIFICATIONS SHALL BE PROVIDED BY A COMMISSION AGENT AND TO BE SUBMITTED WITH DESIGN DOCUMENTS FOR BID.

SYSTEMS AND ASSOCIATE CONTROLS TO BE COMMISSIONED:

1. HEATING, COOLING, AIR HANDLING AND DISTRIBUTION, VENTILATION AND EXHAUST SYSTEMS AND THEIR RELATED AIR QUALITY MONITORING SYSTEMS.
2. AIR, WATER AND OTHER ENERGY RECOVERY SYSTEMS.
3. MANUAL OR AUTOMATIC CONTROLS WHETHER LOCAL OR REMOTE, ON ENERGY USING SYSTEMS INCLUDING BUT NOT LIMITED TO TEMPERATURE CONTROLS, SETBACK SEQUENCES AND OCCUPANCY BASED CONTROL, INCLUDING ENERGY MANAGEMENT FUNCTIONS OF THE BUILDING MANAGEMENT SYSTEM.
4. PLUMBING INCLUDING INSULATION OF PIPING AND ASSOCIATED VALVES, DOMESTIC AND PROCESS WATER PLUMBING AND MDMG SYSTEMS.
5. MECHANICAL HEATING SYSTEMS AND SERVICE WATER HEATING SYSTEMS.
6. REFRIGERATION SYSTEMS.
7. RENEWABLE ENERGY AND ENERGY STORAGE SYSTEMS.
8. OTHER SYSTEMS, EQUIPMENT AND COMPONENTS THAT ARE USED FOR HEATING, COOLING OR VENTILATION AND THAT AFFECT ENERGY USE.

COMMISSIONING PLAN SHALL FOLLOW ALL NECESSARY STEPS AS PER SECTION C408.2.1 OF 2016 NYC ECC.

TRAINING AND MANUALS:

UPON COMPLETION OF THE JOB, ALL APPLICABLE OPERATING AND SPECIFICATION MANUALS TO BE DELIVERED TO THE BUILDING STAFF. CONTRACTOR SHALL PROVIDE TRAINING FOR THE BUILDING MAINTENANCE STAFF TO ASSURE THAT THE SYSTEM IS MAINTAINED AND OPERATED PROPERLY.

- ALL MOTORIZED DAMPERS SHALL BE CLASS I RATED FOR AIR LEAKAGE. MOTORIZED DAMPERS SHALL AUTOMATICALLY SHUT WHEN SYSTEM NOT IN USE
- ALL EQUIPMENT MUST BE UL-REFERENCE STANDARD APPROVED

DUCT INSULATION	
SPACE	R-VALUE
CONDITIONED	R-4
UNCONDITIONED	R-6
EXTERIOR	R-8

1. PIPING SHALL BE INSPECTED BEFORE ACCESS IS COVERED UP.
2. EXTEND AND LOCATION IS ACCORDING WITH 2020 NYC ECC.

PIPE INSULATION		
COOLING PIPE (LESS THAN 60°)		
DIAMETER	THICKNESS	
LESS THAN 1-1/2"	1/2"	
1-1/2" AND GREATER	1"	
HEATING PIPE (141° - 200°)		
DIAMETER	THICKNESS	
LESS THAN 1-1/2"	1-1/2"	
1-1/2" AND GREATER	2"	

VENTILATION SYMBOL LIST & ABBREVIATION

SYMBOL	DESCRIPTION
	NEW DUCTWORK
	MOTOR OPERATED DAMPER
	DUCT CAP
	DUCT DOWN
	DUCT UP
	SUPPLY/OUTSIDE AIR DUCT SECTION
	RETURN AIR DUCT SECTION
	EXHAUST/RELIEF AIR DUCT SECTION
	BLANK OFF SUPPLY DIFFUSER
CD-1	AIR TERMINAL PROPERTIES
BT15	NECK SIZE/CFM
	THERMOSTAT SENSOR
AC	AIR CONDITIONING
CP	CIRCULATION PUMP
CR	CEILING REGISTER
EA	EXHAUST AIR
ER-E	EXHAUST REGISTER - EXISTING
FA	FRESH AIR
FD	FIRE DAMPER
NC	NEW CONNECTION
RA	RETURN AIR
SA	SUPPLY AIR
TP	TYPICAL

MECHANICAL GENERAL NOTES:

1. ALIEN TEMPERATURE SENSORS WITH LIGHT SWITCHES WHEN IN CLOSE PROXIMITY TO EACH OTHER.
2. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND PROVIDE PROPER ACCESS AND CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE
3. SEAL ALL FLOOR AND WALL PENETRATIONS AIRTIGHT WHERE DUCT PENETRATE.
4. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, DUCTWORK ETC.
5. DUCT CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARD.
6. COORDINATE DIFFUSER, GRILLE AND REGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND EQUIPMENT OF ALL TRADES.
7. ALL DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
8. DAMPERS AND INSEDS OF DUCT VISIBLE THROUGH GRILLES, REGISTERS AND DIFFUSERS SHALL BE PAINTED FLAT BLACK.
9. CONDENSATE DRAIN FROM ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED FOR PROPER DRAINAGE TO SUIT EQUIPMENT FURNISHED.
10. ALL DUCTWORK SHOWN ARE SCHEMATICALLY. PROVIDE ALL TRANSITIONS, TURNING VANES, ELBOWS, FITTINGS ETC. TO ALLOW SMOOTH FLOWS.
11. VERIFY FINISH WITH ARCHITECT PRIOR TO PURCHASING GRILLES, REGISTERS, DIFFUSER AND OTHER AIR DISTRIBUTION DEVICES.
12. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
13. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
14. REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAIL AS APPLICABLE TO THE HVAC SYSTEM.
15. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS NOTED OTHERWISE.

PROFESSIONAL ENGINEER



SEAL & SIGNATURE:

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

REV	DATE	DESCRIPTION
0	09/25/2020	ISSUED FOR PERMIT APPLICATION

CLIENT:

PROJECT:

STREET

ADDRESS: STREET
BROOKLYN, NY 11201

ISSUE DATE:

09/25/2020

PROJECT NUMBER:

1172

SCALE:

AS NOTED

DESIGNED BY:

DEE

DRAWN BY:

DEE

CHECKED BY:

DEE

DRAWING TITLE:

MECHANICAL LEGENDS, NOTES ABBREVIATIONS AND SCHEDULES

DRAWING NO:

M-001

REVISION:

.00

1. GENERAL CONDITIONS
 - A. THE APPLICABLE PROVISIONS OF THE GENERAL CONSTRUCTION SPECIFICATIONS SHALL APPLY.
 - B. THE CONTRACTOR SHALL PROVIDE ALL ITEMS OF LABOR OR MATERIALS NOT SPECIFICALLY INDICATED, BUT REQUIRED TO COMPLETE THE INTENDED INSTALLATIONS.
 - C. THE WORK UNDER THIS CONTRACT SHALL BE PERFORMED SIMULTANEOUSLY WITH WORK OF OTHER TRADES, SO AS NOT TO DELAY THE OVERALL PROGRESS OF WORK.
 - D. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF SAME WHICH MAY BE DAMAGED, LOST OR STOLEN, WITHOUT ADDITIONAL COSTS TO THE OWNER.
 - E. ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH BASE BUILDING SPECIFICATIONS AND LEASE REQUIREMENT AND TENANT WORK LETTER UNLESS NOTED OTHERWISE ON PLANS.
 - F. ALL WORK IS TO BE CONDUCTED IN ACCORDANCE WITH THE BUILDING'S RULE AND REGULATIONS. A COPY OF THE REGULATIONS CAN BE OBTAINED AT THE BUILDING OFFICE.
 - G. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLED INSPECTION AS PART OF THIS CONTRACT. MECHANICAL CONTRACTOR SHALL PROVIDE THE NAME OF A LICENSED PROFESSIONAL ENGINEER TO ARCHITECT WHEN AWARDED CONTRACT.
 - H. ALL EXISTING SUPPLY AND OUTSIDE AIR DUCTWORK WHERE INSULATION IS MISSING OR DAMAGED SHALL BE FULLY INSULATED WITH 1 1/2" (38mm) THICK THERMAL INSULATION.
 - I. ALL OPENINGS RESULTING FROM REMOVAL OF EXISTING DUCTWORK, CEILING DIFFUSERS AND CEILING REGISTERS SHALL BE BLANKED-OFF AND AIR TIGHT, AS PER SMACNA.
2. OPERATING & MAINTENANCE INSTRUCTIONS
 - A. AFTER FINAL TESTS AND ADJUSTMENTS, FULLY INSTRUCT OWNER'S OPERATING PERSONNEL IN ALL DETAILS OF OPERATION FOR EQUIPMENT INSTALLED.
 - B. PROVIDE TO THE OWNER OPERATION AND MAINTENANCE MANUALS.
 - C. GUARANTEE AND SERVICE

1. THE CONTRACTOR SHALL GUARANTEE THE ENTIRE INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE OF THE INSTALLATION BY THE OWNER.
2. THE CONTRACTOR SHALL, DURING THE PERIOD OF GUARANTEE REPLACE OR REPAIR AT HIS OWN EXPENSE ANY PIECE OF EQUIPMENT AND/OR MATERIAL WHICH IS FOUND TO BE DEFECTIVE. THE CONTRACTOR SHALL ALSO REPAIR DAMAGE TO SURROUNDING WORK CAUSED BY THE FAILURE, REPAIR OR REPLACEMENT OF DEFECTIVE EQUIPMENT AT HIS OWN EXPENSE.
3. SHOP DRAWINGS & EQUIPMENT SUBMISSIONS
 - A. SIX (6) COPIES OF DUCTWORK AND PIPING AND CERTIFIED EQUIPMENT MANUFACTURER'S DATA SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION, ERECTION OR PURCHASE.
 - B. PRODUCT DATA - SUBMIT MANUFACTURER'S PRINTED LITERATURE, CATALOG CUTS, CERTIFIED EQUIPMENT PERFORMANCE DATA, WIRING DIAGRAMS AND INSTALLATION INSTRUCTIONS.
 - C. SHOP DRAWINGS - SUBMIT PLANS, SECTIONS, DETAILS, SCHEDULES AND CALCULATIONS. LAYOUTS SHALL BE DOUBLE LINE, SCALE: 3/8"=1'-0" COORDINATED WITH OTHER TRADES AND WITH BUILDING CONSTRUCTION ELEMENTS. SUBMIT ONE REPRODUCIBLE AND FIVE (5) PRINTS OF EACH DRAWING.
 - D. MAINTENANCE MANUALS - PREPARE OPERATING AND MAINTENANCE MANUAL INCLUDING THE FOLLOWING:
 - a. MANUFACTURER'S LITERATURE DESCRIBING EACH PIECE OF EQUIPMENT.
 - b. COPIES OF PRODUCT WARRANTIES AND GUARANTEES.
 - c. OPERATING AND MAINTENANCE PROCEDURES, SERVICING INSTRUCTIONS.
 - E. ALL SHOP DRAWINGS MUST BE APPROVED BY THE BUILDING MANAGEMENT OFFICE BEFORE CONSTRUCTION PROCEEDS, INCLUDING THE FOLLOWING:
 - a. CATALOG CUTS AND PERFORMANCE OF PROPOSED MECHANICAL EQUIPMENT (6 SETS).
 - b. CONTRACTOR'S 1/4"=1'-0" SCALE SHEET METAL SHOP DRAWINGS (6 SETS); SHOP DRAWINGS MUST BE APPROVED BY BUILDING MANAGEMENT OFFICE BEFORE CONSTRUCTION PROCEEDS.
 - c. AIR BALANCE REPORTS (2 SETS), WHEN BALANCING REPORT IS SUBMITTED TO THE BUILDING, INCLUDE 1/4"=1'-0" SCALE HVAC DRAWING NOTING DIFFUSERS NOS. AND COLUMN NOS. REPORT MUST BE SUBMITTED WITHIN 2 WEEKS AFTER BALANCING IS COMPLETED, IS COMPLETED.

4. RECORD DRAWINGS
 - A. REPRODUCIBLE RECORD DRAWINGS SHALL BE SUPPLIED UPON WHICH CORRECTIONS SHALL BE MADE TO PROVIDE AN ACCURATE AND COMPLETE RECORD OF THE WORK AS INSTALLED.
 - B. AS-BUILT INFORMATION SHALL BE SUBMITTED AS FOLLOWS:
 1. CAD DRAWING FILES ON DISKS IN AUTOCAD VERSION 12 FORMAT.
 2. ONE (1) SET OF REPRODUCIBLE DRAWINGS.
 3. TWO (2) SETS OF BLUEPRINTS.

5. TESTING, ADJUSTMENTS AND BALANCING
 - A. IT IS THE INTENT UNDER THIS SECTION OF THE WORK TO OBTAIN COMPLETE BALANCING OF EACH BRANCH DUCTWORK, AIR CONDITIONING UNIT, AIR OUTLET, DAMPER ETC.
 - B. MAKE ALL REQUIRED ADJUSTMENTS OF AIR SYSTEM DEVICES UNTIL ALL SPECIFIED PERFORMANCE ARE MET.
 - C. AFTER COMPLETION OF TESTS SUBMIT (TWO) LIST TO CONSULTING ENGINEER OF FAN SPEEDS IN RPM, AMPERE READINGS, PRESSURE DROPS OF EACH COIL, READINGS AND TESTS OF AIR OUTLETS SHALL INCLUDE REQUIRED CFM AND RESULTANT CFM AFTER ADJUSTMENTS. FOR PURPOSES OF TESTING USE PLOT TUBES WITH OIL-IMMERSED MANOMETERS TO TRAVERSE DUCT CROSS SECTION. TEST SHALL INCLUDE NEW TENANT WORK AND EXISTING BASE BUILDING AC UNITS.
 - D. SYSTEM BALANCING SHALL BE PERFORMED BY AN ORGANIZATION SPECIALIZING IN THE PROCEDURES TO DO SO, HAVING AT LEAST FIVE (5) YEARS EXPERIENCE.
 - E. BALANCING MUST CONFORM TO LATEST RECOMMENDATIONS OF THE ASHRAE. F. IT SHALL BE THE OBLIGATION OF THIS CONTRACTOR TO INCLUDE IN HIS BALANCING PROCEDURE A COMPLETE TEST OF THE BASE BUILDING C.C. UNIT AND ON SUPPLY AND RETURN TAPS CONDENSER, PRIOR TO COMMENT OF WORK IN ORDER TO CONFIRM LEASE IDENTIFIED CAPACITY, IN ORDER TO ESTABLISH BASE BUILDING AIR CONDITION CAPACITIES PRIOR TO CONNECTION OF TENANT SYSTEM. CONTRACT SHALL NOTIFIED BUILDING MANAGER, TENANT ENGINEER AT LEAST 5 DAYS PRIOR TO TEST.

THIS SHALL INCLUDE:

- E.1 CFM QUANTITIES FOR MAXIMUM AND MINIMUM SETTINGS. MINIMUM SETTING SHALL PROVIDE SUFFICIENT PRESSURE TO INSURE THAT ANY ZONE REQUIRING FULL (MAXIMUM) CFM WILL BE SATISFIED. (MAXIMUM) CFM WILL BE SATISFIED.
- E.2 DISCHARGE TEMPERATURE. STATE WHETHER FREE COOLING OR COMPRESSORS ARE OPERATING.
- E.3 LOW TEMPERATURE RETURN AIR RESET TO BE SET AT LOW TEMPERATURE (88°). THE TEST WILL BE DONE IN THE PRESENCE OF OR WITH KNOWLEDGE OF THE BUILDING ENGINEER. MALFUNCTIONS WILL BE REPORTED TO THE BUILDING ENGINEER AND COSENTINI ASSOCIATES. ALL DATA RECORDED SHALL BE ENTERED INTO THE BALANCING REPORT.
- G. AIR READINGS AND FAN READINGS SHALL BE TAKEN PRIOR TO CONSTRUCTION. TRAVERSE ALL MAIN DUCTS TO DETERMINE AVAILABLE QUANTITY OF CFM. AMPERAGE, RPM AND STATIC PRESSURES OF THE FANS SHOULD BE OBTAINED TO VERIFY AIR HANDLERS OPERATING CONDITIONS. ALL READINGS ARE TO BE TURNED OVER TO THE BUILDING MANAGEMENT OFFICE FOR REVIEW.
- H. REBALANCE ALL SYSTEMS WHICH ARE AFFECTED BY TENANT WORK. PRIOR TO PERFORMING AIR BALANCE PROCEDURES, TENANTS BALANCER MUST CONTACT BUILDING MANAGEMENT OFFICE TO VERIFY OPERATION OF SYSTEM, 24 HOUR WRITTEN NOTICE IS REQUIRED.
- I. ANY CEILINGS OUTSIDE OF THE TENANT SPACE WHICH ARE BROKEN OR REMOVED DURING TENANT BALANCING PROCEDURES MUST BE REPLACED AT TENANTS' EXPENSE.
- J. WRITTEN NOTIFICATION TO THE BUILDING MANAGEMENT OFFICE MUST BE MADE EACH TIME CFM READINGS ARE TAKEN. SUBMIT COPY OF BALANCE REPORT TO BUILDING MANAGEMENT OFFICE.

