NEW CONSTRUCTION OF:
Vanilla shell Comercial Building
1490 Fairbanks Ave, Winter Park Florida

Scope of Work
These construction documents indicate a scope of work for the construction of a one story 6,885 square foot building. The space will be vanilla shell, to be developed later under seperate permits.

General Notes and Requirements
1. These documents design and specifications are the exclusive property of PNM Architecture (the Architect). Reproduction in any form without the expressed written permission of PNM Architecture is strictly prohibited.

2. PNM Architecture (the Architect) does not exercise control, and shall not be responsible for any construction means, methods, techniques, sequences or procedures, or for safety practices in connection with the work. Furthermore PNM Architecture (the Architect) does not hold any liability for acts or omissions of the Contractor, Sub-Contractors or any other persons performing any work, or for the failure of any of them to carry out the work in accordance with these documents and all governing statutes.

3. All work shall comply with the 2017 Florida Building Code and all other applicable rules and regulations.

4. The General Contractor and all Sub-Contractors shall verify all conditions, details and dimensions before proceeding with work, and shall be responsible for coordination of that work. The Architect shall be notified immediately of any discrepancies.

5. Drawing dimensions should be followed and scaling of drawings avoided. Dimensions supersede scale on drawings.

6. It is intended that all work be of the highest quality, and performed by accomplished craftsmen in a workmanlike manner using accepted practices and methods appropriate to the trade involved.

7. All products and materials shall be installed as per manufacturer's instruction and specifications unless specifically otherwise directed by the Architect.

8. The General Contractor, Sub-Contractors and Suppliers shall be responsible for coordinating their work and certifying that their products and installations meet the Florida Building Code, the Florida Accessibility Code as well as all applicable government statutes.

9. The General Contractor shall be responsible for obtaining all applicable permits and providing the Owner with all applicable certificates, operating manuals, warranties, etc. prior to occupancy.

10. All work in question including materials, finishes and colors shall be coordinated with appointed project manager.

11. Sub-Contractors and suppliers may submit alternate bids for similar or equal systems, equipment or materials for approval. These alternates shall be clearly indicated and separated from the base bid. The suggested changes should provide the same quality or workmanship and not diminish the function of the item or trade.

12. Provide non-slip surfaces at all areas continually exposed to moisture or surface water.

13. All fabricated items shall be made from field measurements. Provide shop drawings or submittals for approval prior to fabrication and installation.

14. Fire sprinkler and alarm supplier shall be responsible for submitting plans and obtaining all applicable permits for all required fire sprinkler system modifications and additions.

15. Mechanical and Electrical Contractors shall be responsible for providing appropriate details and specifications of all penetrations through fire-rated construction as may be required by the building official.

16. All Contractors are required, before submitting their proposals, to visit the site of the proposed work and completely familiarize themselves with the scope and nature of the work. Any existing conditions that may in any manner affect their work should be ascertained regardless of whether it ÿ°÷ÿÿ·øÿÿ«!P…ˆ"ÿ°÷ÿÿ·øÿÿbÊ"ôO½ÿ°÷ÿÿ·øÿÿbÊ"ôO½is indicwork. Anì³vAwwork. Anì³vAwated on the drawings. Any oversight or omission to identify existing condition which may affect scope of work is Contractor(s) responsibility.

17. All Contractors are required to examine carefully the drawings, specification and other documents to inform themselves thoroughly regarding any and all conditions and requirements that may in any manner affect the work.

18. All contractors shall not avail themselves of any unintentional error or omission and shall be charged with the responsibility of furnishing a complete portion of this contract according to the reasonably implied spirit and intent of the drawings. Change orders will not be granted after the General Contractor's contract is signed, unless they can be substantiated as an unforeseeable item beyond the general intent and scope of the work.

19. Structural steel supplier shall provide shop drawings based on these Plans for all steel items indicated herein including the roof access ladder for approval prior to fabrication.

20. Signage supplier/contractor shall be responsible for submitting plans and obtaining all applicable permits for signage components as required to meet code.

TERMITE PROTECTION
1. TERMITE PRETREATMENT SHALL CONSIST OF CHEMICAL SOIL TREATMENT. THE BORA-CARE TERMICIDE TREATMENT SHALL BE REGISTERED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES AS REQUIRED BY THE FLORIDA BUILDING CODE 2014 EDITION - SECTION 1816..
2. UPON COMPLETION OF THE APPLICATION OF THE TERMITE PROTECTIVE TREATMENT A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED BY A LICENSED PEST CONTROL COMPANY BEFORE A CERTIFICATE OF OCCUPANCY MAY BE ISSUED. THE CERTIFICATE OF COMPLIANCE SHALL STATE "THE BUILDING HAS RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES, THE TREATMENT IS IN ACCORDANCE WITH THE RULES AND LAWS ESTABLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES.

Site Address
1490 W Fairbanks ave
Winter Park, Florida

Building Code(s)
Building Code - FBC 2017 (6th edition)
Fire Code - FFPC 2017
*Fire Code - NFPA 1 2015
*Life Safety Code - NFPA 101 2015
Plumbing Code - FBPC 2017
Mechanical Code - FBMC 2017
Electrical Code - NEC 2014
Accessory Code - FBC 2017
Administrative Code - FAC
Florida Statues - FS

* indicates with Florida Admendments

Building Data
Occupancy Classification - --------- MERCANTILE (future)
Occupant Load -------------------------------- 132
Occupant Load per FFPC (NFPA 101):-----196
Construction Type ------------------- IIB

TOTAL BUILDING AREA --------------- 6,885 SF
including covered front/
back canopies

*New Tenant spaces to be vanilla shell interiors to be developed later.

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AREA
Building area
A) inclosed building area .... 6,400 S.F.
B) back covered exit walkway.............................. 109 S.F.
C) front (Fairbanks) canopy area............................121 S.F.
D) back teant canopy area .... 255 S.F.
Total building area ....6,885 S.F.

Potential future mezzinanes*
if done will be under future permit applications....1,530 S.F.

* Mezzanines as defined by 505.2.
A mezzanine or mezzanines in compliance with Section 505.2 shall be considered a portion of the story below. Such mezzanines shall not contribute to either the building area or number of stories as regulated by Section 503.1. The area of the mezzanine shall be included in determining the fire area. The clear height above and below the mezzanine floor construction shall be not less than 7 feet .

