ORANGE COUNTY, FLORIDA

ORANGE COUNTY MAYOR

TERESA JACOBS

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DISTRICT 2 COMMISSIONER

BRYAN NELSON



DISTRICT 3 COMMISSIONER

PETE CLARKE

DISTRICT 4 COMMISSIONER

JENNIFER THOMPSON

DISTRICT 5 COMMISSIONER

TED B. EDWARDS

DISTRICT 6 COMMISSIONER

VICTORIA P. SIPLIN

WILLOW STREET COMMUNITY CENTER HVAC REPLACEMENT

01/30/2015 BID DOCUMENTS



PRIME CONSULTANT

MATERN PROFESSIONAL ENGINEERING, INC.

MPE #2013-126

ARCHITECTURAL

A-1 ABBREVIATIONS SYMBOLS INDEX AND NOTES
AD-1 FLOOR PLAN AND REFLECTED CEILING PLAN DEMOLITION

AD-2 EXISTING CONDITIONS AND DEMOLITION

AD-3 EXISTING CONDITIONS AND DEMOLITION

A-2 FLOOR PLAN & REFLECTED CEILING PLAN
A-3 SECTIONS & DETAILS

STRUCTURAL

S-0 STRUCTURAL NOTES

S-1 PARTIAL FLOOR PLAN & SECTION DETAIL

MECHANICAL

PH-1 HVAC PHASING PLAN

M-0 LEGEND, NOTES AND DETAILS HVAC MD-1 FLOOR PLAN - HVAC - DEMOLITION

M-1 FLOOR PLAN - HVAC - RENOVATION

M-2 HVAC CONTROLS

M-3 HVAC SCHEDULES

M-5 HVAC DETAILS II
M-6 HVAC DETAILS II

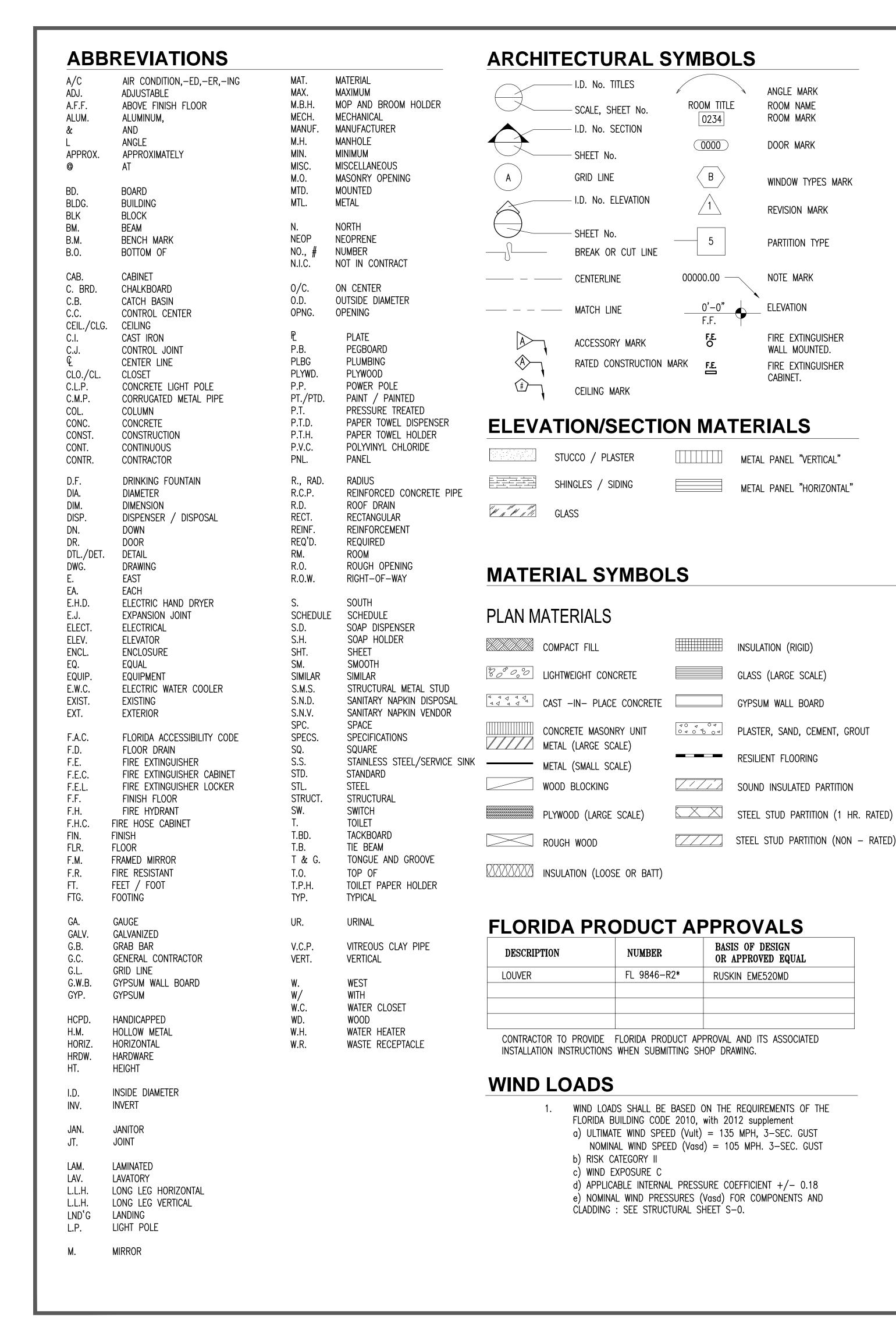
<u>PLUMBING</u>