1. APPROVALS AND SUBSTITUTIONS
 - A. IT IS THE INTENT OF THESE SPECIFICATIONS THAT WHEREVER A MANUFACTURER IS SPECIFIED AND SUBSTITUTIONS ARE

MADE, THEY SHALL CONFIRM IN ALL RESPECTS TO THE SPECIFIED ITEM. CRITERIA AS DELINEATED FOR EQUIPMENT SHALL BE INTERPRETED AS MINIMUM PERFORMANCE REQUIREMENTS. PERFORMANCE REQUIREMENTS.

- B. SUBSTITUTED EQUIPMENT WHERE PERMITTED MUST CONFORM TO SPACE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTORS' EXPENSE. ANY MODIFICATION OF RELATED SYSTEMS OR ADDITIONAL COSTS THAT RESULT FROM SUBSTITUTED EQUIPMENT SHALL BE BORNE BY THIS CONTRACTOR.

7. VERIFYING EXISTING CONDITIONS, REMOVALS & ALTERATIONS
 - A. THE CONTRACTOR SHALL VISIT THE PREMISES TO DETERMINE EXISTING CONDITIONS AND COMPARE SAME WITH DRAWINGS AND SPECIFICATIONS AND SATISFY HIMSELF OF ALL CONDITIONS PRIOR TO THE SUBMISSION OF A BID PROPOSAL. NO ALLOWANCE WILL BE MADE FOR FAILURE TO COMPLY WITH THESE REQUIREMENTS AND A BID PROPOSAL SHALL BE CONSIDERED AS EVIDENCE HE HAS DONE SO.
 - B. THE CONTRACTOR SHALL REMOVE, RELOCATE, REPLACE, ADJUST, ADAPT AND MODIFY EXISTING EQUIPMENT AND/OR SYSTEMS AS REQUIRED BY THE DRAWINGS OR SPECIFICATIONS AND AS MAY BE REQUIRED WHEN SUCH WORK IS UNCOVERED AND FOUND TO INTERFERE WITH THE COMPLETION OF WORK IN THIS CONTRACT OR OTHER CONTRACT WORK.
 - C. ALL REMOVED EQUIPMENT AND MATERIAL SHALL BE REMOVED FROM THE PROJECT SITE.
 - D. PROTECT SHUTDOWNS, DRAINING AND REFILLING, RECONNECTIONS AND STARTUPS OF EXISTING SYSTEMS NECESSARY IN CONNECTION WITH THE NEW WORK. COORDINATE SHUTDOWNS WITH THE OWNER.

8. REMOVALS & ALTERATIONS
 - A. THE CONTRACTOR SHALL REMOVE, RELOCATE, REPLACE, ADJUST, ADAPT AND MODIFY EXISTING EQUIPMENT AND/OR SYSTEMS AS REQUIRED BY THE DRAWINGS OR SPECIFICATIONS AND AS MAY BE REQUIRED WHEN SUCH WORK IS UNCOVERED AND FOUND TO INTERFERE WITH THE COMPLETION OF WORK IN THIS CONTRACT OR OTHER CONTRACT WORK.
 - B. ALL REMOVED EQUIPMENT AND MATERIAL SHALL BE RETURNED TO THE BUILDING MANAGEMENT FOR THEIR DETERMINATION AS TO WHAT WILL HAPPEN TO SAID EQUIPMENT OR MATERIAL.

9. REQUIRED TO ACCOMPLISH FULL CONTROL
 - C. ALL WIRING, STAPLES, SWITCHES ETC. SHALL BE IN FULL ACCORDANCE WITH ALL LOCAL AND INSURANCE UNDERWRITERS' CODE REQUIREMENT.
 - D. FURNISH DETAILED COMPOSITE WIRING DIAGRAMS FOR THOSE INSTALLING THE ELECTRICAL WORK AND FURNISH SUCH OTHER INFORMATION NECESSARY TO ASSURE THE PROPER CONNECTION, OPERATION AND CONTROL OF MOTORISED EQUIPMENT, INCLUDING INTERLOCKS, AUTOMATIC OR SAFETY CONTROLS AND AUXILIARY CIRCUITS.

10. CODES, PERMITS AND INSPECTIONS
 - A. ALL WORK SHALL MEET OR EXCEED LATEST REQUIREMENT OF NATIONAL, STATE, COUNTY, MUNICIPAL AND OTHER AUTHORITIES EXERCISING JURISDICTION OF THE WORK OF THIS PROJECT.
 - B. ANY PORTION OF WORK WHICH IS NOT SUBJECT TO THE APPROVAL OF AN AUTHORITY HAVING JURISDICTION SHALL BE PROVIDED IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION REQUIREMENTS.
 - C. SECURE PERMITS AND INSPECTION CERTIFICATES AND TRANSMIT SAME TO THE OWNER AT THE COMPLETION OF THE WORK.

11. COORDINATION
 - A. ALL NEW DUCTWORK SHALL BE KEPT AS HIGH AS POSSIBLE TO MAINTAIN CEILING HEIGHTS SHOWN ON ARCHITECTURAL DRAWINGS.
 - B. MECHANICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES.
 - C. WHERE PIPING, LIGHTS AND DUCTWORK CONTACT, DUCTWORK SHALL BE COORDINATED TO SITE CONDITIONS.
 - D. CONNECT NEW WORK TO EXISTING AS SHOWN ON THE DRAWING.
 - E. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF ALL AIR OUTLETS THERMOSTATS AND SWITCHES WITH ARCHITECT'S REFLECTED CEILING PLANS.
 - F. LOCATION OF MECHANICAL EQUIPMENT, PIPING AND DUCTWORK WITH THE WORK OF OTHER TRADES, PROVIDING CLEARANCES FOR INSULATION, SERVICING, REMOVAL OF COMPONENTS AND EQUIPMENT DISASSEMBLY.
 - G. COORDINATE PROVISION OF OPENINGS IN WALLS AND SLABS, POURING OF CONCRETE PADS, SETTING OF SLEEVES AND CURBS.
 - H. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENT.
 - I. SEQUENCE PHASES OF MECHANICAL WORK WITH THE WORK OF OTHER TRADES.

1. SHEET METAL DUCTWORK
 - A. ALL DUCTWORK, DAMPERS AND ALL AUXILIARY DEVICES AND WORK NECESSARY TO MAKE THE VARIOUS COMPRESSORS AND VENTILATING SYSTEMS COMPLETE AND READY FOR SATISFACTORY OPERATION SHALL BE FABRICATED AND INSTALLED.
 - B. ALL LOW AND MEDIUM PRESSURE DUCTS SHALL BE GALVANIZED STEEL, WITH SEAMS, BRACING AND JOINTS CONSTRUCTION IN ACCORDANCE WITH THE LATEST SMACNA DUCT MANUAL STANDARDS. ALL SUPPLY DUCTS SHALL BE GALVANIZED STEEL WITH VAV TERMINAL BOXES FROM FAN DISCHARGE TO BOX SHALL CONFORM TO SMACNA "H" W.G. PRESSURE DUCT CONSTRUCTION, (A) SEAL CLASSIFICATION.
 - C. IN ACCORDANCE WITH SMACNA STANDARDS PROVIDE DUCTWORK CASING ACCESS TO ALL CONCEALED CONTROLS, FUSIBLE LINKS OF DAMPERS, ETC.
 - D. PROVIDE MANUAL QUADRANT DAMPERS IN EACH SPLIT OR TAP CONNECTION. PROVIDE AIR BOOT CONNECTION AND BRANCH DUCT TO AIR OUTLETS FOR BALANCING PURPOSES. EACH PROCEED TO EXISTING OPERATOR AND LOCKING DEVICE. PROVIDE CORD OPERATED DAMPERS IN INACCESSIBLE CEILING AREAS. DO NOT INSTALL DAMPER ON MEDIUM PRESSURE DUCT WORK.
 - E. PROVIDE FUSIBLE LINK FIRE DAMPERS COMBINATION FIRE DAMPERS AT LOCATION SHOWN ON DRAWINGS AND WHERE NECESSARY TO COMPLY WITH LOCAL OR OTHER AGENCIES' JURISDICTIONS REQUIRING THEIR INSTALLATIONS AND IN COMPLIANCE WITH THEIR CONSTRUCTION REQUIREMENTS.
 - F. AUTOMATIC DAMPERS SHALL BE AS FOLLOWS: UP ARROW LOUVER AND DAMPER CO. DAMPERS SHALL BE CERTIFIED THAT LEAKAGE SHALL NOT EXCEED 1 INCH THROUGH DAMPER CLOSED AND HOLDING 5" W.G. PRESSURE ACROSS THE FACE.
 - G. DUCTWORK LAYOUTS AND ROUTINGS SHOWN ON THE DRAWINGS ARE SCHEMATIC THEREFORE CHANGES IN DUCT SIZES AND/OR LOCATIONS SHALL BE PERMITTED WHERE NECESSARY TO CONFORM TO SPACE CONDITIONS OR OBTAIN MAXIMUM HEADROOM CONDITIONS. ANY ADDITIONAL COSTS TO THE OWNER.
 - H. WHERE DUCTS ARE CONCEALED THEY SHALL BE ACOUSTICALLY LINED THE SIZES SHOWN ON THE PLANS SHALL BE THE CLEAR INSIDE DIMENSION.
 - I. ALL DIFFUSERS, REGISTER AND REGISTERS SHALL BE LOCATED IN CONFORMANCE TO ARCHITECTURAL REFLECTED CEILING PLANS.
 - J. FLEXIBLE DUCTS SHALL NOT BE ACCEPTED.

15. INSULATION REQUIREMENTS
 - A. INSULATION SHALL BE APPLIED TO DUCTWORK OF MATERIALS AS SPECIFIED BELOW.
 - B. NOTE THAT DUCTWORK THAT IS INTERNALLY AND ACOUSTICALLY INSULATED/ LINED NEED NOT BE INSULATED ON THE EXTERIOR.
 - C. INSULATION/LINING SHALL HAVE COMPOSITE INSULATION OR FACING AND ADHESIVE USED TO ADHERE TO THE FACING TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM E.84, NFPA 255 OR UL 723 NOT EXCEEDING:

FLAME SPREAD	25
SMOKE DEVELOPED	50

ACCESSORIES SUCH AS ADHESIVES, MASTICS, CEMENTS AND TAPES FOR FITTINGS SHALL HAVE THE SAME COMPONENT RATING AS LISTED ABOVE. ALL PRODUCTS OR THEIR SHIPPING CARTONS SHALL BEAR A LABEL INDICATING THAT FLAME AND SMOKE RATINGS DO NOT EXCEED REQUIREMENTS. TREATMENT OF FACINGS TO IMPART FLAME AND SMOKE SAFETY SHALL BE PERMANENT. THE USE OF WATER-SOLUBLE TREATMENTS IS PROHIBITED.

- D. DUCTWORK INSULATION/LINING MATERIAL
 - D.1 DUCT LINING SHALL BE 1-1/2 POUND PER CUBIC FOOT DENSITY, OWENS CORNING AEROFLEX, MANVILLE CN ACOUSTIC, CERTANTITE ULTRALITE 150 OR AS PER BASE BUILDING SPECIFICATION. SUBSTITUTIONS ARE NOT ACCEPTABLE. THE THICKNESS INSTALLED SHALL BE 1/2".
 - D.2 ALL PORTIONS OF DUCT DESIGNATED TO RECEIVE DUCT LINER SHALL BE COMPLETELY LINED WITH DUCT LINER AND SHALL ALSO BE PROVIDED WITH A VAPOR BARRIER TO PREVENT CONDENSATION.

- D.3 ALL SUPPLY DUCTWORK SHALL BE COVERED WITH 1" THICK FIBERGLASS DUCT INSULATION.
 - D.3.1 DUCT INSULATION SHALL BE 1 LB. PER CU. FT. DENSITY GLASS FIBER WITH A MAXIMUM K FACTOR OF 0.29 AT 75°F MEAN TEMPERATURE, WITH REINFORCED FOIL-FACED, FLAME RESISTANT KRAFT VAPOR BARRIER.
 - D.3.2 INSULATION SHALL BE SECURED WITH DUCT ADHESIVE. ALL JOINTS SHALL BE SEALED BY ADHERING A 2" SEALING LAP AT JOINTS WITH VAPOR BARRIER ADHESIVE OR 3" STRIPS OF VAPOR BARRIER JACKET APPLIED WITH VAPOR BARRIER ADHESIVE. INSULATION SHALL THEN BE FASTENED WITH 16 GAUGE COPPER-CLAD WIRE OR FIBER GLASS CORD ON 12" CENTERS ON DUCTS OVER 24" WIDE. WELDED PINS AND CLIPS SHALL BE USED ON THE UNDERSIDE.
 - D.3.3 EXTENT OF DUCTWORK INSULATION FOR NEW OUTWORK
 1. ALL SUPPLY DUCTWORK.
 2. 3.4 EXTENT OF DUCTWORK LINING
 1. 10'-0" UPSTREAM AND DOWNSTREAM OF ALL FANS.
 2. 15'-0" DOWNSTREAM AND ENTIRE LENGTH OF UPSTREAM DUCTWORK OF ALL AC UNITS.

- C.2 CODES AND STANDARDS:
 - C.2.1 FABRICATE AND LABEL REFRIGERATION SYSTEM TO COMPLY WITH ASHRAE 15, "SAFETY CODE FOR MECHANICAL REFRIGERATION."
 - C.2.2 ENERGY EFFICIENCY RATIO (EER) OF PACKAGE UNITS SHALL BE EQUAL TO OR GREATER THAN PRESCRIBED BY ASHRAE 90A "ENERGY EFFICIENT DESIGN OF NEW BUILDINGS."
 - C.2.3 NFPA COMPLIANCE: AC UNITS AND COMPONENTS SHALL BE DESIGNED, FABRICATED, AND INSTALLED IN COMPLIANCE WITH NFPA 96A, INSTALLATION OF AIR CONDITIONING, HEATING AND VENTILATING SYSTEMS.
 - C.2.4 AC UNITS AND THEIR COMPONENTS SHALL BE FACTORY TESTED ACCORDING TO THE APPLICABLE PORTIONS OF AHRI AND SHALL BE LISTED AND BEAR THE LABEL OF THE AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI).
 - C.2.5 UL AND NEMA COMPLIANCE: PROVIDE MOTORS REQUIRED AS PART OF AC UNITS THAT ARE LISTED AND LABELED BY UL AND COMPLY WITH APPLICABLE NEMA STANDARDS.
 - C.2.6 THERM AND RATING OF PACKAGE UNITS SHALL BE IN ACCORDANCE WITH AHRI 300, STANDARD FOR COMMERCIAL AND INDUSTRIAL AIR-CONDITIONING EQUIPMENT.
 - C.2.7 SOUND TESTING AND RATING OF PACKAGE UNITS SHALL BE IN ACCORDANCE WITH AHRI 270, STANDARD FOR SOUND RATING OF OUTDOOR UNITARY EQUIPMENT.
 - C.2.8 FAN PERFORMANCE RATINGS: CONFORM TO AMCA 210.
 - C.2.9 SOUND RATINGS: AHRI 410.
 - C.2.10 FABRICATION: CONFORM TO AHRI 430.
 - C.2.11 FILTER MEDIA: ANSI/UL 900 TESTED, CLASS I OR CLASS II APPROVED BY LOCAL AUTHORITIES.
 - C.2.12 AIR COILS: CERTIFY CAPACITIES, PRESSURE DROPS, AND SELECTION PROCEDURES IN ACCORDANCE WITH AHRI 410.
 - C.2.13 PACKAGE UNITS SHALL BE LISTED BY UL OR E.T.L. AND HAVE LABEL AS A UNIT.
 - C.2.14 COMPLY WITH NFPA 70 FOR COMPONENTS AND INSTALLATION.