Code Analysis
Allowable Height as per FBC table 504.3 and 504.4 for M occupancy
Type IIB construction ------------------------------------ 55 feet
Type IIB construction ------------------------------------ 2 stories

Allowable Area as per FBC table 506.2.for M occupancy
Type IIB construction ------------------------------------12,500 sf

Proposed total building area of 6,885 SF is less than allowable area of 12,500 SF

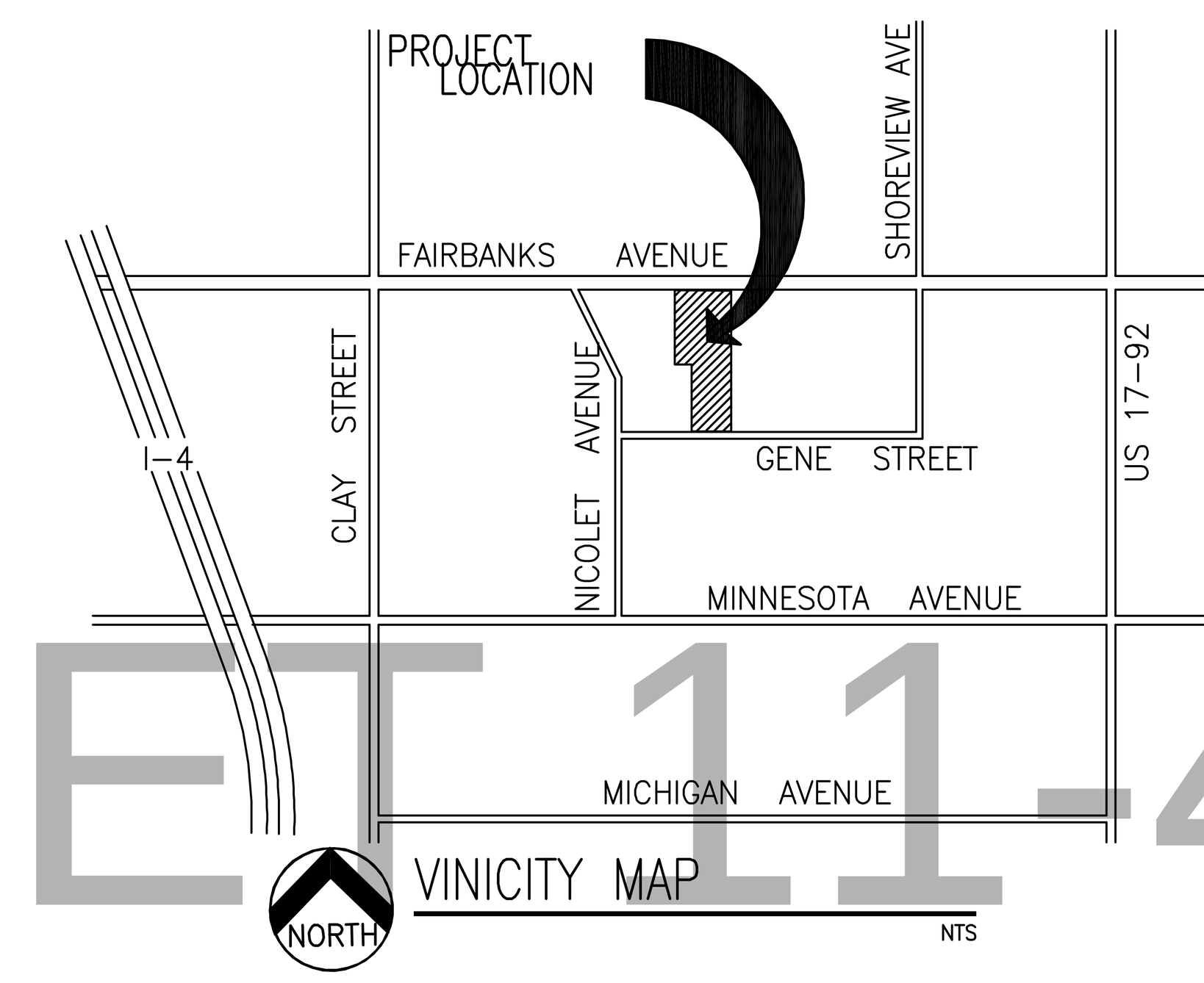
Proposed building is 1 stories, which is less than allowable 2 stories

Proposed building is 29-11 1/4" height, which is less than allowable 55'

Project Team Members
Architect: Paul N Medley
PNM Architecture
101 Smokerise blvd
Longwood, Florida 32779
(407) 701-6440

Structural Engineer;
Brad Bishop PE
BEC Structures LLC
4094 Cardinal Glen
Oviedo, Florida 32765
Phone 407-622-2477

MEP Engineer: Mohamed Ghazall,
MG Engineering Inc.
640 Chapman Court
Oviedo, Florida 32765
Phone 407-786-4811



VINICITY MAP
NTS

PNM ARCHITECTURE
PAUL N MEDLEY Architect
AIA ▪ NCARB
756 Cove Way Altamonte Springs
Florida 32712-7273
PHONE NUMBER 407-701-6440
WWW.PNM-ARCHITECTURE.COM