17. DAMPERS
 - A. ALL DAMPERS SHALL BE FURNISHED TO MEET THE PERFORMANCE REQUIREMENTS SET FORTH IN THE SCHEDULE AND AS SPECIFIED UNDER ANOTHER SECTION OF THIS WORK. ALL DAMPERS SHALL BE OF LOW LEAK DESIGN.

1. UL LISTED PANEL
 - A. AN INTEGRAL ELECTRICAL PANEL, ARRANGED TO ACCEPT TWO INCOMING SERVICES, I.E., NORMAL UTILITY POWER FOR COMPRESSORS AND EMERGENCY POWER FOR FANS, AN UNFUSED DISCONNECT SWITCH OR NON-AUTOMATIC CIRCUIT BREAKER SHALL BE PROVIDED FOR EACH INCOMING SERVICE. BRANCH CIRCUITS SUPPLYING POWER CONSUMING EQUIPMENT SHALL BE INDIVIDUALLY FUSED, UTILIZING TIME DELAY FUSES. THE PANEL SHALL BE FACTORY PRE-WIRED AND SHALL CONTAIN OR CONTROL THE FOLLOWING COMPONENTS:
 - B. COMPRESSORS, SUPPLY AIR FAN, RETURN AIR FAN, STARTERS, TIME DELAY RELAYS, CRANKCASE HEATERS, CONTROL CIRCUIT FUSES, AND TERMINAL STRIP. ALL OF THE HEATING, COOLING AND VENTILATING CONTROLS SHALL BE INTERLOCKED WITH THE CONDITIONER FAN MOTOR STARTER IN ORDER THAT THEY CANNOT OPERATE IF THE FAN MOTOR STARTER IS DE-ENERGIZED.
 - ALL THREE (3) MOTOR LEGS ARE TO BE WIRED FOR INDIVIDUAL PHASE PROTECTION. THERE SHALL BE A PHASE FAILURE CONTROL INSTALLED WITHIN THE UNIT CONTROL PANEL.
 - THERE SHALL BE A SMOKE PURGE RELAY EXTERNALLY ACTIVATED WHICH SHALL PREVENT THE CONDENSING UNIT FROM OPERATING WHILE THE UNIT OPERATING IN THE SMOKE PURGE MODE.
 - THE UNIT ELECTRICAL SYSTEM SHALL INCLUDE A 110 VOLT AND 24 VOLT TRANSFORMER FOR THE CONTROL CIRCUIT. ALL CONTROLS, RELAYS AND CRANKCASE - AS WELL AS HOLDING COILS FOR ALL STARTERS - SHALL BE 110 VOLT OR LESS. THE MAIN FAN STARTER SHALL HAVE FOUR (4) AUXILIARY CONTACTS FOR PURPOSES OF CONTROL USAGE. ALL LOW VOLTAGE CONTROLS SHALL BE SEGREGATED FROM POWER WIRING.
 - THE CONTROL PANEL SHALL ALSO INCLUDE ALL NECESSARY TERMINAL BLOCKS TO FACILITATE FIELD CONTROL WIRING CONNECTIONS. THERE SHALL BE A LOCKOUT TO ENSURE THAT HEATING AND COOLING CANNOT OPERATE SIMULTANEOUSLY. THERE SHALL BE A UNIT GROUND AND DUPLEX OUTLET WITH LIGHT.
 - ALL INTERNAL PANEL WIRE SHALL BE TYPE THIN. ALL POWER WIRING SHALL BE RATED FOR 600 VOLTS AND HOUSED IN A SEALED TIGHT CONDUIT. ALL CONTROL WIRING WITHIN THE UNIT SHALL BE LOCATED IN AN ENCLOSED CHANNEL RUNNING THROUGH THE FLOOR OF THE UNIT. ALL WIRING CONNECTIONS SHALL BE OF INDIVIDUAL LUG HOOKUP. MULTIPLE WIRES TO ONE LUG WILL NOT BE ACCEPTED. ALL CONTROLS SHALL BE UNDERWRITERS LABORATORIES APPROVED. ALL WIRING SHALL BE DONE WITHIN NEC AND UL REQUIREMENTS.

33. SUPPLY PRE-WIRED SUPPLY AIR AND RETURN AIR FIRESTAT AND FREEZE/STAT.

33. TESTING
 - A. THE UNIT MANUFACTURER SHALL HAVE A CERTIFIED TEST LAB THAT CONFORMS TO AMCA 210 AIRFLOW AND 300 SOUND POWER LEVEL STANDARDS. THE UNITS SHALL BE TESTED BY A CERTIFIED ENGINEER WITH A COPY OF TEST REPORTS SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO SHIPPING THE UNITS.

34. PERFORMANCE
 - A. PERFORMANCE: NOTED ON SCHEDULES, TO BE RATED AS A COMPLETELY ASSEMBLED UNIT.

37. CONNECTIONS
 - A. PIPING INSTALLATION REQUIREMENTS ARE SPECIFIED IN OTHER DIVISION 23 SECTIONS. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES. THE FOLLOWING ARE SPECIFIC CONNECTION REQUIREMENTS:
 - A.1 INSTALL PIPING TO ALLOW SERVICE AND MAINTENANCE.
 - B. GROUND EQUIPMENT
 - B.1 TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. WHERE MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B.

38. START-UP
 - A. VERIFY THAT INSTALLATION IS AS INDICATED AND SPECIFIED.
 - B. COMPLETE MANUFACTURER'S INSTALLATION AND STARTUP CHECKS AND PERFORM THE FOLLOWING:
 - B.1 LEVEL UNIT ON HOUSEKEEPING BASE, AND FLASH CURBS TO UNIT
 - B.2 INSPECT FOR VISIBLE DAMAGE TO UNIT AND UNIT CASING.
 - B.3 INSPECT FOR VISIBLE DAMAGE TO COMPRESSOR, AIR-COOLED CONDENSER COIL, AND FANS.
 - B.4 VERIFY THAT CLEARANCES HAVE BEEN PROVIDED FOR SERVICING.
 - B.5 CHECK THAT LABELS ARE CLEARLY VISIBLE.
 - B.6 CLEAN CONDENSER AND INSPECT FOR CONSTRUCTION DEBRIS.
 - B.7 VERIFY THAT CONTROLS ARE CONNECTED AND OPERABLE.

- B.8 REMOVE SHIPPING BOLTS, BLOCKS, AND TIE-DOWN STRAPS.
- B.9 VERIFY THAT FILTERS ARE INSTALLED.
- B.10 ADJUST VIBRATION ISOLATORS.
- B.11 CHECK ACOUSTIC INSULATION.
- B.12 CHECK OPERATION OF AIR DAMPERS.

- C. LUBRICATE BEARINGS, PULLEYS, BELTS, AND OTHER MOVING PARTS WITH FACTORY-RECOMMENDED LUBRICANTS.
- D. CHECK FAN-WHEEL ROTATION FOR CORRECT DIRECTION WITHOUT VIBRATION AND BINDING.
- E. ADJUST FAN BELTS TO PROPER ALIGNMENT AND TENSION.
- F. COMB COIL FINS.
- G. START UNIT ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - G.1 PERFORM STARTING OF REFRIGERATION IN SUMMER ONLY.
 - G.2 COMPLETE STARTUP SHEETS AND ATTACH COPY WITH CONTRACTOR'S STARTUP REPORT.
- H. CHECK AND RECORD PERFORMANCE OF INTERLOCKS AND PROTECTION DEVICES. VERIFY SEQUENCES.
- I. OPERATE UNIT FOR AN INITIAL PERIOD AS RECOMMENDED OR REQUIRED BY MANUFACTURER.
- J. CALIBRATE THERMOSTATS.
- K. ADJUST AND CHECK HIGH-TEMPERATURE LIMITS.
- L. CHECK INTERNAL ISOLATORS.
- M. CHECK OUTSIDE-AIR DAMPER FOR PROPER STROKE AND INTERLOCK WITH RETURN-AIR DAMPERS.
- N. CHECK CONTROLS FOR CORRECT SEQUENCING OF HEATING, MIXING DAMPERS, REFRIGERATION, AND NORMAL AND EMERGENCY SHUTDOWN.
- O. START REFRIGERATION AND MEASURE AND RECORD THE FOLLOWING:
 - O.1 COIL LEAVING-AIR, DRY- AND WET-BULB TEMPERATURES.
 - O.2 COIL ENTERING-AIR, DRY- AND WET-BULB TEMPERATURES.
 - O.3 OUTSIDE-AIR, DRY-BULB TEMPERATURE.
 - O.4 AIR-COOLED-CONDENSER, DISCHARGE-AIR, DRY-BULB TEMPERATURE.
- P. MEASURE AND RECORD THE FOLLOWING MINIMUM AND MAXIMUM AIRFLOWS. PLOT FAN VOLUMES ON FAN CURVE.
 - P.1 SUPPLY-AIR VOLUME.
 - P.2 RETURN-AIR VOLUME.
 - P.3 RELIEF-AIR VOLUME.
 - P.4 OUTSIDE-AIR INTAKE VOLUME.
- Q. SIMULATE MAXIMUM COOLING DEMAND AND CHECK THE FOLLOWING:
 - Q.1 COMPRESSOR REFRIGERANT SUCTION AND HOT-GAS PRESSURES.
 - Q.2 SHORT CIRCUITING AIR THROUGH CONDENSER OR FROM CONDENSER TO OUTSIDE-AIR INTAKE.
- R. VERIFY OPERATION OF REMOTE PANEL, INCLUDING PILOT-LIGHT OPERATION AND FAILURE MODES. CHECK THE FOLLOWING:
 - R.1 HIGH-LIMIT HEAT EXCHANGER.
 - R.2 WARM-UP SOUND MONITORING CYCLE.
 - R.3 FREEZE/STAT OPERATION.
 - R.4 FREE-COOLING MODE, OUTSIDE-AIR CHANGEOVER.
 - R.5 ALARMS.
- S. AFTER STARTING AND PERFORMANCE TESTING, CHANGE FILTERS, VACUUM HEAT EXCHANGER AND COOLING AND CONDENSER COILS, LUBRICATE BEARINGS, ADJUST BELT TENSION, AND CHECK OPERATION OF POWER VENTS.
- T. REPLACE FAN AND NUTS PULLEYS AND SHEAVES AS REQUIRED TO ACHIEVE DESIGN CONDITIONS.

40. DEMONSTRATION
 - A. START-UP SERVICES:
 - A.1 PROVIDE THE SERVICES OF A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO START-UP UNITS, IN ACCORDANCE WITH MANUFACTURER'S WRITTEN START-UP INSTRUCTIONS. TEST CONTROLS AND DEMONSTRATE COMPLIANCE WITH REQUIREMENTS. REPLACE DAMAGED OR MALFUNCTIONING CONTROLS AND EQUIPMENT.

PROFESSIONAL ENGINEER



SEAL & SIGNATURE:

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

REV.	DATE	DESCRIPTION
0	09/25/2020	ISSUED FOR PERMIT APPLICATION

CLIENT:

PROJECT:

STREET
ADDRESS: **STREET**
BROOKLYN, NY 11201

ISSUE DATE:
09/25/2020
PROJECT NUMBER:
1172
SCALE:
AS NOTED
DESIGNED BY:
DEE

DRAWN BY:
DEE
CHECKED BY:
DEE

DRAWING TITLE:
MECHANICAL SPECIFICATIONS

DRAWING NO:
M-002
REVISION:
.00

KEYNOTES: #

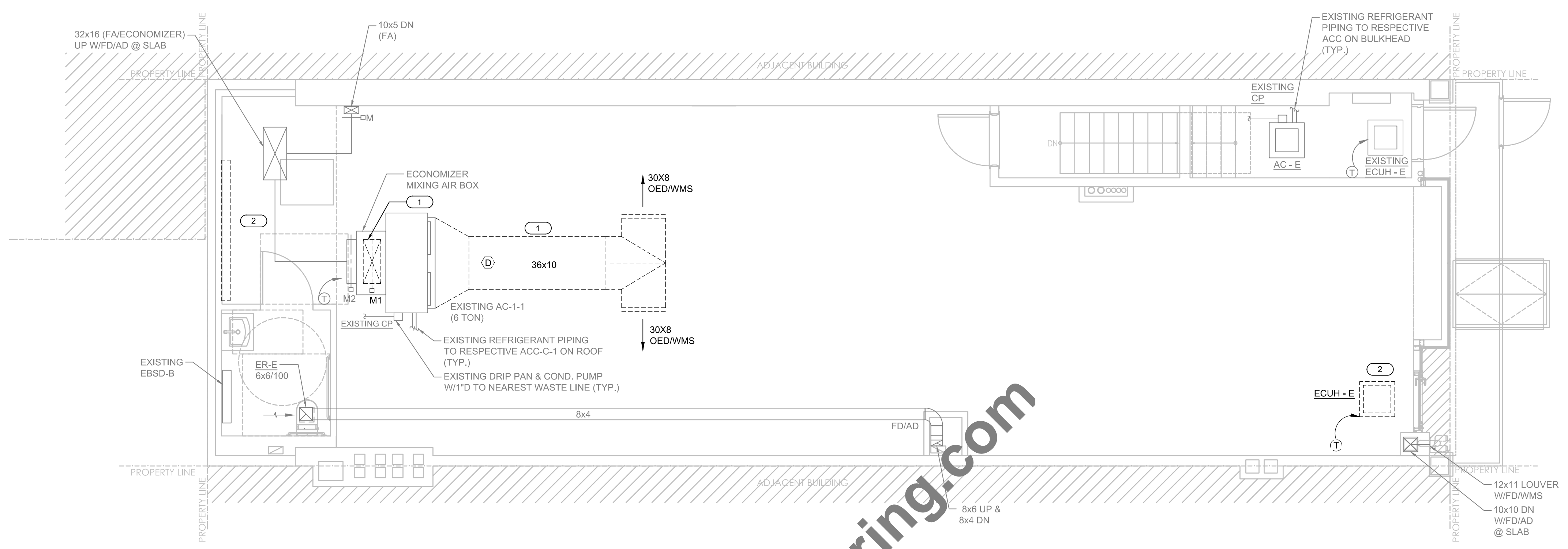
- REMOVE EXISTING PORTION OF DUCTWORK AS INDICATED AND PREPARE FOR NEW CONNECTION.
- REMOVE EXISTING ELECTRICAL HEATER.

PROFESSIONAL ENGINEER:

DURAK EVRIM ERCAN P.E.
ENGINEERING | CONSULTING | ESTIMATING
201-920-2899 info@AmperEngineering.com

SEAL & SIGNATURE:

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1 FIRST FLOOR - MECHANICAL EXISTING PLAN
M-100 SCALE: 1/4" = 1'-0"

www.AmperEngineering.com

GRILLES REGISTERS & DIFFUSERS SCHEDULE

SYMBOL	MANUFACTURER	MODEL	MATERIAL	INLET SIZE (INCH)	FACE SIZE	MOUNTING LOCATION	FACE TYPE	THROW (FT) AT 50 FPM VELOCITY	NOISE RATING (NC)
CR-1	TITUS	OMNI	STEEL	SEE DWG.	24x24	LAY-IN	PANEL FACE	7	25
RG-1	TITUS	350R	STEEL	SEE DWG.	INLET +2	GYP.	35° DEFLECTION	NA	22
ER-1	TITUS	350R	ALUMINUM	SEE DWG.	INLET +2	GYP.	35° DEFLECTION	NA	13

NOTES:
1. ALL RUN OUT DUCTWORK TO DIFFUSERS SHALL BE NECK SIZE UNLESS NOTED OTHERWISE.
2. FRAME TYPE TO MATCH MOUNTING LOCATION CONSTRUCTION MATERIAL. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.

EXISTING OUTDOOR CONDENSING UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	NOMINAL TON	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	IEER/EER (SEER)	COP@47°F	ELECTRICAL		
								MOCP	MCA	VOLT-PHASE
ACC-C-1	DAIKIN	RXYQ120TTAJU	10	120000	135000	21.4/12.1	3.5	45	36.3	208-3

EXISTING AIR CONDITIONING SCHEDULE

TAG	MANUFACTURER	MODEL	SUPPLY FAN				COOLING COIL				HEATING COIL	ELECTRICAL			DISCONNECT		NOTES			
			NOMINAL TON	CFM	OA CFM	ESP	MHP	EAT DB (°F)	EAT WB (°F)	LAT (°F)		TOTAL MBH	SENSIBLE MBH	AMBIENT TEMP (°F)	BTUH	MOCP		MCA	VOLT-PHASE	BY
AC-1-1	DAIKIN	FXMQ72MVJU	6	1400	300	0.4	1	80	67	55	72	57	95	81,000	15	9.5	208-1	MFR	F	NOTE1

NOTES:
1. PROVIDE ECONOMIZER WITH DAMPER MIXING BOX PROVENT MODEL MBPEFYHU7296.

REV	DATE	DESCRIPTION
0	09/25/2020	ISSUED FOR PERMIT APPLICATION

CLIENT:

PROJECT:
STREET
ADDRESS:
STREET
BROOKLYN, NY 11201

ISSUE DATE:
09/25/2020
PROJECT NUMBER:
1172
SCALE:
AS NOTED
DRAWN BY:
DEE
DESIGNED BY:
DEE
CHECKED BY:
DEE

DRAWING TITLE:
MECHANICAL EXISTING PLAN & SCHEDULE

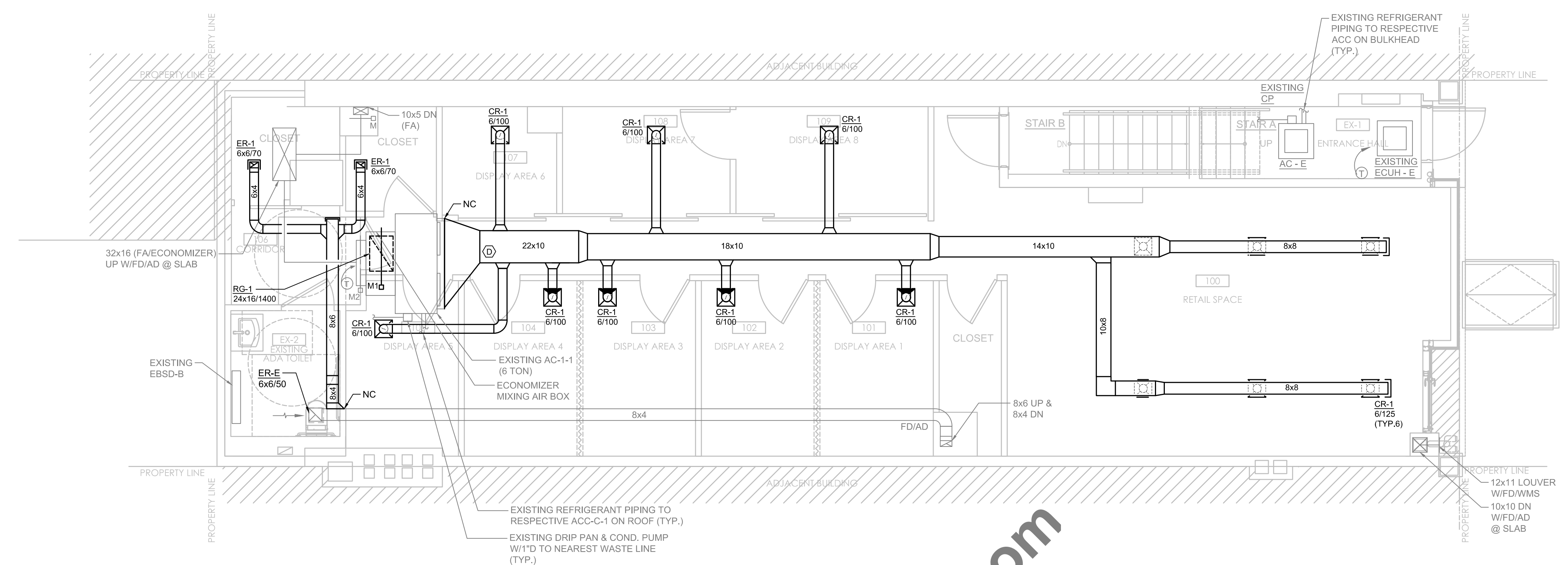
DRAWING NO:
M-100
REVISION:
.00

GENERAL NOTES: #
 1. BALANCE EXISTING EXHAUST FAN AS PER NEW CFM.

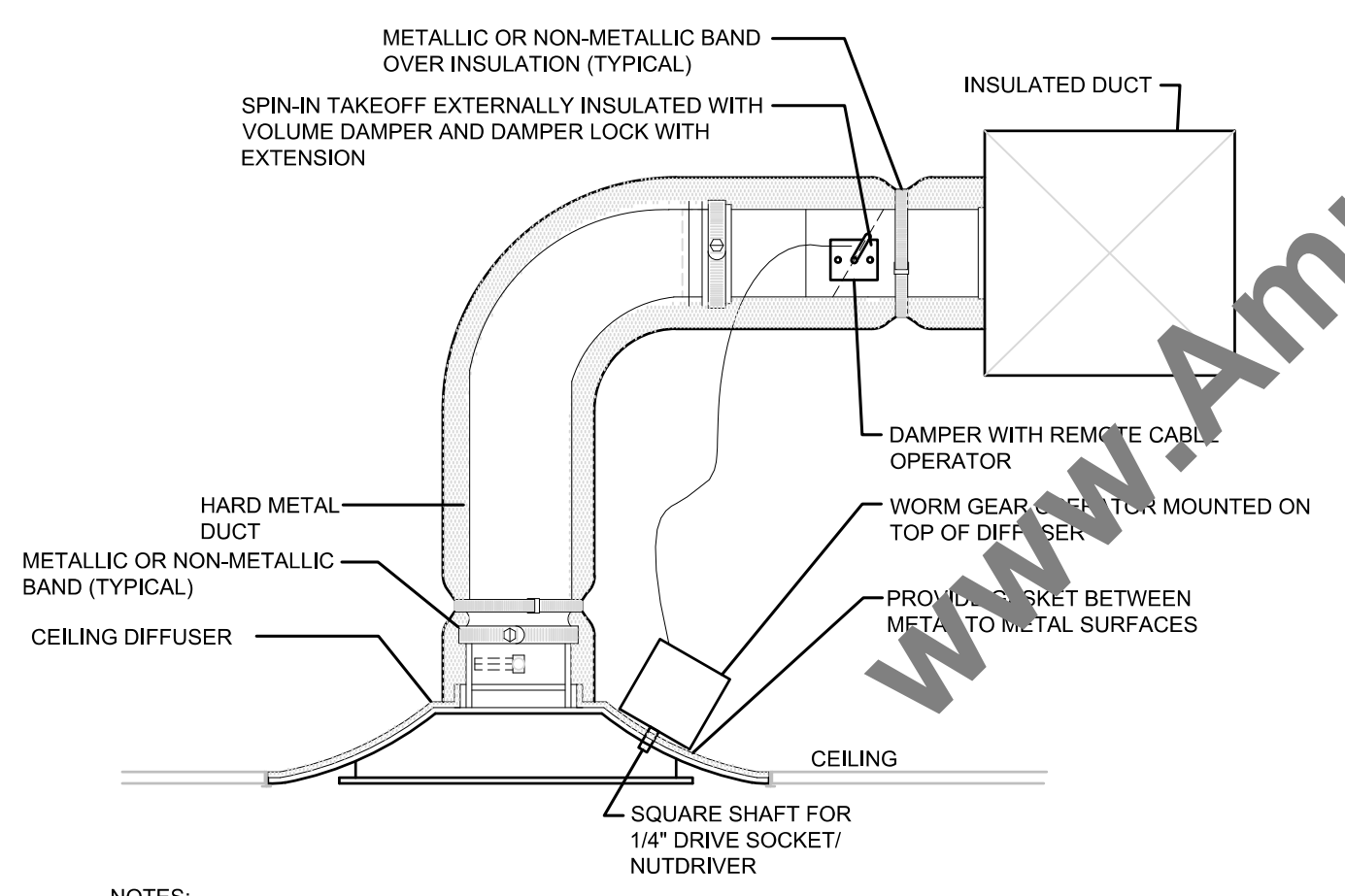
PROFESSIONAL ENGINEER:
DURAK EVRIM ERCAN P.E.
 ENGINEERING | CONSULTING | ESTIMATING
 201-920-2899 | info@AmperEngineering.com

SEAL & SIGNATURE:

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

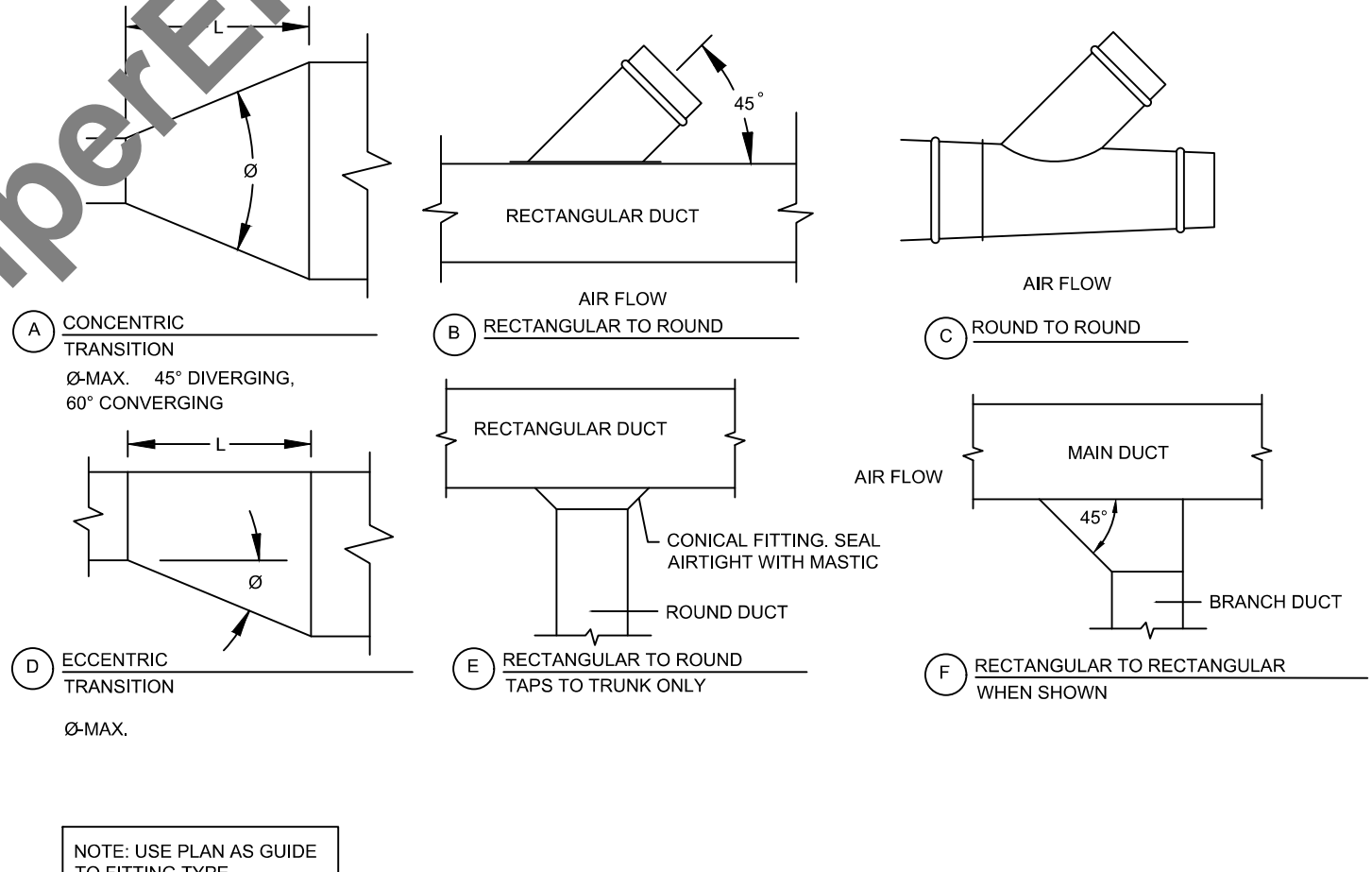


1 FIRST FLOOR - MECHANICAL PROPOSED PLAN
 M-101 SCALE: 1/4" = 1'-0"



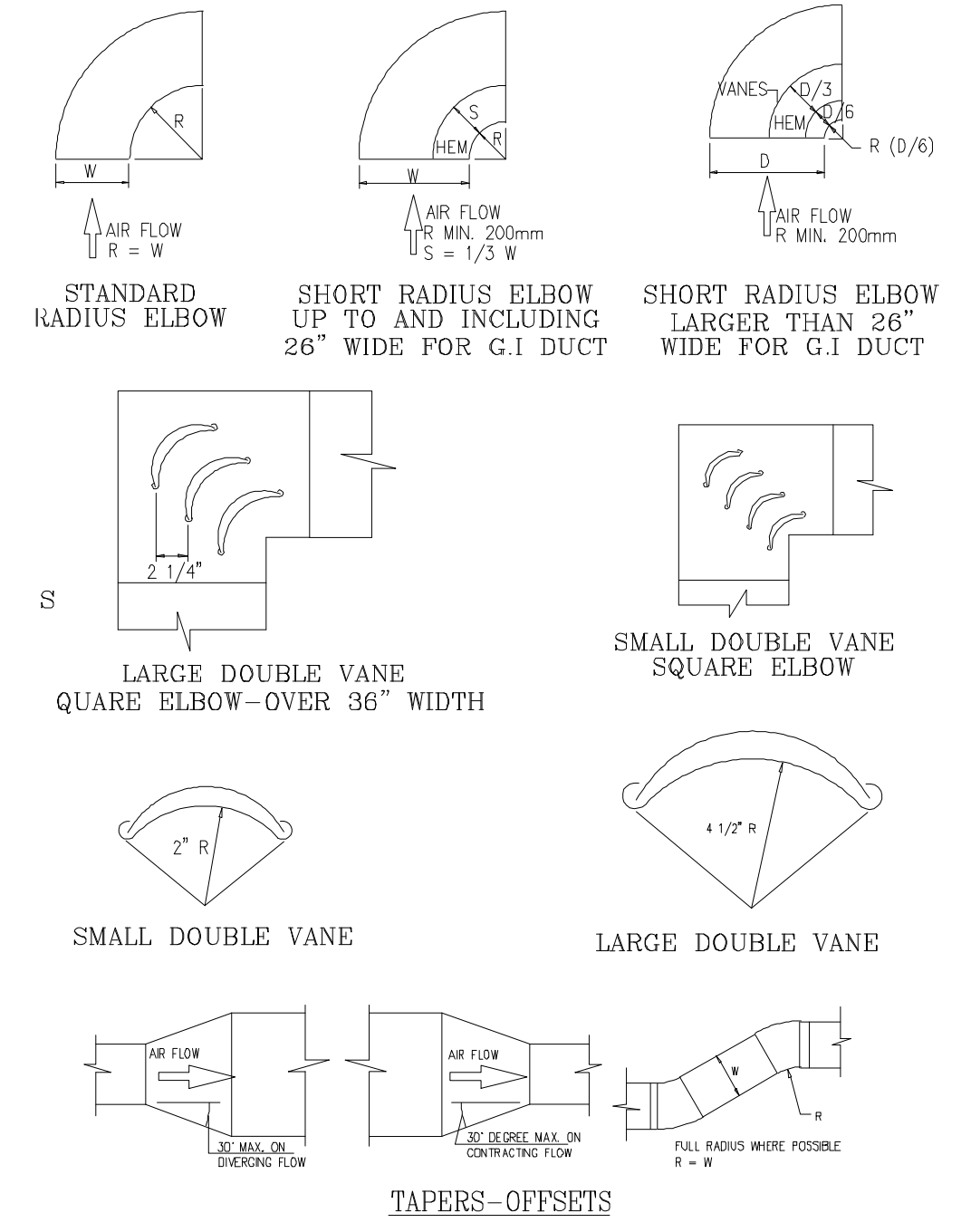
NOTES:
 1. PROVIDE WORM GEAR OPERATOR AND DAMPER WITH REMOTE CABLE FOR DAMPERS ABOVE HARD CEILINGS.