SEAL AR # 96512

PROJECT
1490 W Fairbanks Ave Commercial Building

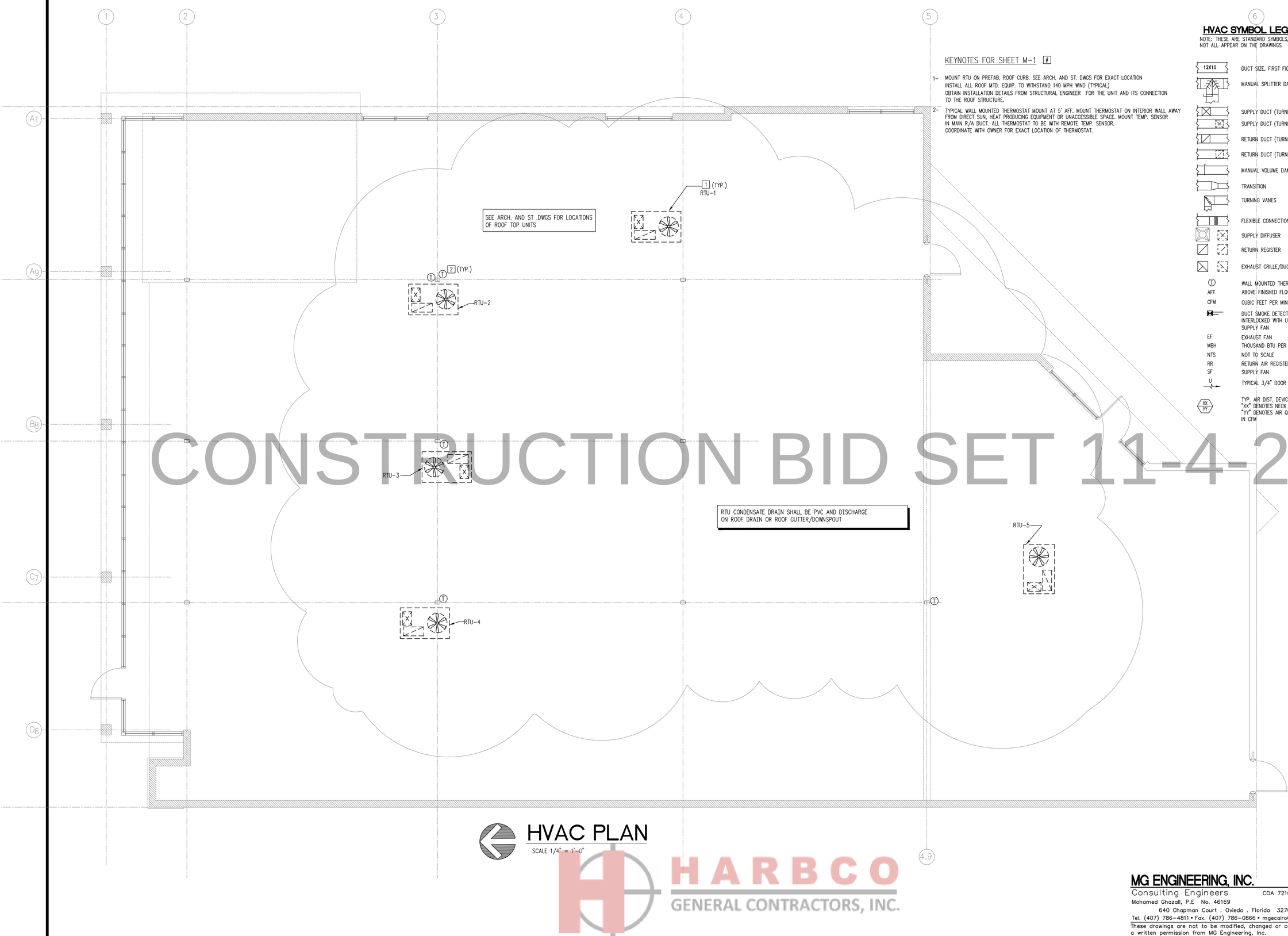
REVISION DATES
⚠3 per owner 11-4-22

DATE
4-10-20

SHEET TITLE
COVER SHEET

SHEET NUMBER
A1

PROJECT NO.
019-18



KEYNOTES FOR SHEET M-1

1- MOUNT RTU ON PREFAB. ROOF CURB. SEE ARCH. AND ST. DWGS FOR EXACT LOCATION
INSTALL ALL ROOF MTD. EQUIP. TO WITHSTAND 140 MPH WIND (TYPICAL)
OBTAIN INSTALLATION DETAILS FROM STRUCTURAL ENGINEER FOR THE UNIT AND ITS CONNECTION TO THE ROOF STRUCTURE.

2- TYPICAL WALL MOUNTED THERMOSTAT MOUNT AT 5' AFF. MOUNT THERMOSTAT ON INTERIOR WALL AWAY FROM DIRECT SUN, HEAT PRODUCING EQUIPMENT OR UNACCESSIBLE SPACE. MOUNT TEMP. SENSOR IN MAIN R/A DUCT. ALL THERMOSTAT TO BE WITH REMOTE TEMP. SENSOR. COORDINATE WITH OWNER FOR EXACT LOCATION OF THERMOSTAT.

HVAC SYMBOL LEGEND

NOTE: THESE ARE STANDARD SYMBOLS, AND MAY NOT ALL APPEAR ON THE DRAWINGS

12X10	DUCT SIZE, FIRST FIGURE IS SIDE SHOWN
	MANUAL SPLITTER DAMPER
	SUPPLY DUCT (TURNED UP)
	SUPPLY DUCT (TURNED DOWN)
	RETURN DUCT (TURNED UP)
	RETURN DUCT (TURNED DOWN)
	MANUAL VOLUME DAMPER
	TRANSITION
	TURNING VANES
	FLEXIBLE CONNECTION
	SUPPLY DIFFUSER
	RETURN REGISTER
	EXHAUST GRILLE/DUCT
T	WALL MOUNTED THERMOSTAT
AFF	ABOVE FINISHED FLOOR
CFM	CUBIC FEET PER MINUTE
	DUCT SMOKE DETECTOR INTERLOCKED WITH UNIT SUPPLY SUPPLY FAN
EF	EXHAUST FAN
MBH	THOUSAND BTU PER HOUR
NTS	NOT TO SCALE
RR	RETURN AIR REGISTER
SF	SUPPLY FAN
U	TYPICAL 3/4" DOOR UNDERCUT
XX / YY	TYP. AIR DIST. DEVICES "XX" DENOTES NECK SIZE "YY" DENOTES AIR QUANTITIES IN CFM

HVAC PLAN

SCALE 1/4" = 1'-0"

PNM ARCHITECTURE
PAUL N MEDLEY Architect ▪ AIA ▪ NCARB ▪
756 Cove Way Altamonte Springs
Florida 32712-7273
PHONE NUMBER 407-701-6440
WWW.PNM-ARCHITECTURE.COM

SEAL

MOHAMED GHAZALL
PE- 46169

PROJECT
VANILLA SHELL COMMERCIAL BUILDING.
1490 FAIRBANKS AVE.
WINTER PARK, FL

REVISION DATES

DATE
02/05/2020

SHEET TITLE

SHEET NUMBER
M1

PROJECT NO. MGE-1943

MG ENGINEERING, INC.
Consulting Engineers COA 7210
Mohamed Ghazall, P.E No. 46169
640 Chapman Court . Oviedo . Florida 32765
Tel. (407) 786-4811 • Fax. (407) 786-0866 • mgecairo@gmail.com