1 DIFFUSER DETAIL
 SCALE: N.T.S.



NOTE: USE PLAN AS GUIDE TO FITTING TYPE.

2 DUCT TAKE OFF DETAIL
 SCALE: N.T.S.



3 ELBOW CONSTRUCTION DETAIL
 SCALE: N.T.S.

REV.	DATE	DESCRIPTION
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STREET
 ADDRESS:
STREET
BROOKLYN, NY 11201

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1172
 SCALE:
AS NOTED
 DESIGNED BY:
DEE
 DRAWN BY:
DEE
 CHECKED BY:
DEE

DRAWING TITLE:
MECHANICAL PROPOSED PLAN & DETAILS

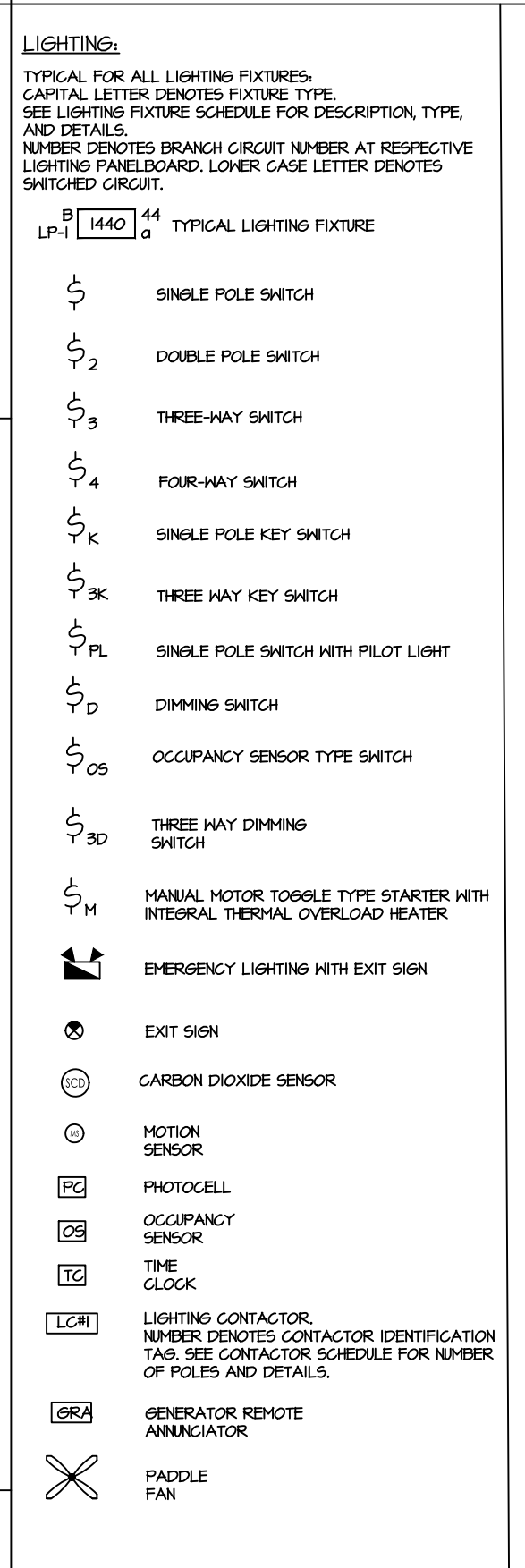
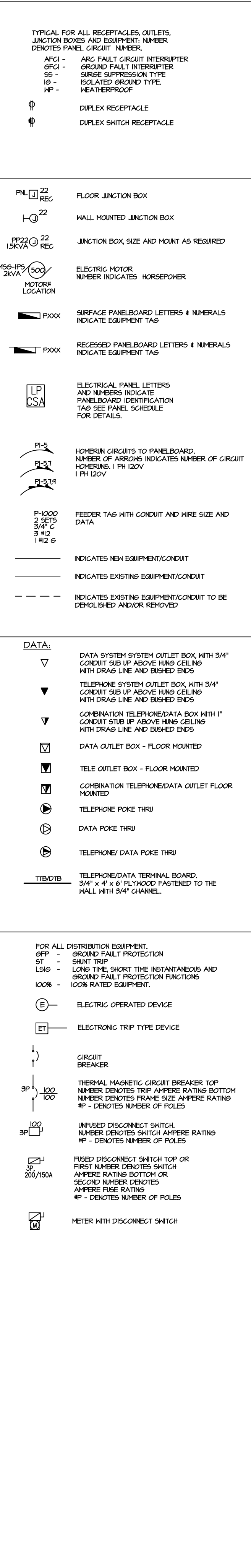
DRAWING NO:
M-101
 REVISION:
.00

GENERAL NOTES:

- THIS DESIGN MAY BE USED FOR SECURING PERMITS, BID, PLANNING, THE COMPANY'S REVIEW OR SOME OTHER GOAL. THIS DESIGN DOES NOT GUARANTEE THESE APPROVALS, NOR ARE THESE APPROVALS A REQUIREMENT FOR SERVICES OR THE COMPLETION OF THIS WORK.
- THIS DESIGN IS NOT A COMPLETE SET OF CONSTRUCTION DRAWING OR SHOP DRAWINGS. THIS DESIGN REPRESENTS DIAGRAMMATIC REPRESENTATION OF INTENDED SCOPE OF WORK.
- THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE, NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
- ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE NATIONAL ELECTRICAL CODE, IEC, LIFE SAFETY CODE, LOCAL BUILDING CODE, OSHA REGULATIONS AND LOCAL, STATE, FEDERAL AND AUTHORITY HAVING JURISDICTION CODES APPLICABLE AT THE TIME OF THE CONSTRUCTION.
- GENERAL WORK PRACTICES FOR ELECTRICAL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NECA I STANDARD FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION (ANSI).
- ALL MATERIALS PROVIDED BY THE CONTRACTOR SHALL BE NEW AND FREE OF DEFECTS, LISTED/LABELLED FOR THE INTENDED PURPOSE BY THE MANUFACTURER (O) OR OTHER ORGANIZATION THAT IS ACCEPTABLE TO THE AUI.
- THESE DRAWINGS AND ACCOMPANYING SPECIFICATIONS ARE INTENDED TO DESCRIBE AND ILLUSTRATE SYSTEMS WHICH WILL NOT INTERFERE WITH THE STRUCTURE OF THE BUILDING AND WHICH WILL FIT INTO THE AVAILABLE SPACES. THE CONTRACTOR IS RESPONSIBLE FOR CAREFULLY LAYING OUT ALL WORK TO CONFORM TO NATIONAL ELECTRICAL CODE CLEARANCES, ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND SITE CONDITIONS TO AVOID OBSTRUCTIONS AND TO ALLOW THE PROPER INSTALLATION OF EACH ITEM.
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT ONLY. COORDINATE WITH DRAWINGS OF OTHER TRADES TO FIT THE ACTUAL SPACE CONDITIONS, HEADROOM AND SPACE CONDITION TO BE MAINTAINED.
- THE DRAWINGS ARE TO BE CONSIDERED SCHEMATIC ONLY AND DO NOT NECESSARILY SHOW THE EXACT LOCATION AND DETAILS OF THE WORK TO BE INSTALLED.
- UPON THE COMPLETION OF THE WORK, THE ENTIRE ELECTRICAL SYSTEM SHALL BE TESTED AND SHALL BE SHOWN TO BE IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL SYSTEM READY FOR OPERATION AND INSPECTION BY AUI.
- TEST AND INSPECT ALL WIRING AND EQUIPMENT INSTALLED UNDER THIS SECTION OF SPECIFICATIONS. ALL WIRING MUST BE FREE SHORTS AND BROKEN WIRE. LEAVE ALL MATERIALS AND APPARATUS IN PROPER AND SATISFACTORY WORKING CONDITIONS.
- THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE CORRECT PHASE SEQUENCE OF ALL THREE-PHASE FEEDERS AND BRANCH CIRCUITS. VERIFY PROPER ROTATION OF ALL MOTORS.
- CONDUIT RINGS WHEN SHOWN ARE DIAGRAMMATIC. FINAL LOCATION AND ROUTING SHALL BE ESTABLISHED BY THE CONTRACTOR BASED ON THE INSTALLATION CONDITIONS AND SHALL BE IDENTIFIED IN THE FIELD. ALL CONDUIT TYPES AND INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONDUIT RINGS SHALL BE PARALLEL WITH OR AT RIGHT ANGLES TO WALLS AND CEILING. CONDUIT SHALL BE SUPPORTED BY APPROVED MEANS. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A DRAG WIRE.
- PROVIDE CONDUIT EXPANSION FITTINGS WITH BONDING JIMMERS FOR ALL CONDUITS PASSING THROUGH EXPANSION JOINTS.
- THE USE OF FLEXIBLE CONDUIT FROM LIGHTING FIXTURES TO JUNCTION BOX IS PERMITTED ONLY WHEN A SEPARATE GROUND WIRE IS INSTALLED WITH THE CONDUCTORS INSIDE FLEXIBLE CONDUIT. THE GROUND WIRE MUST BOND THE FIXTURE HOUSING TO THE JUNCTION BOX. MAXIMUM LENGTH SHALL BE 6'-0".
- FLEXIBLE CONDUIT INSTALLED OUT OF DOORS, IN ANY MECHANICAL EQUIPMENT ROOMS, OR IN NORMALLY WET AREAS SHALL BE LEAD TIGHT FLEX WITH SATISFACTORY FITTINGS.
- PROVIDE CONDUIT, WIRING, GROUNDING AND REQUIRED CONNECTIONS TO ALL DEVICES, FIXTURES AND EQUIPMENT. CONNECT TO CIRCUITS AS INDICATED. CIRCUIT NUMBERS ARE FOR INFORMATION PURPOSES ONLY. ACTUAL CIRCUIT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED IN THE PANEL SCHEDULE DIRECTORY AND ON THE AS-BUILT DRAWINGS.
- CONTRACTOR SHALL VERIFY AND COORDINATE ALL MOUNTING HEIGHTS OF ALL DEVICES MOUNTED IN CABINETS OR IN ABOVE COUNTERS WITH EXISTING EQUIPMENT.
- UNLESS SPECIFICALLY DIRECTED OTHERWISE, FURNISH AND INSTALL EACH AND EVERY ITEM CONTAINED IN AND ASSOCIATED WITH THE WORK INVOLVED AS SHOWN ON THE DRAWINGS AND/OR DESCRIBED IN THE ACCOMPANYING SPECIFICATIONS, TOGETHER WITH ALL APPURTENANCES, COMPONENTS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. CONTRACTOR SHALL PROVIDE CONDUIT, WIRING AND CABLES TO ALL DEVICES, FIXTURES AND ETC. FOR A COMPLETE WORKING SYSTEM BASED ON THE CIRCUITS NOTED.
- PROVIDE INDEPENDENT SUPPORT FOR DISCONNECT SWITCHES, CONTROL STATIONS, BOXES, PANELS, ETC. WHERE NO WALLS OR OTHER STRUCTURAL SURFACE EXISTS.
- EQUIPMENT SIZED AND LOCATIONS ARE APPROXIMATE. ACTUAL DIMENSIONS TO BE DETERMINED BY EQUIPMENT FURNISHED.
- PROVIDE BRANCH CIRCUIT WIRING TO ALL ITEMS REQUIRING ELECTRICAL CONNECTIONS. WHERE BRANCH CIRCUIT WIRING IS NOT SHOWN, CONNECT ITEMS TO CIRCUITS INDICATED. THE CONTRACTOR SHALL DETERMINE EXACT ROUTING OF CONDUITS AND WIRING, UNLESS INDICATED OTHERWISE. ALL BRANCH CIRCUITS SHALL BE MINIMUM #12 AWG.
- PROVIDE JUNCTION BOX FOR ANY DEVICE WITH #16 TALL SUCH AS SOLENOID VALVES, LIMIT SWITCHES, SHOCK DETECTORS AND ETC. FOR PROPER ELECTRICAL CONNECTION. PROVIDE ALL HARDWARE FOR MOUNTING OF JUNCTION BOX.
- EXACT LOCATION OF MECHANICAL AND PLUMBING EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL AND PLUMBING DRAWINGS. COORDINATE WITH MECHANICAL AND PLUMBING CONTRACTORS.
- WHEREVER THE INSTALLATION OF ELECTRICAL EQUIPMENT AS SHOWN ON THE DRAWINGS IS IMPRACTICAL DUE TO LOCAL INTERFERENCE OR UNDESIRABLE FIELD CONDITIONS, THE CONTRACTOR SHALL INSTALL THE EQUIPMENT AT NEW LOCATIONS AS DIRECTED BY THE ENGINEER.
- DESIGN IS BASED ON ALL CONDUCTORS TO BE THIN COPPER AND NO MORE THAN 4 CURRENT CARRYING CONDUCTORS IN THE SAME RACEWAY OR CONDUIT, UNLESS OTHERWISE NOTED.
- WHEN EQUIPMENT IS BEING REMOVED/REMOVED FROM THE FIELD, ALL WIRING ASSOCIATED WITH THE LOAD MUST BE REMOVED FROM THE JUNCTION BOX OR THE CIRCUIT BREAKER. DO NOT LEAVE UNUSED CONDUCTORS IN THE FIELD WITH ENDS TAPED WITH TAPE OR WIRE NUTS.
- PROVIDE DISCONNECT SWITCHES FOR ELECTRICAL HEATER, HVAC EQUIPMENT AND EXHAUST FANS WITHIN EYE SIGHT OF THE EQUIPMENT.
- PROVIDE SERVICE RECEPTACLE WITHIN 25 FEET OF EACH HVAC EQUIPMENT.
- ELECTRICAL CONTRACTOR TO VERIFY ACTUAL INSTALLED EQUIPMENT ELECTRICAL NAME PLATE DATA BEFORE ENERGIZING THE CIRCUIT. CONFIRM ELECTRICAL DESIGN VALUES AND ACTUAL EQUIPMENT BEING INSTALLED ARE IN COMPLIANCE WITH ELECTRICAL CODE AND MANUFACTURER INSTALLATION REQUIREMENTS.
- DISCONNECT SWITCHES SHALL BE HEAVY-DUTY, QUICK-MAKE, QUICK-BREAK TYPE, NEMA 1 ENCLOSURE FOR INDOOR LOCATIONS (NEMA 3R FOR OUTDOOR LOCATIONS). SWITCHES SHALL BE AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, OR SIEMENS (I.T.E.). PROVIDE FUSES AS MANUFACTURED BY BUSHBAM, GOLD-SHAMMUT, OR LITTLE-FUSE. ALL CONDUCTOR TERMINALS TO BE UL LISTED FOR A MINIMUM OF 75°C. SWITCHES USED AS SERVICE ENTRANCE EQUIPMENT TO BE UL LISTED AS "SER" RATED EQUIPMENT.
- PANEL BOARDS SHALL BE MANUFACTURED BY SQUARE-D, EATON, GENERAL ELECTRIC, OR SIMILAR, MEETING UL STANDARDS 50 AND 67, WITH UL LABEL. PANELS USED AS SERVICE ENTRANCE EQUIPMENT TO BE LISTED AS "SER" RATED EQUIPMENT.
- BREAKERS: THERMAL-MAGNETIC TYPE, QUICK-MAKE, QUICK-BREAK, PLUG-IN TYPE FOR LOAD CENTERS AND BOLT-IN TYPE FOR PANEL BOARDS AND SINGLE UNIT CONSTRUCTION. TWO POLE BREAKERS SHALL BE SINGLE UNIT COMMON TRIP TYPE. BREAKERS USED AS SWITCHES FOR LOW VOLTAGE CIRCUITS SHALL BE APPROVED FOR THAT USE AND MARKED "SD". ALL BREAKERS FOR HVAC AND REFRIGERATION EQUIPMENT SHALL BE "NACR" RATED BREAKERS.
- GROUNDING SYSTEM: PERMANENTLY AND EFFECTIVELY GROUND ALL METALLIC CONDUIT, SUPPORTS, CABINETS, PANEL BOARDS AND SYSTEM NEUTRAL CONDUCTORS. MAINTAIN CONTINUITY OF EQUIPMENT GROUND THROUGHOUT THE SYSTEM. GROUND CLAMPS SHALL BE APPROVED TYPE, SPECIFICALLY DESIGNED FOR GROUNDING. WHERE GROUNDING CONDUCTOR IS ENCLOSED IN CONDUIT, GROUND CLAMP SHALL BE OF A TYPE WHICH GROUND BOTH CONDUCTOR AND CONDUIT. ALL CIRCUITS IN FLEXIBLE METAL OR PLASTIC CONDUIT SHALL INCLUDE A GROUND WIRE SIZED AND INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
- CONDUIT SHALL BE SIZED TO COMPLY WITH NEC FOR NUMBER AND SIZE OF CONDUCTORS INSTALLED PER NEG. PROVIDE SCHEDULE 40 PVC PLASTIC OR RIGID STEEL CONDUIT BELOW GRADE. MINIMUM 3/4". PROVIDE ELECTRICAL METAL TUBING (EMT) MEETING F1-40000 FLEXIBLE METAL CONDUIT IN LENGTH 6' OR LESS) FOR INTERIOR LOCATIONS. EMT CONDUCTORS AND COUPLING SHALL BE SET-SCREEN TYPE. "N" & "AC" TYPE CABLES MUST BE INSTALLED IN ACCORDANCE WITH NEC, AND CANNOT BE SUPPORTED FROM CEILING SUPPORT WIRES.
- ALL CONDUIT AND RACEWAY SYSTEMS TO BE INSTALLED WITH SEPARATE GROUND CONDUCTOR. CONDUIT SYSTEM IS NOT TO BE USED AS THE SOLE GROUNDING MEANS.
- CONDUCTORS: INSULATED SOFT ANNEALED #8 AWG PURE COPPER WITH COLOR CODING, B AND S GAUGE, #10 AND SMALLER TO BE SOLID, #8 AND LARGER TO BE STRANDED, MINIMUM #12 UNLESS OTHERWISE INDICATED. CONDUCTORS MUST BE INSTALLED IN ACCORDANCE WITH NEC, AND CANNOT BE SUPPORTED FROM CEILING SUPPORT WIRES. THIN MAY NOT BE USED UNDERGROUND, AT SERVICE ENTRANCE, OUTSIDE, OR IN WET LOCATIONS. ALL INSULATION TO BE RATED FOR 600 V AND TYPES AS FOLLOWS:

#10 AND #12	THIN OR THIN
#8 TO 4/0	THIN OR THIN
SERVICE ENTRANCE, OVER #1/0 ORDINARY SERVICE, OVER #1/0 WET OR HOT SERVICE, WIRE TRAY FLUORESCENT FIXTURES OR WITHIN OF HTG. EQIP.	SE-RHW OR USE-RHW THIN OR XHHW
	THIN
- ALL WIRING TO BE COLOR-CODED AS FOLLOWS:

120/208 VOLT SYSTEM	277/480 SYSTEM
NEUTRAL: WHITE	PHASE A: BROWN
PHASE A OR L1: BLACK	PHASE B: ORANGE
PHASE B OR L2: RED	PHASE C: YELLOW
PHASE C OR L3: BLUE	NEUTRAL: GRAY
GROUND: GREEN	GROUND: GREEN
- THE USE ALL NON-METALLIC WIRING METHODS IS PROHIBITED. USE MC CABLE OR ROUTE IN EMT RACEWAY FOR ALL WIRING.
- WIRE CONNECTORS SHALL BE EQUAL TO "SCOTCH LOCK" FOR #8 AWG WIRE AND SMALLER AND EQUAL TO # 8 LOCK TIGHT FOR #6 AWG AND LARGER.
- LIGHT FIXTURES & LAMPS ARE FURNISHED BY CONTRACTOR EXCEPT AS NOTED ON THE LIGHT FIXTURE SCHEDULE. FIXTURE INSTALLATION SHALL BE BY THE ELECTRICAL CONTRACTOR ACCORDING TO LOCAL CODE AUTHORITY.
- EMERGENCY LIGHTING SHALL HAVE A MINIMUM OF 90 MIN. BATTERY BACK-UP OR AS REQUIRED BY LOCAL CODE AUTHORITY. PROVIDE LOCK-ON CIRCUIT BREAKERS FOR CIRCUITS SERVING EXIT SIGN FIXTURES AND EMERGENCY BATTERY PACK FIXTURES.
- LAYOUT BRANCH CIRCUIT WIRING AND ARRANGEMENT OF HOME RUNS FOR MAXIMUM ECONOMY AND EFFICIENCY. INCREASE WIRE SIZE IF 100 FEET OF LENGTH IS EXCEEDED.
- CONCEAL WIRING SYSTEM ABOVE SUSPENDED CEILINGS OR IN WALL OR FLOOR CONSTRUCTION WHERE POSSIBLE. INSTALL CONDUITS PARALLEL TO BUILDING LINES, AND TO CLEAR ALL OPENINGS, DEPRESSIONS, PIPES, DUCTS, STRUCTURE, ETC.
- INSTALL CONDUIT CONTINUOUS BETWEEN BOXES AND CABINETS WITH NO MORE THAN FOUR (4) 90 DEGREE BENDS. SECURELY FASTEN IN PLACE WITH STRAPS, HANGERS AND STEEL SUPPORTS AS REQUIRED. DO NOT SUPPORT CONDUIT FROM SUSPENDED CEILING GRID OR SUSPENSION WIRES. BEAM CONDUIT ENDS BEFORE INSTALLATION AND THOROUGHLY CLEAN BEFORE INSTALLATION. OPENINGS SHALL BE PLUGGED OR COVERED TO KEEP CONDUIT CLEAN. TERMINALS ON SWITCHES AND OUTLET SHALL NOT BE USED TO "TIE" TRAP TO THE NEXT SWITCH OR OUTLET.
- CONNECT ALL THE NEW EXIT LIGHT AND EMERGENCY LIGHTS TO THE EXISTING EXIT LIGHT CIRCUIT PANEL LP-C5A - CAT NO. -2).



ABBREVIATIONS:

A	AMPERE
AFB	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI	ARC FLASH INTERRUPTER
AFCI	ARC FLASH CIRCUIT INTERRUPTER
AS/TH	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BL	BASIC INFLUSE LEVEL
BKR	BREAKER BLDG BUILDING
CAT	CATALOG
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CR	CIRCUIT
CL	CENTER LINE
GL	CEILING
GMT	CONTROL
CO	CONDUIT ONLY
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
GH	GABINET UNIT HEATER
GL	GENUINE
DIA	DIAMETER
DISC	DISCONNECT
DN	DOWN
DP	DISTRIBUTION PANEL BOARD
DWG	DRAWING
EC	EMPTY CONDUIT
EL	ELEVATION
ELEC	ELECTRICAL
EQIP	EQUIPMENT
ER	EXISTING TO REMAIN
EXIST	EXISTING
FA	FIRE ALARM
FBO	FURNISHED BY OTHER
FR	FEEDER
FIXT	FIXTURE
FL	FLOOR
FVNR	FULL VOLTAGE NON-REVERSING
G	GROUND
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HD	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
IC	INTERFERING CAPACITY
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KH	KILOHATT
KWH	KILOWATT HOUR
LCP	LOCAL CONTROL PANEL
LIS	LOAD INTERRUPTER SWITCH
LP	LIGHTING PANEL
LTS	LIGHTING
MAX	MAXIMUM
MCG	MOTOR CONTROL CENTER
MCS	MOLDED CASE SWITCH
MCP	MAIN DISTRIBUTION PANEL
MN	MINIMUM
MSB	MAIN SWITCHBOARD
MSG	MAIN SWITCHGEAR
MTS	MANUAL TRANSFER SWITCH
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
P	POLE
PH	PHASE
PL	PANEL
PT	POTENTIAL TRANSFORMER
PP	POKER PANEL
PR	POWER
RESCP	RECEPTACLE
REL	EXISTING TO BE RELOCATED
RVNR	REDUCED VOLTAGE, NON REVERSING
SH	SHIELDED CABLE
SP	SPARE
SS	SURGE SUPPRESSION
SMB	SWITCHBOARD
SHGR	SHYTCHEAR
SYM	SYNCHREAR
TEL	TELEPHONE
TYP	TYPICAL
UN	UNLESS OTHERWISE NOTED
V	VOLT OR VOLTA
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
WM	WATERMETER
WP	WATERPROOF
WH	WATER
WFR	WATERPROOF

DRAWING INDEX:

E-001	ELECTRICAL NOTES & COVER SHEET
E-002	ELECTRICAL SCHEDULES AND DETAILS
E-100	ELECTRICAL PROPOSED POWER PLAN
E-101	ELECTRICAL PROPOSED LIGHTING PLAN
E-102	ELECTRICAL EXISTING PLAN
E-103	COMCHECK REPORT

PROFESSIONAL ENGINEER

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 201-920-2899 | info@AmperEngineering.com

SEAL & SIGNATURE:

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0	04/25/2020	ISSUED FOR PERMIT APPLICATION
REV.	DATE	DESCRIPTION

CLIENT:

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 ADDRESS: **STREET**
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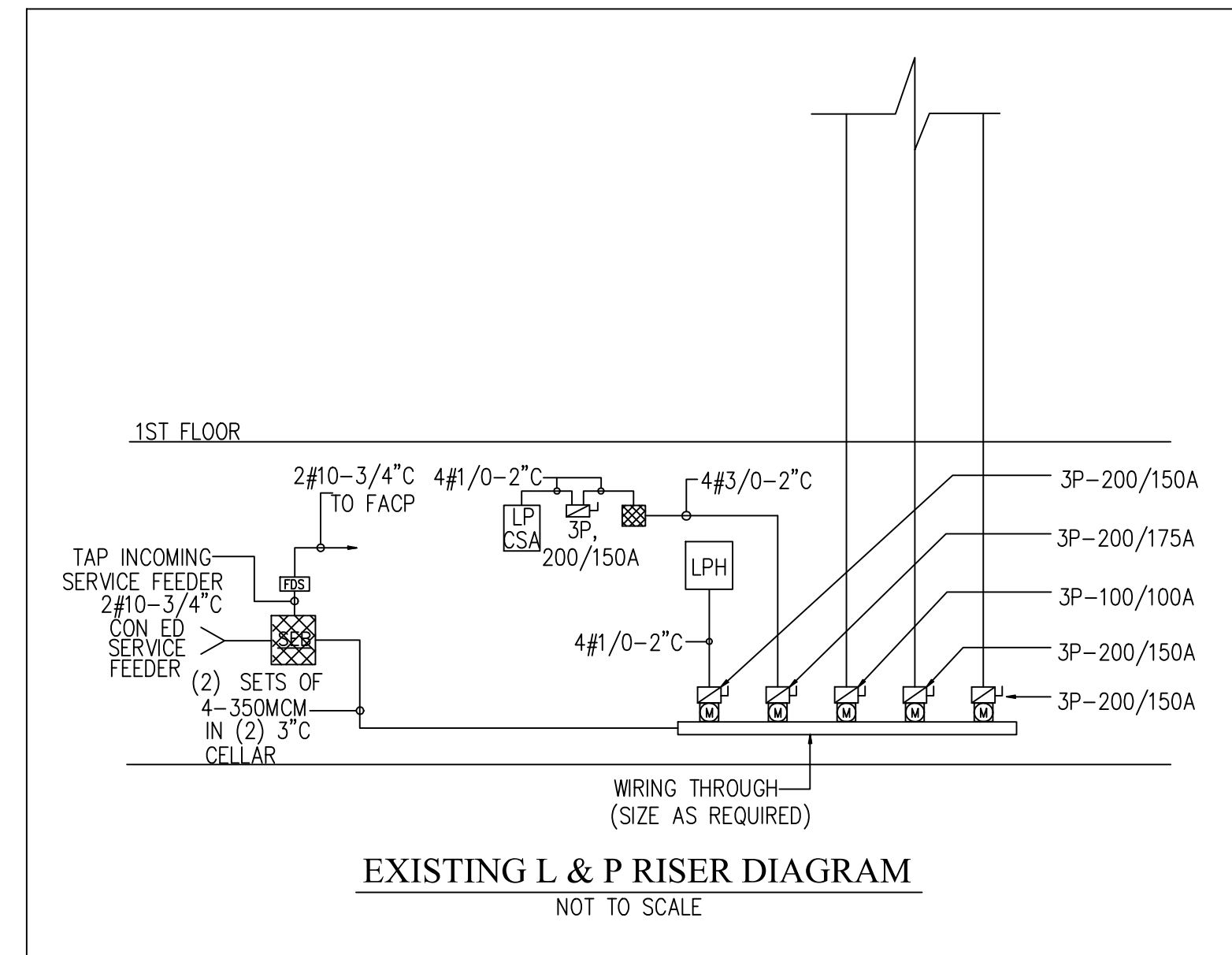
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AS NOTED	DEE
DESIGNED BY:	CHECKED BY:
DEE	DEE

DRAWING TITLE:
ELECTRICAL NOTES & COVERSHEET

DRAWING NO:	REVISION:
E-001	.00

EXISTING ELECTRICAL PANEL "LP- CSA "															
MANUFACTURER:										BUS RATING: 225A					
TYPE/MODEL:										MAIN: MCB					
MOUNTING: SURFACE										VOLTAGE: 208/120V					
ENCLOSURE: NEMA 1										FED FROM: 3 POLE 150A FUSED DISCONNECT					
LOCATION: STORAGE RM															
CKT NO.	LOAD DESCRIPTION	NO. POLES	CB AMPS	CONT.VA	NON CONT.VA	LOAD VA	WIRE SIZE	WIRE SIZE	LOAD VA	NON CONT.VA	CONT.VA	CB AMPS	NO. POLES	LOAD DESCRIPTION	CKT NO.
1	LIGHTING 1ST FLOOR	1	20	807.00		807.00	(2) #12 AWG CU & (1) #12 AWG CU GND	EXSITING WIRING	300.00		300.00	20	1	EXIT LIGHTS	2
3	LIGHTING CELLAR	1	20	400.00		400.00	EXSITING WIRING	(2) #12 AWG CU & (1) #12 AWG CU GND	1080.00	1080.00		20	1	DISPLAY AREA 4 AND 5 REECEPTACLES	4
5	REECEPTACLES-CELLAR	1	20		1300.00	1300.00	EXSITING WIRING	(2) #12 AWG CU & (1) #12 AWG CU GND	1080.00	1080.00		20	1	DISPLAY AREA 2,3 REECEPTACLES	6
7	AC-1-1	2	15	1976		1976.00	EXSITING WIRING	EXSITING WIRING	3200.00		3200.00	20	2	AC-C-1	8
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
11	(2) CONDENSATE PUMPS	1	20		200.00	200.00	EXSITING WIRING	EXSITING WIRING	2000.00	2000.00		20	2	EBSD-C	12
13	EBSD-B	2	20		800.00	800.00	EXSITING WIRING	-	-	-	-	-	-	-	14
15	-	-	-	-	-	-	-	EXSITING WIRING	2000.00	2000.00	-	20	2	ECUH-1	16
17	ACC-C-1	3	45	13062.00		13062.00	EXSITING WIRING	-	-	-	-	-	-	-	18
19	-	-	-	-	-	-	-	EXSITING WIRING	4100.00	4100.00	-	30	2	INSTANTENEOUS HOT	20
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
23	CORIDDOOR STANDING LIGHT	1	20	200.00		200.00	(2) #12 AWG CU & (1) #12 AWG CU GND	(2) #12 AWG CU & (1) #12 AWG CU GND	720.00	720.00		20	1	DISPLAY AREA 1 & CLOSET REECEPTACLES	24
25	DISPLAY AREA 6,7 REECEPTACLES	1	20		720.00	720.00	(2) #12 AWG CU & (1) #12 AWG CU GND	(2) #12 AWG CU & (1) #12 AWG CU GND	360.00	360.00		20	1	DISPLAY AREA 8 REECEPTACLES	26
27	RETAIL SPACE REECEPTACLE	1	20		1260.00	1260.00	(2) #12 AWG CU & (1) #12 AWG CU GND	-	-	-	-	20	1	SPARE	28
29	SPARE	-	20	-	-	-	-	-	-	-	-	20	1	SPARE	30
				16445.00	4280.00					11340.00	3500.00				
DEMAND LOAD:		37741.25													
DEMAND AMP:		104.76													

222 LIVINGSTON SPA - LIGHTING FIXTURE SCHEDULE											
SYMBOL	TYPE	DESCRIPTION	LOCATION	MANUFACTURER	NAME / MODEL NO. / COLOR	LAMP/POWER	WATT	REMARKS	1st Floor	Total	TOTAL WATT
EX-A1	EX-A1	Surface mount/ Ceiling	Commercial Bathroom	WAC Lighting	Slice FM-4108-30-CH	27W LED	27	With Emergency battery pack where required	2	2	54
B1	B1	Concealed Down Light	STAIRWAY EXISTING	USAI Lighting	BevelLED Mini © Primary Trimless P3SDF-15L2-30KS-M-WH-NC-120-D2	15W MAX LED	15	With Emergency battery pack where required EM requires the NC housing.	2	2	30
D2	D2		Commercial Bathrooms Sconce	Sonneman	Turbo Slim; 2431.01-FT	16W LED	16		1	1	16
P1	P1	Pendant	Lobby	10kgdesign	Industrial Factory Shade enamel Ceiling Lighting	15 W LED	15	With Emergency battery pack where required	8	8	120
P2	P2	Pendant	Retail Spaces	Artemide	Castore 25 Suspension	12W E26 LED Halogen	12	With Emergency battery pack where required	2	2	24
S1	S1	Standing	Corridor	Astro Leuchten	Limina Table- and Ground Lamp - 1221001	50W GU10 Halogen	50		5	5	250
S2	S2	Standing	Retail Spaces	Kichler Lighting	Portable LED Lantern with Bluetooth Speaker 49473RZLED	3W LED	3		6	6	18
B1	B1	Concealed Down Light	Display Area Recessed Down Light	USAI Lighting	BevelLED Mini © Primary Trimless P3SDF-15L2-30KS-M-WH-NC-120-D2	15W MAX LED	15	With Emergency battery pack where required EM requires the NC housing.	33	33	495
										1007	



SEAL & SIGNATURE:

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REV.	DATE	DESCRIPTION
0	04/25/2020	ISSUED FOR PERMIT APPLICATION

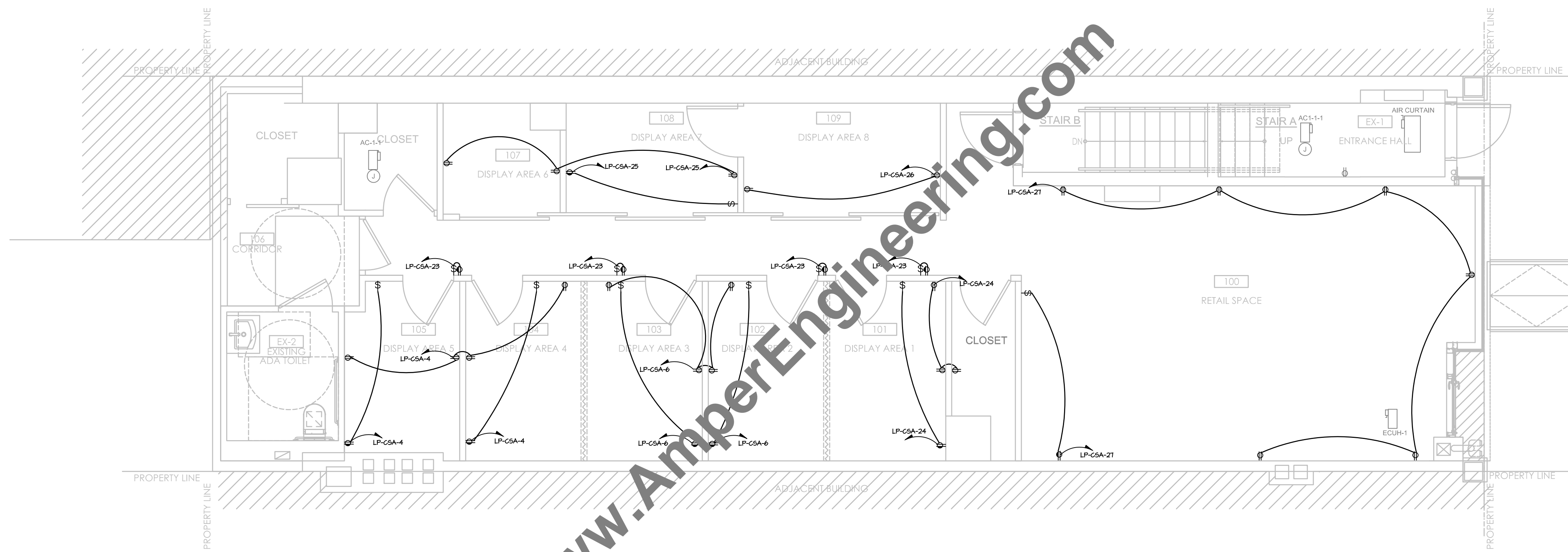
CLIENT:

PROJECT:
STREET
 ADDRESS:
STREET
BROOKLYN, NY 11201

ISSUE DATE:
09/25/2020
 PROJECT NUMBER:
1172
 SCALE:
AS NOTED
 DESIGNED BY:
DEE
 DRAWN BY:
DEE
 CHECKED BY:
DEE

DRAWING TITLE:
ELECTRICAL SCHEDULES & DETAILS

DRAWING NO:
E-002
 REVISION:
.00



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1 FIRST FLOOR - ELECTRICAL PROPOSED POWER PLAN
 E-100 SCALE: 1/4" = 1'-0"

PROFESSIONAL ENGINEER:



SEAL & SIGNATURE:

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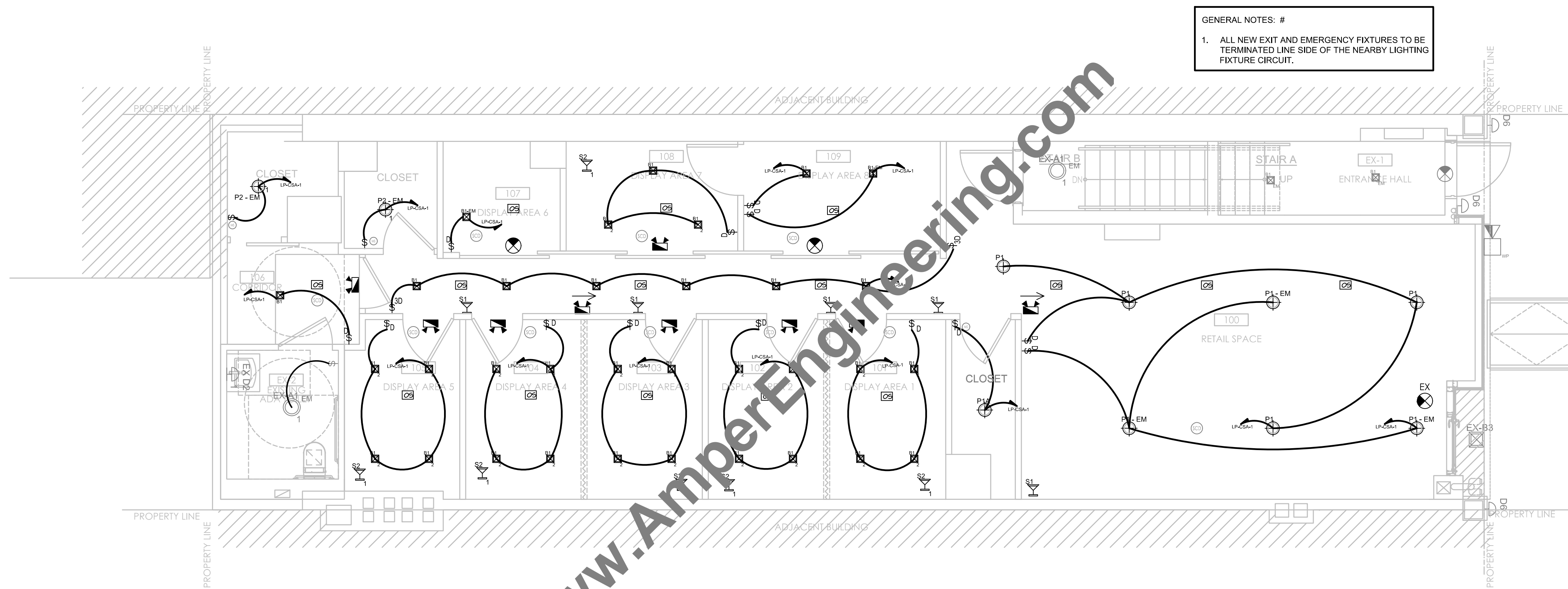
CLIENT:

PROJECT:
STREET
 ADDRESS: **STREET**
BROOKLYN, NY 11201

ISSUE DATE:
09/25/2020
 PROJECT NUMBER:
1172
 SCALE: **AS NOTED** DRAWN BY: **DEE**
 DESIGNED BY: **DEE** CHECKED BY: **DEE**

DRAWING TITLE:
ELECTRICAL PROPOSED POWER PLAN

DRAWING NO: **E-100** REVISION: **.00**



GENERAL NOTES: #
 1. ALL NEW EXIT AND EMERGENCY FIXTURES TO BE TERMINATED LINE SIDE OF THE NEARBY LIGHTING FIXTURE CIRCUIT.

1 FIRST FLOOR - ELECTRICAL PROPOSED LIGHTING PLAN
 E-101 SCALE: 1/4" = 1'-0"

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PROFESSIONAL ENGINEER:

DURAK EVRIM ERCAN P.E.
 ENGINEERING | CONSULTING | ESTIMATING
 201-920-2899 | info@AmperEngineering.com

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0	04/25/2020	ISSUED FOR PERMIT APPLICATION
REV.	DATE	DESCRIPTION

CLIENT:

PROJECT:

STREET

ADDRESS: **STREET**
 BROOKLYN, NY 11201

ISSUE DATE: **09/25/2020**

PROJECT NUMBER: **1172**

SCALE: AS NOTED	DRAWN BY: DEE
DESIGNED BY: DEE	CHECKED BY: DEE

DRAWING TITLE:
ELECTRICAL PROPOSED LIGHTING PLAN

DRAWING NO: E-101	REVISION: .00
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SEAL & SIGNATURE:

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REV.	DATE	DESCRIPTION
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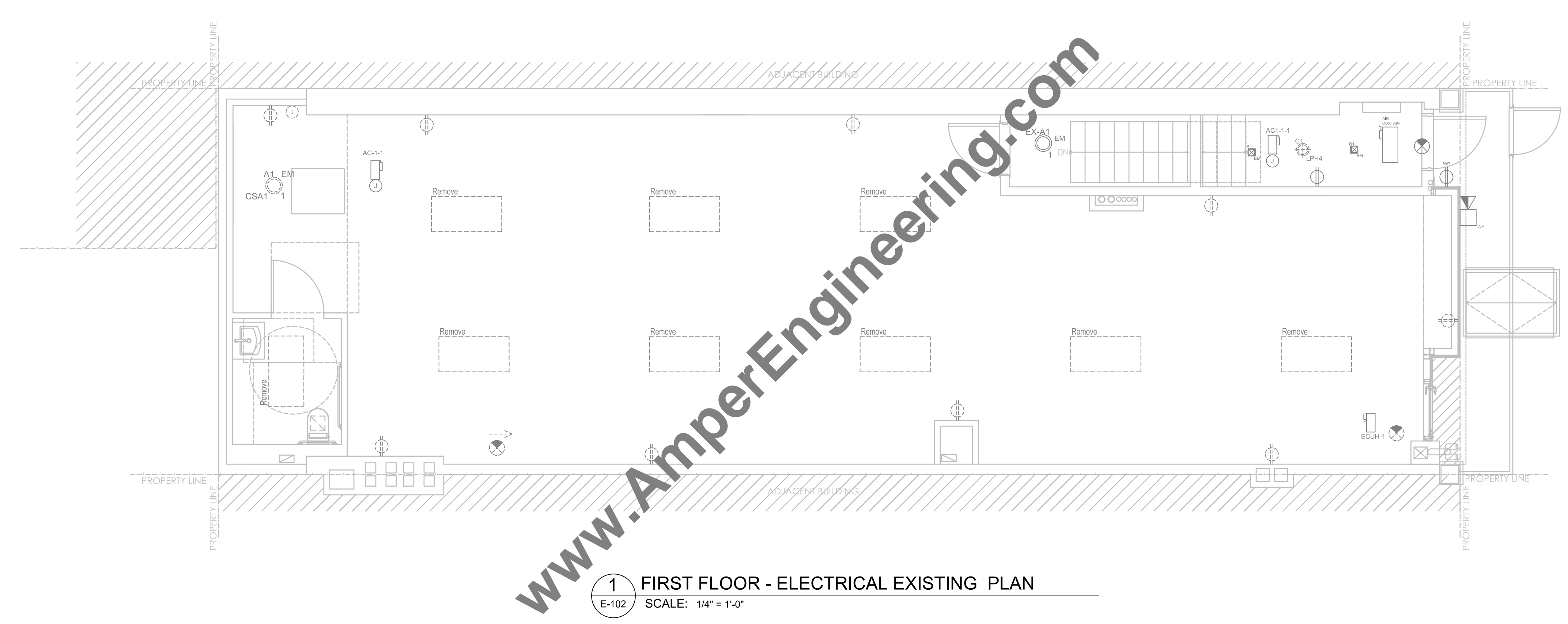
CLIENT:

PROJECT:
STREET
 ADDRESS: **STREET**
BROOKLYN, NY 11201

ISSUE DATE:
09/25/2020
 PROJECT NUMBER:
1172
 SCALE:
AS NOTED
 DESIGNED BY:
DEE
 DRAWN BY:
DEE
 CHECKED BY:
DEE

DRAWING TITLE:
ELECTRICAL EXISTING PLAN

DRAWING NO:
E-102
 REVISION:
.00



1 FIRST FLOOR - ELECTRICAL EXISTING PLAN
 E-102 SCALE: 1/4" = 1'-0"

COMcheck Software Version 4.1.4.0
Interior Lighting Compliance Certificate

Project Information
Energy Code: 2018 IECC
Project Title: 222 LIVINGSTONE 222
Project Type: Alteration

Construction Site: 222 LIVINGSTONE STREET, BROOKLYN, NY 11201
Owner/Agent: [Signature]
Designer/Contractor: [Signature]

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-DISPLAY AREA (Retail/Sales Area)	546	1.22	666
2-RETAIL SPACE (Retail/Sales Area)	378	1.22	461
3-CLOSET (Common Space Types: Storage >= 50 - <= 1000 sq.ft.)	95	0.46	44
4-CORRIDOR (Common Space Types: Corridor/Transition < 8 ft wide)	40	0.66	26
5-COMMON LOBBY AREA (Common Space Types: Lobby - General)	115	1.00	115
6-STAIR A AND B (Common Space Types: Stairwell)	93	0.58	54
7-EXISTING ADA TOILET (Common Space Types: Restrooms)	45	0.85	38
Total Allowed Watts = 1405			

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
DISPLAY AREA (Retail/Sales Area 546 sq.ft.) CONCEALED DOWN LIGHT: B.1: Other:	1	26	15	390
STANDING LIGHT: S2: Other:	1	6	3	18
RETAIL SPACE (Retail/Sales Area 378 sq.ft.) PENDANT LIGHT: P.1: Other:	1	7	15	105
STANDING LIGHT: S1: Other:	1	1	50	50
CLOSET (Common Space Types: Storage >= 50 - <= 1000 sq.ft.) PENDANT LIGHT: P.1: Other:	1	1	15	15
PENDANT LIGHT: P.2: Other:	1	2	12	24
CORRIDOR (Common Space Types: Corridor/Transition < 8 ft wide 40 sq.ft.) CONCEALED DOWN LIGHT: B.1: Other:	1	1	15	15
COMMON LOBBY AREA (Common Space Types: Lobby - General 115 sq.ft.) CONCEALED DOWN LIGHT: B.1: Other:	1	6	15	90
STANDING LIGHT: S1: Other:	1	4	50	200
STAIR A AND B (Common Space Types: Stairwell 93 sq.ft.) EXISTING CEILING LIGHT: EX-A1: Other:	1	1	27	27
CONCEALED DOWN LIGHT: B.1: Other:	1	2	15	30
EXISTING ADA TOILET (Common Space Types: Restrooms 45 sq.ft.)				