HVAC SPECIFICATIONS

BASIC MECHANICAL REQUIREMENTS
GENERAL
COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES.
INSTALL EQUIPMENT AND MATERIALS TO PROVIDE REQUIRED ACCESS FOR SERVICING AND MAINTENANCE. ALLOW AMPLE SPACE FOR REMOVAL OF ALL PARTS THAT REQUIRE REPLACEMENT OR SERVICING.
VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED.
WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL MECHANICAL SERVICES AND OVERHEAD EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE.
MECHANICAL SUBMITTALS:
SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES WILL BE ACCEPTED ONLY WHEN SUBMITTED BY THE CONTRACTOR, AND SHALL BEAR THE CONTRACTOR STAMP OF APPROVAL.
NAMEPLATE
PROVIDE PERMANENT OPERATIONAL DATA NAMEPLATE ON EACH ITEM OF POWER OPERATED MECHANICAL EQUIPMENT, INDICATING MANUFACTURER, PRODUCT NAME, MODEL NUMBER, SERIAL NUMBER, CAPACITY, OPERATING AND POWER CHARACTERISTICS, LABELS OF TESTED COMPLIANCES, AND SIMILAR ESSENTIAL DATA. LOCATE NAMEPLATES IN AN ACCESSIBLE LOCATION.
DELIVERY, STORAGE AND HANDLING
COORDINATE DELIVERIES OF MECHANICAL MATERIALS AND STORE EQUIPMENT AND MATERIALS TO PROTECT FROM DAMAGE.
RECORD DOCUMENTS
MARK DRAWINGS TO INDICATE REVISIONS TO PIPING AND DUCTWORK, SIZE AND LOCATION, BOTH EXTERIOR AND INTERIOR; INCLUDING LOCATIONS OF COILS, DAMPERS AND OTHER CONTROL DEVICES; FILTERS, BOXES, AND SIMILAR UNITS REQUIRING PERIODIC MAINTENANCE OR REPAIR; ACTUAL EQUIPMENT LOCATIONS, DIMENSIONED FOR COLUMN LINES; ACTUAL INVERTS AND LOCATIONS OF UNDERGROUND PIPING; CONCEALED EQUIPMENT, DIMENSIONED TO COLUMN LINES; MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED.

OPERATION AND MAINTENANCE DATA
SUBMIT OPERATION AND MAINTENANCE MANUAL TO INCLUDE THE FOLLOWING INFORMATION:
1. DESCRIPTION OF FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS, PERFORMANCE CURVES, ENGINEERING DATA AND TESTS, AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF ALL REPLACEABLE PARTS.
2. MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START-UP, BREAK-IN, ROUTINE AND NORMAL OPERATING INSTRUCTIONS.
3. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING.
4. SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.

WARRANTIES
PROVIDE COMPLETE WARRANTY INFORMATION FOR EACH ITEM TO INCLUDE PRODUCT OR EQUIPMENT TO INCLUDE DATE OF BEGINNING OF WARRANTY OR BOND; DURATION OF WARRANTY OR BOND; AND NAMES, ADDRESSES, AND TELEPHONE NUMBERS AND PROCEDURES FOR FILING A CLAIM AND OBTAINING WARRANTY SERVICES.

ROOFTOP HEATING AND COOLING UNITS
MANUFACTURER'S QUALIFICATIONS: FIRMS REGULARLY ENGAGED IN MANUFACTURE OF ROOFTOP HEATING AND COOLING UNITS, OF TYPES AND CAPACITIES REQUIRED, WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR NOT LESS THAN 5 YEARS.
TESTING AND RATING OF ROOFTOP UNITS SHALL BE IN ACCORDANCE WITH ARI 360 "STANDARD FOR COMMERCIAL AND INDUSTRIAL UNITARY AIR-CONDITIONING EQUIPMENT"
ENERGY EFFICIENCY RATIO (EER) OF ROOFTOP UNITS SHALL BE EQUAL TO OR GREATER THAN PRESCRIBED BY ASHRAE 90A "ENERGY CONSERVATION IN NEW BUILDING DESIGN" AND FL ENERGY EFFICIENCY CODE FOR BLDG. CONSTRUCTION
STORE ROOFTOP UNITS AND COMPONENTS IN CLEAN DRY PLACE, OFF THE GROUND, AND PROTECT FROM WEATHER, WATER, AND PHYSICAL DAMAGE.
COORDINATE ROOF OPENING LOCATIONS AND FOR MECHANICAL AND ELECTRICAL CONNECTIONS.

WARRANTY
WARRANTY PERIOD: 5 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
MAINTENANCE
FURNISH TO OWNER, WITH RECEIPT, THE FOLLOWING SPARE PARTS OF EACH ROOFTOP HEATING AND COOLING UNIT:
ONE SET OF MATCHED FAN BELTS FOR EACH BELT-DRIVEN FAN.
ONE SET FILTERS FOR EACH UNIT.
PRODUCTS
ROOFTOP UNITS
GENERAL DESCRIPTION: UNITS SHALL BE FACTORY-ASSEMBLED AND TESTED, DESIGNED FOR ROOF MOUNTED INSTALLATION. CAPACITIES AND ELECTRICAL CHARACTER-ISTICS ARE SCHEDULED (ON THE DRAWINGS).
CASING: MANUFACTURER'S STANDARD CASING CONSTRUCTION, HAVING CORROSION PROTECTION COATING, AND EXTERIOR FINISH. CASINGS SHALL HAVE REMOVABLE PANELS OR ACCESS DOORS FOR INSPECTION AND ACCESS TO INTERNAL PARTS, A MINIMUM OF 1/2" THICK THERMAL INSULATION, KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS AND AN EXTERIOR CONDENSATE DRAIN CONNECTION AND LIFTING LUGS.
ROOF CURBS: PROVIDE ROOF CURB FOR EVERY TOP AIR CONDITIONING PACKAGED UNIT.
EVAPORATOR FANS: FORWARD-CURVED, CENTRIFUGAL, BELT-DRIVEN FANS WITH ADJUSTABLE SHEAVES OR DIRECT-DRIVEN FANS; AND PERMANENTLY LUBRICATED MOTOR BEARINGS.
CONDENSER FANS: PROPELLER-TYPE, DIRECT-DRIVEN FANS WITH PERMANENTLY LUBRICATED BEARINGS.
COILS
GENERAL: ALUMINUM PLATE FIN AND SEAMLESS COPPER TUBE TYPE. FINS SHALL FIRMLY BONDED TO THE TUBES. NO SOLDERING OR TINNING SHALL BE USED IN THE BONDING PROCESS. COILS SHALL HAVE A GALVANIZED STEEL CASING. COILS SHALL BE MOUNTED IN THE COIL CASING WITH SAME END CONNECTIONS ACCESSIBLE FOR SERVICE.
REFRIGERANT COOLING COILS: HAVE AN EQUALIZING TYPE VERTICAL DISTRIBUTOR TO ENSURE EACH COIL CIRCUIT RECEIVES THE SAME AMOUNT OF REFRIGERANT. COILS SHALL BE PROOF (450 PSIG) AND LEAK (300 PSIG) TESTED WITH AIR PRESSURE UNDER WATER, THEN CLEANED, DEHYDRATED, AND SEALED WITH A HOLDING CHARGE OF NITROGEN.
COMPRESSORS: SERVICEABLE, SEMI-HERMETIC, OR FULLY HERMETIC COMPRESSORS, COMPLETE WITH INTEGRAL VIBRATION ISOLATORS AND CRANKCASE HEATERS.
SAFETY CONTROLS: MANUAL RESET TYPE
LOW PRESSURE CUTOUT
HIGH PRESSURE CUTOUT
COMPRESSOR MOTOR OVERLOAD PROTECTION.
LOW AMBIENT CONTROL: HEAD PRESSURE CONTROL, DESIGNED TO OPERATE AT TEMPERATURES DOWN TO 0 DEG F (-18 DEG C).