Project Title: 222 LIVINGSTONE 222 Report date: 09/25/20
Data filename: \wanojbutala\CDS WORKING FILES\1172-NY-222 Livingston St\working files\222 LIVINGSTONE 222 12.09.2020.cck Page 2 of 10

Section # & Req. ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2 [EL22] 2	Spaces required to have light reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1 [EL18] 1	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sq.ft. that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1 [EL19] 2	Occupancy sensors control function in warehouses: in warehouses, the lighting in aisleyways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleyway independently and do not control lighting beyond the aisleyway being controlled by the sensor.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1 [EL20] 3	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.2 [EL21] 1	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Project Title: 222 LIVINGSTONE 222 Report date: 09/25/20
Data filename: \wanojbutala\CDS WORKING FILES\1172-NY-222 Livingston St\working files\222 LIVINGSTONE 222 12.09.2020.cck Page 7 of 10

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
SCONE LIGHT: D.2: Other:	1	1	16	16
EXISTING CEILING LIGHT: EX-A1: Other:	1	1	27	27
Total Proposed Watts = 1007				

Interior Lighting PASSES
Interior Lighting Compliance Statement
Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.4.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

Project Title: 222 LIVINGSTONE 222 Report date: 09/25/20
Data filename: \wanojbutala\CDS WORKING FILES\1172-NY-222 Livingston St\working files\222 LIVINGSTONE 222 12.09.2020.cck Page 3 of 10

Section # & Req. ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3 [EL23] 1	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.3 [EL23] 2	Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 [EL26] 1	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 [EL27] 1	Additional interior lighting power allowed for special functions per the approved lighting plan is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.3 [EL6] 1	Exit signs do not exceed 5 watts per face.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.6 [EL26] 1	Low-voltage transformer distribution electric transformers meet the efficiency requirements of Table 6.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.7 [EL27] 1	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.8.2 [EL28] 1	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.9 [EL29] 1	Total voltage drop across the combination of feeders and branch circuits <= 5%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

Project Title: 222 LIVINGSTONE 222 Report date: 09/25/20
Data filename: \wanojbutala\CDS WORKING FILES\1172-NY-222 Livingston St\working files\222 LIVINGSTONE 222 12.09.2020.cck Page 8 of 10

COMcheck Software Version 4.1.4.0
Inspection Checklist

Energy Code: 2018 IECC
Requirements: 0.0% were addressed directly in the COMcheck software
Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req. ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PK4] 1	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

Project Title: 222 LIVINGSTONE 222 Report date: 09/25/20
Data filename: \wanojbutala\CDS WORKING FILES\1172-NY-222 Livingston St\working files\222 LIVINGSTONE 222 12.09.2020.cck Page 6 of 10

Section # & Req. ID	Final Inspection	Complies?	Comments/Assumptions
C408.3 [F17] 2	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.4.1 [F18] 1	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the interior lighting fixture schedule for values.
C408.1.1 [F157] 1	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturer's information, specifications, programming procedures and means of illustrating to owner how building equipment and systems are intended to be installed, maintained, and operated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.5 [F16] 1	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.3 [F133] 1	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

Project Title: 222 LIVINGSTONE 222 Report date: 09/25/20
Data filename: \wanojbutala\CDS WORKING FILES\1172-NY-222 Livingston St\working files\222 LIVINGSTONE 222 12.09.2020.cck Page 9 of 10

SEAL & SIGNATURE:

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REV	DATE	DESCRIPTION
0	04/25/2020	ISSUED FOR PERMIT APPLICATION

CLIENT:

PROJECT:

STREET

ADDRESS: STREET
BROOKLYN, NY 11201

ISSUE DATE: 04/25/2020

PROJECT NUMBER: 1172

SCALE: AS NOTED DRAWN BY: DEE
DESIGNED BY: DEE CHECKED BY: DEE

DRAWING TITLE: COMCHECK REPORT

DRAWING NO: E-103 .00 REVISION:

- SPRINKLER DESIGN CRITERIA**
1. THE FIRE PROTECTION SYSTEM FOR THIS SPACE IS DESIGNED AS A WET PIPE SPRINKLER SYSTEM.
 2. THE ENTIRE FACILITY SHALL BE FULLY SPRINKLERED. ALL AREAS WITHOUT AUTOMATIC SPRINKLER PROTECTION SHALL BE PROVIDED WITH SMOKE DETECTORS (SMOKE DETECTORS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.) SEE ELECT./TELE. SPACES NOTE, THIS DRAWING.
 3. ALL AREAS WITHOUT SUSPENDED CEILINGS SHALL BE PROVIDED WITH THE INDICATED SPRINKLER HEAD, AS REQUIRED TO SUIT CONSTRUCTION CONDITIONS.
 4. LOCATION AND TYPE OF SPRINKLER HEAD IN AREAS WITHOUT SUSPENDED CEILINGS SHALL BE FULLY COORDINATED WITH ARCHITECTURAL ELEMENTS (ACOUSTICAL PANELS, ETC.), EXPOSED STRUCTURAL ELEMENT (BEAMS, COLUMNS, ETC.), LIGHTING EQUIPMENT AND HVAC EQUIPMENT'S (DUCTWORK, UNIT HEATERS, ETC.). ALL OF THE ABOVE ELEMENTS SHALL BE INDICATED ON THE SHOP DRAWINGS.
 5. COORDINATED LOCATIONS OF ALL HVAC DUCTS AND ELECTRICAL CONDUIT BANKS AND CABLE TRAYS IN AREAS WITH EXPOSED CEILINGS WITH HVAC AND PIPING AND CONDUITS 48 INCHES IN WIDTH AND WIDER.
 6. COORDINATE LOCATION OF ALL PENDANTS LIGHTING CONTRACTORS AND INDICATE SAME ON THE SHOP DRAWINGS. TREAT ALL PENDANT LIGHTING AS AN OBSTRUCTION TO WATER DISTRIBUTION.
 7. PROVIDE HYDRAULIC CALCULATION AND SUBMIT THEM AS PART OF THE SHOP DRAWINGS. ALL CALCULATIONS SHALL BE PREPARED IN ACCORDANCE WITH DESIGN CRITERIA FOR HYDRAULIC CALCULATION AS INDICATED IN CONTRACT DOCUMENTS, THIS DRAWING.

- DESIGN CRITERIA FOR HYDRAULICS CALCULATIONS**
1. ALL SPRINKLER SYSTEM THROUGHOUT THE BUILDING SHALL BE HYDRAULICALLY CALCULATED. CONTRACTOR TO SUBMIT HYDRAULIC CALCULATIONS FOR FIRST FLOOR AND SYSTEMS.
 2. SPRINKLER SYSTEM LAYOUT AND CALCULATION SHALL COMPLY WITH STATE OF NEW YORK CITY BUILDING CODE: FIRE PROTECTION GUIDELINES, NPFE 13, 2007 EDITION; NFPA - 14, 2007 EDITION; REQUIREMENT OF ALL LOCAL AUTHORITIES HAVING JURISDICTIONS AND GOOD ENGINEERING PRACTICE.
 3. OCCUPANCY CLASSIFICATION: ORDINARY HAZARD.
 4. ALL HYDRAULIC CALCULATION SHALL BE BASED ON THE FOLLOWS MINIMUM DISCHARGED DENSITIES PER SPRINKLER HEAD AND ON THE MINIMUM AREA OF APPLICATION PER OCCUPANCY:
 ORDINARY HAZARD:
 MAXIMUM AREA COVERAGE PER SPRINKLER HEAD - 130 SQ.FT./HD.
 MINIMUM DISCHARGE DENSITY PER EACH SPRINKLER HEAD - 15 GPM/SQ.FT.
 MINIMUM AREA OF APPLICATION FOR HYDRAULIC CALCULATIONS - 1500 SQ.FT.
 MINIMUM PRESSURE AT ANY SPRINKLER HEAD SHALL BE AS REQUIRED FOR THE MINIMUM DISCHARGE OF THE HEAD, BUT IN NO CASE LESS THAN 7 PSI.

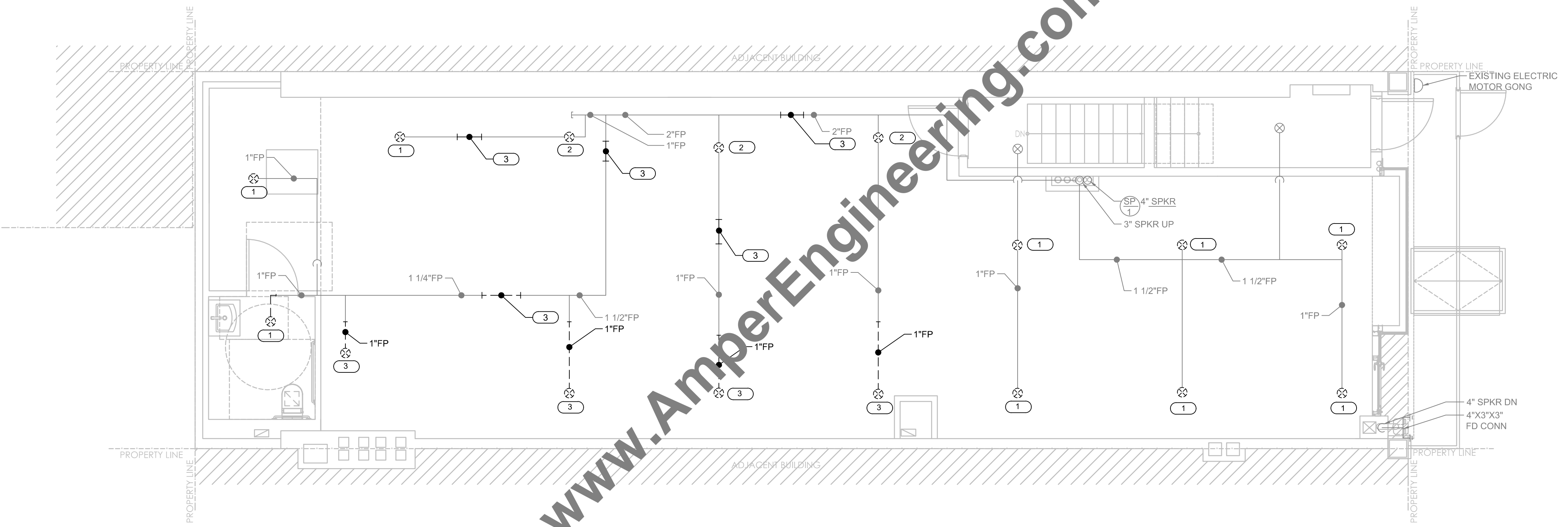
FIRE PROTECTION SYMBOL LIST

SYMBOL	DESCRIPTION
FP	FIRE PROTECTION
PC	PIPE CAP
PD	PIPE DOWN
PU	PIPE UP OR UP/DOWN
NC	NEW CONNECTION
DF	DIRECTION OF FLOW IN PIPE
SC	SPRINKLER - CONCEALED
DN	DOWN
FD CONN	FIRE DEPARTMENT CONNECTION
FP	FIRE PROTECTION
SP	STANDPIPE
SPR	SPRINKLER - CONCEALED

- FIRE PROTECTION GENERAL NOTES:**
1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
 2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER IS THE BASIS OF DESIGN.
 3. CENTER SPRINKLERS IN CEILING TILES IN BOTH DIRECTIONS IN ALL AREAS.
 4. NEW SPRINKLERS SHALL BE QUICK RESPONSE TYPE, UNLESS OTHERWISE NOTED.
 5. CONTRACTOR SHALL NOT MIX STANDARD RESPONSE SPRINKLERS WITH QUICK RESPONSE SPRINKLERS IN UNPARTITIONED SPACES.
 6. PROVIDE COVERAGE ABOVE AND BELOW ALL DUCTWORK GREATER THAN 48" WIDE.

- KEYNOTES:** #
1. REMOVE EXISTING SPRINKLER AND REPLACE WITH NEW SPRINKLER AS SHOWN ON SHEET FP-100
 2. REMOVE THE EXISTING SPRINKLER AND CAP.
 3. REMOVE EXISTING PIPE AS INDICATED.

DRAWING INDEX:
 FP-001 FIRE PROTECTION EXISTING PLANS, COVER SHEET, SCHEDULES & DETAILS.
 FP-100 FIRE PROTECTION NEW FLOOR PLAN.



1 FIRST FLOOR - FIRE PROTECTION EXISTING PLAN
 FP-001 SCALE: 1/4" = 1'-0"

PROFESSIONAL ENGINEER:

DURAK EVRIM ERCAN P.E.
 ENGINEERING | CONSULTING | ESTIMATING
 201-920-2699 info@AmperEngineering.com

SEAL & SIGNATURE:

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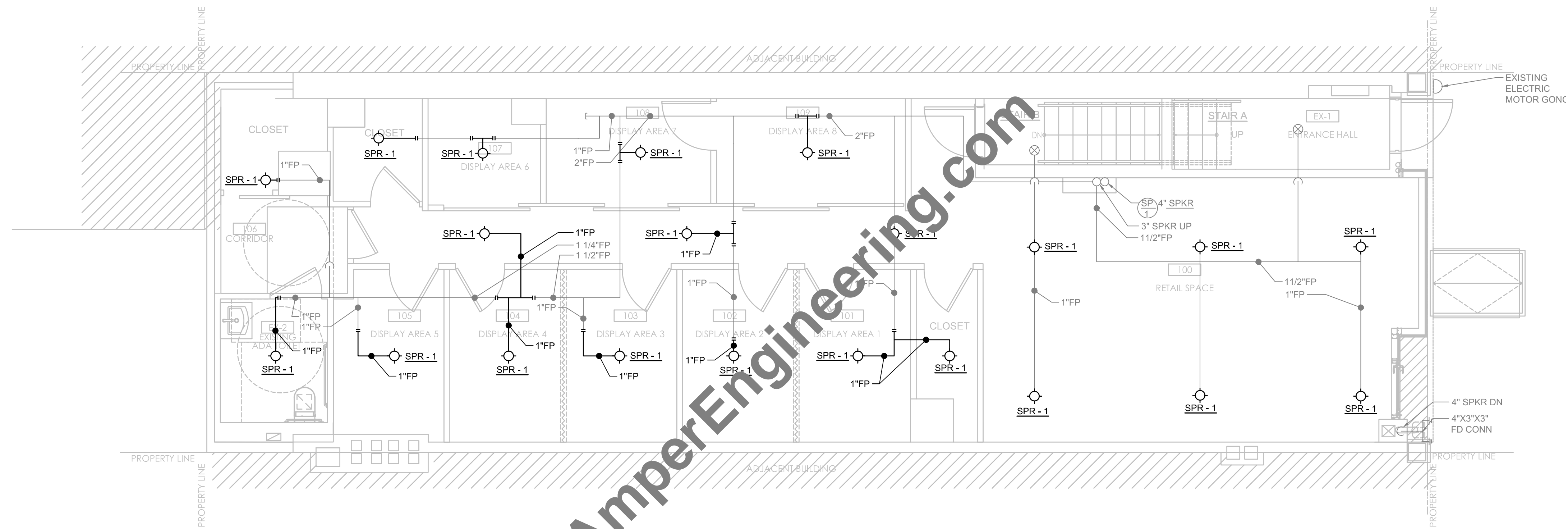
CLIENT:

PROJECT:
STREET
 ADDRESS:
STREET
BROOKLYN, NY 11201

ISSUE DATE:
09/25/2020
 PROJECT NUMBER:
1172
 SCALE:
 AS NOTED
 DESIGNED BY:
 DEE
 DRAWN BY:
 DEE
 CHECKED BY:
 DEE

DRAWING TITLE:
FIRE PROTECTION EXISTING PLAN, COVER SHEET, SCHEDULES & DETAILS

DRAWING NO:
FP-001
 REVISION:
.00



1 FIRST FLOOR - FIRE PROTECTION PROPOSED FLOOR PLAN
 FP-100 SCALE: 1/4" = 1'-0"

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PROFESSIONAL ENGINEER:



SEAL & SIGNATURE:

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BROOKLYN, NY 11201

ISSUE DATE:
09/25/2020
 PROJECT NUMBER:
1172
 SCALE:
AS NOTED
 DESIGNED BY:
DEE
 DRAWN BY:
DEE
 CHECKED BY:
DEE

DRAWING TITLE:
**FIRE PROTECTION
 PROPOSED FLOOR PLAN**

DRAWING NO:
FP-100
 REVISION:
.00