EXECUTION
EXAMINATION
EXAMINE AREAS AND CONDITIONS UNDER WHICH ROOFTOP UNITS ARE TO BE INSTALLED.
INSTALLATION
INSTALL ROOFTOP UNITS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
DUCT SMOKE DETECTION SYSTEM
ALL ROOF TOP PACKAGED UNITS SHALL HAVE A LISTED SMOKE DETECTOR LOCATED IN THEIR SUPPLY AIR DUCT AHEAD OF ANY BRANCH CONNECTIONS AND IN THEIR RETURN AIR DUCT AHEAD OF ANY OUTSIDE AIR INLET. ALL DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72E TO DETECT THE PRESENCE OF SMOKE AND AUTOMATICALLY SHUTDOWN THE FAN AS REQUIRED BY NFPA 90A AND THE APPLICABLE STATE OR LOCAL CODES.

PROVIDE A NEW WALL MOUNTED ELECTRONIC PROGRAMMABLE THERMOSTAT TO CONTROL EACH OF THE ROOFTOP AIR CONDITIONING UNITS, SEE DRAWINGS THERMOSTAT LOCATIONS. PROVIDE LOCKING COVER WITH KEY FOR EACH THERMOSTAT
DEMONSTRATION
START-UP SERVICES
PROVIDE THE SERVICES OF A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO START-UP ROOFTOP UNITS.

OPERATING AND MAINTENANCE TRAINING
PROVIDE SERVICES OF MANUFACTURER'S SERVICE REPRESENTATIVE TO INSTRUCT OWNER'S PERSONNEL IN OPERATION AND MAINTENANCE OF ROOFTOP UNITS. TRAINING SHALL INCLUDE START-UP AND SHUT-DOWN, SERVICING AND PREVENTATIVE MAINTENANCE SCHEDULE AND PROCEDURES, AND TROUBLESHOOTING PROCEDURES PLUS PROCEDURES FOR OBTAINING REPAIR PARTS AND TECHNICAL ASSISTANCE.

POWER VENTILATORS (EXHAUST FANS)
GENERAL
QUALITY ASSURANCE
MANUFACTURER'S QUALIFICATIONS: FIRMS REGULARLY ENGAGED IN MANUFACTURE OF POWER AND GRAVITY VENTILATORS, OF TYPES AND SIZES REQUIRED, WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR NOT LESS THAN 3 YEARS.
PRODUCTS
POWER VENTILATORS
PROVIDE STANDARD PREFABRICATED POWER VENTILATOR UNITS OF TYPE AND SIZE INDICATED, MODIFIED AS NECESSARY TO COMPLY WITH REQUIREMENTS, AND AS REQUIRED FOR COMPLETE INSTALLATION.
EXHAUST FAN
EXHAUST FAN SHALL BE CENTRIFUGAL UP-BLAST TYPE OR AS SHOWN ON DRAWINGS. PROVIDE BIRDSCREEN, ROOF CURB, DISCONNECT SWITCH GRAVITY DAMPERAND AND VIBRATION ISOLATOR.
MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE POWER VENTILATOR EXHAUSTERS OF ONE OF THE FOLLOWING:
ACME ENGINEERING & MFG. CO.
LOREN COOK CO.
PENN VENTILATOR CO., INC.
EXECUTION
GENERAL: EXAMINE AREAS AND CONDITIONS UNDER WHICH POWER AND VENTILATORS ARE TO BE INSTALLED. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
INSTALLATION
INSTALL VENTILATORS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
FIELD QUALITY CONTROL
TESTING: AFTER INSTALLATION OF VENTILATORS HAS BEEN COMPLETED, TEST EACH VENTILATOR TO DEMONSTRATE PROPER OPERATION OF UNITS AT PERFORMANCE REQUIREMENTS SPECIFIED.
SPARE PARTS
FURNISH TO OWNER, WITH RECEIPT, ONE SPARE SET OF BELTS FOR EACH BELT DRIVE POWER VENTILATOR.

DUCTWORK
GENERAL
QUALITY ASSURANCE:
MANUFACTURER'S QUALIFICATIONS: FIRM REGULARLY ENGAGED IN MANUFACTURE OF DUCTWORK PRODUCTS OF TYPES, MATERIALS, AND SIZES REQUIRED, WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR NOT LESS THAN 5 YEARS.
CODES AND STANDARDS: COMPLY WITH THE FOLLOWING CODES AND STANDARDS THE STANDARD MECHANICAL CODE. SMACNA AND ASHRAE STANDARDS, AND NFPA REQUIREMENTS

DUCTWORK LOCATIONS SHOWN ARE SCHEMATIC. PLAN ROUTING OF DUCTWORK AND COORDINATE LOCATION OF DUCTS WITH EQUIPMENT OF OTHER TRADES BEFORE DUCT FABRICATION. SIZE AND LOCATION OF DUCTWORK SHALL BE ALTERED UNDER THIS SECTION AS REQUIRED AT NO INCREASE IN COST TO FIT INTO THE SPACE AVAILABLE, AND TO ALL INSTALLATION OF OTHER SYSTEMS.

DELIVERY, STORAGE, AND HANDLING:
PROTECTION: PROTECT SHOP-FABRICATED AND FACTORY-FABRICATED DUCTWORK, ACCESSORIES AND PURCHASED PRODUCTS FROM DAMAGE DURING SHIPPING, STORAGE AND HANDLING.
DUCTWORK MATERIALS:
SHEET METAL: EXCEPT AS OTHERWISE INDICATED, FABRICATE DUCTWORK FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G 90 ZINC COATING IN ACCORDANCE WITH ASTM A 525, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.

GLASS FIBER DUCTWORK: DUCTWORK SHALL BE FIBERGLASS DUCT MATERIAL. FOR SUPPLY AND RETURN SHALL BE 1 1/2" THICK, STANDARD DUTY WITH A REINFORCED FLAME-RETARDANT VAPOR BARRIER. INSTALLATION SHALL BE BY AN EXPERIENCED FABRICATOR AND INSTALLER, AND ALL WORK SHALL BE PERFORMED BY MECHANICS SKILLED IN THE TRADE. JOINTS SHALL BE MADE WITH GLASS FABRIC AND MASTIC IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED SO AS TO GIVE A NEAT, WORKMANLIKE INSTALLATION, AND SHALL BE REINFORCED WITH SHEET METAL COLLARS AS RECOMMENDED BY THE MANUFACTURER TO PREVENT SAGGING. EXHAUST DUCT SHALL BE UNINSULATED SHEET METAL FABRICATED AND INSTALLED IN ACCORDANCE WITH "SMANCA"

MISCELLANEOUS DUCTWORK MATERIALS:
GENERAL: PROVIDE MISCELLANEOUS MATERIALS AND PRODUCTS OF TYPES AND SIZES INDICATED AND, WHERE NOT OTHERWISE INDICATED, PROVIDE TYPE AND SIZE REQUIRED TO COMPLY WITH DUCTWORK SYSTEM REQUIREMENTS INCLUDING PROPER CONNECTION OF DUCTWORK AND EQUIPMENT.
FABRICATION

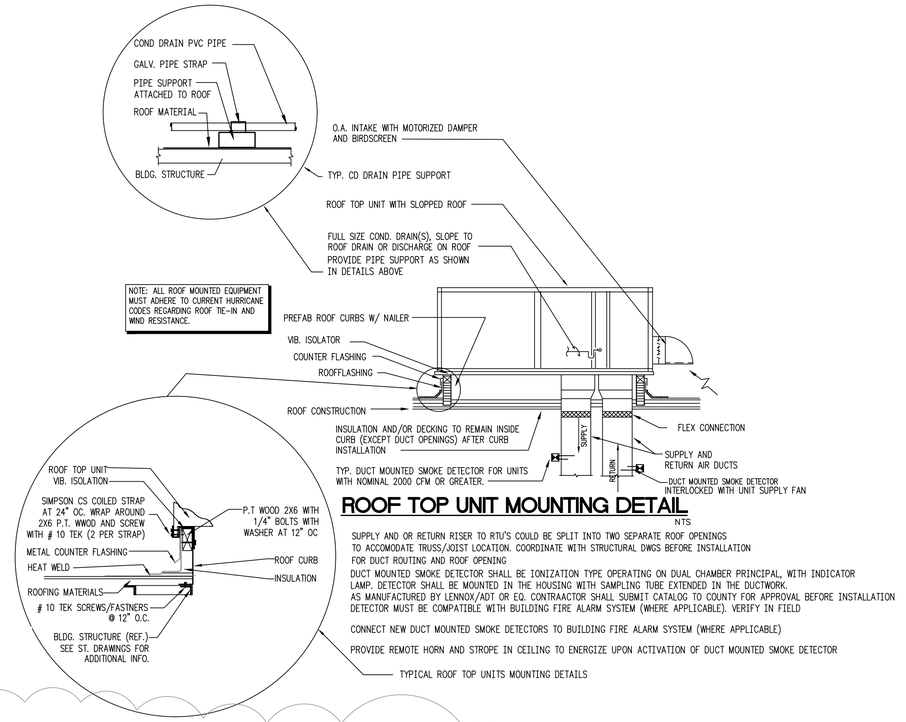
EXECUTION
INSPECTION:
GENERAL: EXAMINE AREAS AND CONDITIONS UNDER WHICH DUCTWORK IS TO BE INSTALLED.
INSTALLATION OF DUCTWORK:
ALIGN DUCTWORK ACCURATELY AT CONNECTIONS, SUPPORT DUCTS RIGIDLY WITH SUITABLE TIES, BRACES, HANGERS AND ANCHORS OF TYPE WHICH WILL HOLD DUCTS TRUE-TO-SHAPE AND TO PREVENT BUCKLING.
ROUTING: LOCATE DUCTWORK RUNS AS INDICATED BY DIAGRAMS, DETAILS AND NOTATIONS. HOLD DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING.
WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, CEILINGS OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND SUBSTRATE.
COORDINATION: COORDINATE DUCT INSTALLATIONS WITH INSTALLATION OF ACCESSORIES, DAMPERS, COIL FRAMES, EQUIPMENT, CONTROLS AND OTHER ASSOCIATED WORK OF DUCTWORK SYSTEM.
FIELD QUALITY CONTROL:
LEAKAGE TESTS: AFTER EACH DUCT SYSTEM IS COMPLETED, TEST FOR DUCT LEAKAGE IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.
EQUIPMENT CONNECTIONS:
GENERAL: CONNECT DUCTWORK TO EQUIPMENT AS INDICATED. PROVIDE FLEXIBLE CONNECTION FOR EACH DUCTWORK CONNECTION TO EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, AND/OR EQUIPMENT CONTAINING ROTATING MACHINERY.
ADJUSTING AND CLEANING:
CLEANING DUCTWORK INTERNALLY, UNIT BY UNIT AS IT IS INSTALLED, OF DUST AND DEBRIS. CLEAN EXTERNAL SURFACES OF FOREIGN SUBSTANCES WHICH MIGHT CAUSE CORROSIVE DETERIORATION OF METAL OR, WHERE DUCTWORK IS TO BE PAINTED, MIGHT INTERFACE WITH PAINTING OR CAUSE PAINT DETERIORATION.
TEMPORARY CLOSURE: AT ENDS OF DUCTS WHICH ARE NOT CONNECTED TO EQUIPMENT OR AIR DISTRIBUTION DEVICES AT TIME OF DUCTWORK INSTALLATION, PROVIDE TEMPORARY CLOSURE OF POLYETHYLENE FILM OR OTHER COVERING WHICH WILL PREVENT ENTRANCE OF DUST AND DEBRIS UNTIL TIME CONNECTIONS ARE TO BE COMPLETED.

DUCTWORK ACCESSORIES
PRODUCTS
DAMPERS:
LOW PRESSURE MANUAL DAMPERS: PROVIDE DAMPERS OF SINGLE BLADE TYPE OR MULTI-BLADE TYPE, CONSTRUCTED IN ACCORDANCE WITH SMACNA MANUFACTURER:LOUVERS & DAMPERS,INC.PENN VENTILATOR CO.
RUSKIN MFG. CO.
TURNING VANES:
FABRICATED TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS."
MANUFACTURED TURNING VANES: PROVIDE TURNING VANES CONSTRUCTED OF 1-1/2" WIDE CURVED BLADES SET AT 3/4" O.C., SUPPORTED WITH BARS PERPENDICULAR TO BLADES SET AT 2" O.C., AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK.
MANUFACTURER:
ANEMOSTAT PRODUCTS DIV.; DYNAMICS CORP. OF AMERICA.
BARBER-COLMAN CO.
REGISTER & GRILLE MFG. CO., INC.
FLEXIBLE CONNECTIONS:
PROVIDE FLEXIBLE DUCT CONNECTIONS WHEREVER DUCTWORK CONNECTS TO VIBRATION ISOLATED EQUIPMENT. CONSTRUCT FLEXIBLE CONNECTIONS OF NEOPRENE-COATED FLAMEPROOF FABRIC CRIMPED INTO DUCT FLANGES FOR ATTACHMENT TO DUCT AND EQUIPMENT. MANUFACTURER:
AMERICAN/ELGEN CO.; ENERGY DIV.
FLEXAUST (THE) CO.
VENTFABRICS, INC.
EXECUTION AND INSPECTION:
EXAMINE AREAS AND CONDITIONS UNDER WHICH DUCTWORK ACCESSORIES WILL BE INSTALLED.
INSTALLATION OF DUCTWORK ACCESSORIES:
INSTALL DUCTWORK ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, WITH APPLICABLE PORTIONS OF DETAILS OF CONSTRUCTION AS SHOWN IN SMACNA STANDARDS.
INSTALL TURNING VANES IN SQUARE OR RECTANGULAR 90 DEGREE ELBOWS IN SUPPLY, RETURN AND EXHAUST AIR SYSTEMS.
ADJUSTING AND CLEANING:
ADJUSTING: ADJUST DUCTWORK ACCESSORIES FOR PROPER SETTINGS,
CLEANING: CLEAN FACTORY-FINISHED SURFACES. REPAIR ANY MARRED OR SCRATCHED SURFACES WITH MANUFACTURER'S TOUCH-UP PAINT.

AIR OUTLETS AND INLETS
DESCRIPTION OF WORK:
EXTENT OF AIR OUTLETS AND INLETS WORK IS INDICATED BY DRAWINGS NOTES OR SCHEDULES
TYPES OF AIR OUTLETS AND INLETS REQUIRED FOR PROJECT INCLUDE THE FOLLOWING:
DIFFUSERS, REGISTERS AND GRILLES.
CODES AND STANDARDS:
ARI COMPLIANCE:ASHRAE COMPLIANCE: AMCA COMPLIANCE: AMCA SEAL:
NFPA COMPLIANCE:
PRODUCT DELIVERY, STORAGE AND HANDLING:
DELIVER AIR OUTLETS AND INLETS WRAPPED IN FACTORY-FABRICATED FIBER-BOARD TYPE CONTAINERS.
STORE AIR OUTLETS AND INLETS IN ORIGINAL CARTONS AND PROTECT FROM WEATHER AND CONSTRUCTION WORK TRAFFIC.
PRODUCTS
AIR DISTRIBUTION DEVICES
PROVIDE MANUFACTURER'S STANDARD AIR DISTRIBUTION DEVICES WHERE SHOWN, OF SIZE, SHAPE, CAPACITY AND TYPE INDICATED; CONSTRUCTED OF MATERIALS AND COMPONENTS AS INDICATED, AND AS REQUIRED FOR COMPLETE INSTALLATION.
PROVIDE AIR DISTRIBUTION DEVICES THAT HAVE, AS MINIMUM, TEMPERATURE AND VELOCITY TRAVERSES, THROW AND DROP, AND NOISE CRITERIA RATINGS FOR EACH SIZE DEVICE AS LISTED IN MANUFACTURER'S CURRENT DATA.
AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, TITUS
ANEMOSTAT PRODUCTS DIV.; DYNAMICS CORP. OF AMERICA.
CARNES CO.; DIV. OF WEHR CORP.
KRUEGER MFG. CO.
TUTTLE & BAILEY; DIV. OF INTERPACE CORP.
EXECUTION
INSPECTION:
EXAMINE AREAS AND CONDITIONS UNDER WHICH AIR OUTLETS AND INLETS ARE TO BE INSTALLED.
INSTALLATION:
INSTALL AIR OUTLETS AND INLETS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. INSULATE BACK OF DIFFUSERS AND GRILLES COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK AND DUCT ACCESSORIES.
LOCATE CEILING AIR DIFFUSERS, REGISTERS, AND GRILLES, AS INDICATED ON GENERAL CONSTRUCTION "REFLECTED CEILING PLANS".
SPARE PARTS:
FURNISH TO OWNER, WITH RECEIPT, 3 OPERATING KEYS FOR EACH TYPE OF AIR OUTLET AND INLET THAT REQUIRE THEM.

TESTING, ADJUSTING, AND BALANCING
QUALITY ASSURANCE:
TEST AND BALANCE CONTRACTOR SHALL BE AABC CERTIFIED.
TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS:
SUPPLY AIR SYSTEMS.
RETURN AIR SYSTEMS.
EXHAUST AIR SYSTEMS.
VERIFY TEMPERATURE CONTROL SYSTEM OPERATION.
TEST SYSTEMS FOR PROPER SOUND AND VIBRATION LEVELS.
PROJECT CONDITIONS:
SYSTEMS SHALL BE FULLY OPERATIONAL PRIOR TO BEGINNING PROCEDURES.
EXECUTION
PRELIMINARY PROCEDURES FOR AIR SYSTEM BALANCING:
BEFORE OPERATING THE SYSTEM, PERFORM THESE STEPS:
CHECK FILTERS FOR CLEANLINESS.
CHECK DAMPERS FOR CORRECT AND LOCKED POSITION, AND TEMPERATURE CONTROL FOR COMPLETENESS OF INSTALLATION BEFORE STARTING FANS.
LUBRICATE ALL MOTORS AND BEARINGS.
CHECK FAN BELT TENSION.
CHECK FAN ROTATION.
MEASUREMENTS:
PROVIDE ALL REQUIRED INSTRUMENTATION TO OBTAIN PROPER MEASUREMENTS, APPLY INSTRUMENT AS RECOMMENDED BY THE MANUFACTURER.
PERFORMING TESTING, ADJUSTING, AND BALANCING:
PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM
CUT INSULATION AND DUCTWORK FOR INSTALLATION OF TEST PROBES TO THE MINIMUM EXTENT NECESSARY TO ALLOW ADEQUATE PERFORMANCE OF PROCEDURES.
PATCH INSULATION, DUCTWORK, AND HOUSINGS, USING MATERIALS IDENTICAL TO THOSE REMOVED.

TESTING FOR SOUND AND VIBRATION:
TEST AND ADJUST MECHANICAL SYSTEMS FOR SOUND AND VIBRATION
RECORD AND REPORT DATA:
RECORD ALL DATA OBTAINED DURING TESTING, ADJUSTING, AND BALANCING IN ACCORDANCE WITH, AND ON THE FORMS RECOMMENDED BY AABC
DEMONSTRATION:
TRAINING:
TRAIN THE OWNER'S MAINTENANCE PERSONNEL ON TROUBLE-SHOOTING PROCEDURES AND TESTING, ADJUSTING, AND BALANCING PROCEDURES.
SCHEDULE TRAINING WITH OWNER'S REP. WITH AT LEAST 7 DAYS PRIOR NOTICE.



ROOF TOP UNIT MOUNTING DETAIL
NTS

SUPPLY AND OR RETURN RISER TO RTU'S COULD BE SPLIT INTO TWO SEPARATE ROOF OPENINGS TO ACCOMODATE TRUSS/JOIST LOCATION. COORDINATE WITH STRUCTURAL DWGS BEFORE INSTALLATION FOR DUCT ROUTING AND ROOF OPENING
DUCT MOUNTED SMOKE DETECTOR SHALL BE IONIZATION TYPE OPERATING ON DUAL CHAMBER PRINCIPAL, WITH INDICATOR LAMP. DETECTOR SHALL BE MOUNTED IN THE HOUSING WITH SAMPLING TUBE EXTENDED IN THE DUCTWORK. AS MANUFACTURED BY LENNOX/ADT OR EQ. CONTRAACTOR SHALL SUBMIT CATALOG TO COUNTY FOR APPROVAL BEFORE INSTALLATION DETECTOR MUST BE COMPATIBLE WITH BUILDING FIRE ALARM SYSTEM (WHERE APPLICABLE). VERIFY IN FIELD

CONNECT NEW DUCT MOUNTED SMOKE DETECTORS TO BUILDING FIRE ALARM SYSTEM (WHERE APPLICABLE)

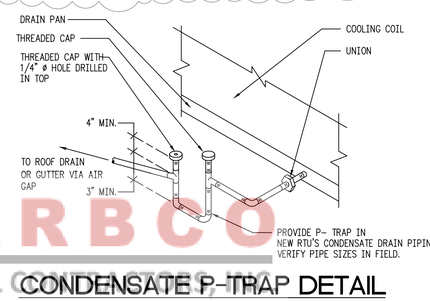
PROVIDE REMOTE HORN AND STROPE IN CEILING TO ENERGIZE UPON ACTIVATION OF DUCT MOUNTED SMOKE DETECTOR

TYPICAL ROOF TOP UNITS MOUNTING DETAILS

ROOF TOP PACKAGED UNIT SCHEDULE

Mark		RTU-1,5	RTU-2	RTU-3	RTU-4
Area Served		SEE PLAN	SEE PLAN	SEE PAN	SEE PLAN
Evaporator Section		---	---	---	---
Supply Air (CFM)		1975	2400	1100	1500
Return / Outside Air (CFM)		1875/100	2250/250	1000/100	1400/100
Ext. Static Pressure		0.5	0.6	0.5	0.5
Fan Motor (MIN. HP)		1	1	1	1
Entering Air (DB / WB)		ARI	ARI	ARI	ARI
Total Cooling Cap. (MBH)		60	72	36	50
Total Sensible Cap. (MBH)		46	44	27.5	37
Electric Heating (KW)		10.8	13.5	7.5	7.5
No. of Stages – Volt/Ph		1-208/3	2-208/3	1-208/3	1-208/3
Options			R/A SMOKE DETECTOR		
Unit Configuration		Vertical Disharge	VERTICAL DISCHARGE	Vertical Disharge	Vertical Disharge
SEER/EER (MIN.)		14/X	X/12.6	14/X	14/X
Condenser Fan Motor (HP)		1/3 EACH	1	1/3 EACH	1/3 EACH
No. of Condenser Fans		1	1	1	1
No. of Compressors		1	1	1	1
Nominal Capacity (Tons)		5	6	3	4
Unit Power Supply (Volt/Phase)		208/3	208/3	208/3	208/3
Unit MCA/MAX Fuse or CB		44/45	53/60	20.8/35	20.8/35
Basis of Design		TRANE	TRANE	TRANE	TRANE
Model No.		EBC060	THC072	EBC036	ECB048
UNIT WEIGHT (LBS)		900	1200	800	850

PROVIDE THE FOLLOWING
1- PROVIDE DIGITAL THERMOSTAT WITH COOLING AND HEATING STAGES TO MATCH UNIT WITH REMOTE SENSOR IN MAIN R/A DUCT
2- ALL RTU WITH A SINGLE POINT POWER SUPPLY AND INTREGRAL 120V/ 1 PH WP SERVICE RECEPTACLE.
3- REFER TO STRUCTURAL DWGS FOR ROOF TOP MOUNTED EQUIPMENT DETAILS
4- PROVIDE MOTORIZED OUTSIDE AIR DAMPER TO BE INTERLOCKED WITH UNIT SUPPLY FAN
5- MOUNT OUTSIDE AIR INTAKE TO BE MIN. OF 10 FT. AWAY FROM ANY EXHAUST OR PLUMBING VENT
6- PROVIDE RTU WITH 30 % FILTER . MOUNT UNIT SO THAT FILTER IS ACCESSIBLE.
7- EXTERNAL STATIC PRESSURE LISTED DOES NOT INCLUDE PRESSURE DROP ACROSS ELECTRIC HEATER
8- PROVIDE FACTORY MOUNTED ROOF CURB FOR EACH UNIT
9- VERIFY VOLTAGE, AMPS AND PHASE OF ALL UNITS AND COORDINATE WITH ELECTRICAL CONTRACTOR FOR MCA AND MOCP
10. PROVIDE UNIT WITH INTEGRAL UNIT MOUNTED DISCONNECT SWITCH/CIRCUIT BREAKER



CONDENSATE P-TRAP DETAIL
N.T.S.

PNM ARCHITECTURE
PAUL N MEDLEY Architect
▪ AIA ▪ NCARB ▪
756 Cove Way Altamonte Springs
Florida 32712-7273
PHONE NUMBER 407-701-6440
WWW.PNM-ARCHITECTURE.COM

SEAL

MOHAMED GHAZALL
PE- 46169

PROJECT
VANILLA SHELL COMMERCIAL BUILDING.
1490 FAIRBANKS AVE.
WINTER PARK, FL

REVISION DATES

DATE
02/05/2020

SHEET TITLE

SHEET NUMBER
M2

MG ENGINEERING, INC.
Consulting Engineers COA 7210
Mohamed Ghazall, P.E No. 46169
640 Chapman Court . Oviedo . Florida 32765
Tel. (407) 786-4811 • Fax. (407) 786-0866 • mgecairo@gmail.com

PROJECT NO. MGE-1943