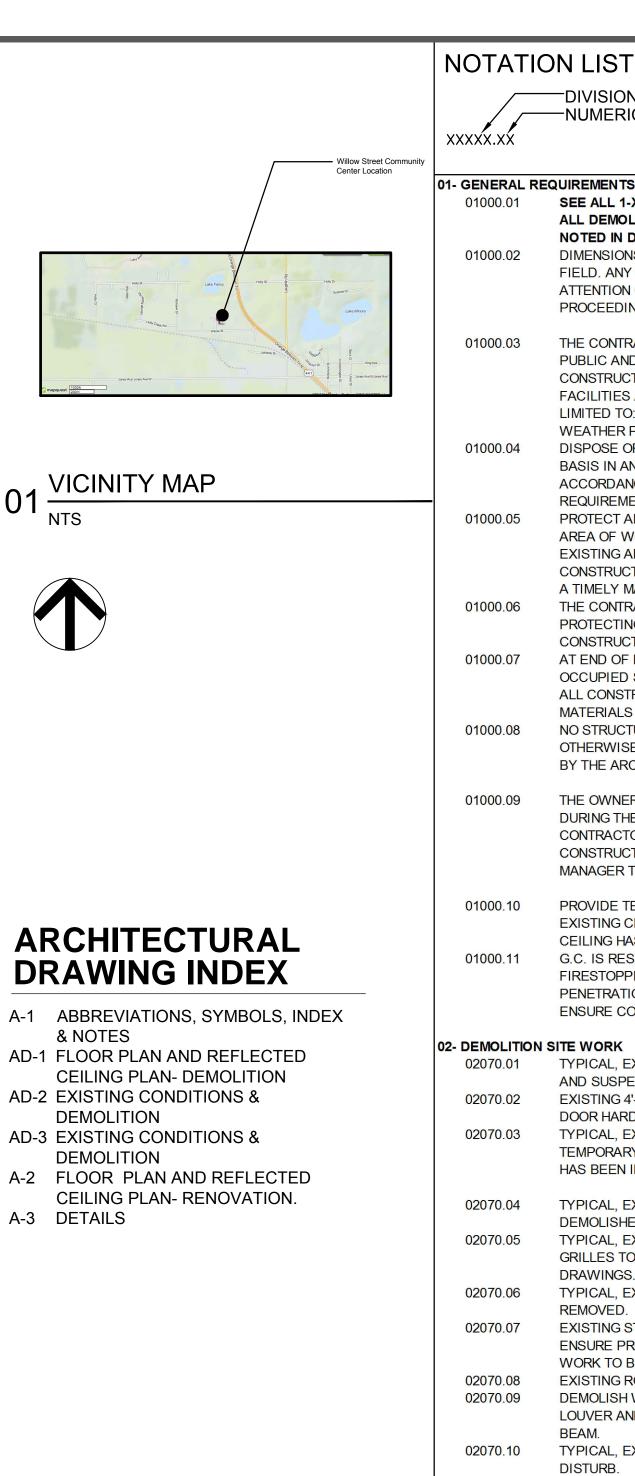
P-1 FLOOR PLAN - PLUMBING - RENOVATION

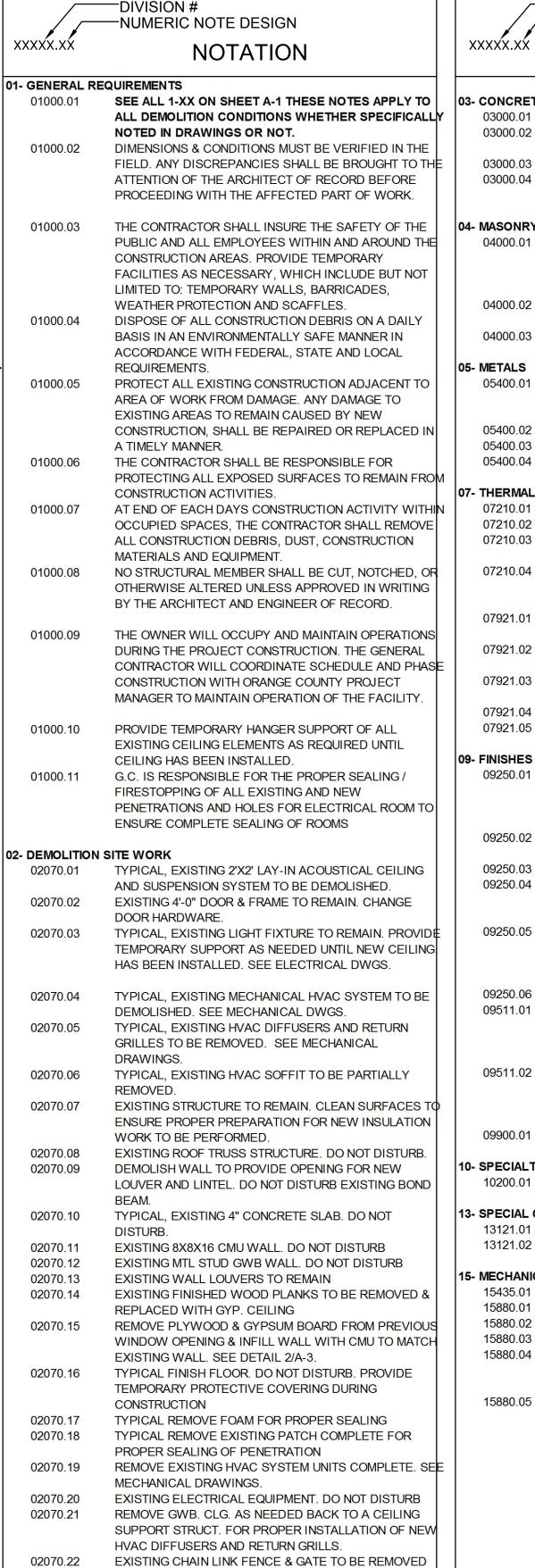
ELECTRICAL

ED-1 FLOOR PLAN - ELECTRICAL - DEMOLITION

E-1 FLOOR PLAN - ELECTRICAL - RENOVATION
E-2 ELECTRICAL RISER DIAGRAMS AND PANEL SCHEDULES







INCLUDING FOUNDATIONS.

PARTIALLY DEMOLISH SIDEWALK.

NEW FLOOR DRAIN. SLOPE TO DRAIN.

DEMOLISH CONCRETE PAD

02070.25

02070.27

02070.28

EXISTING GUTTER & DOWNSPOUT. DO NOT DISTURB.

EXISTING CLOSET TO BE TURNED INTO MECHANICAL

REMOVED & REPLACED. PROVIDE NEW 3'-0"X 8'-0" H

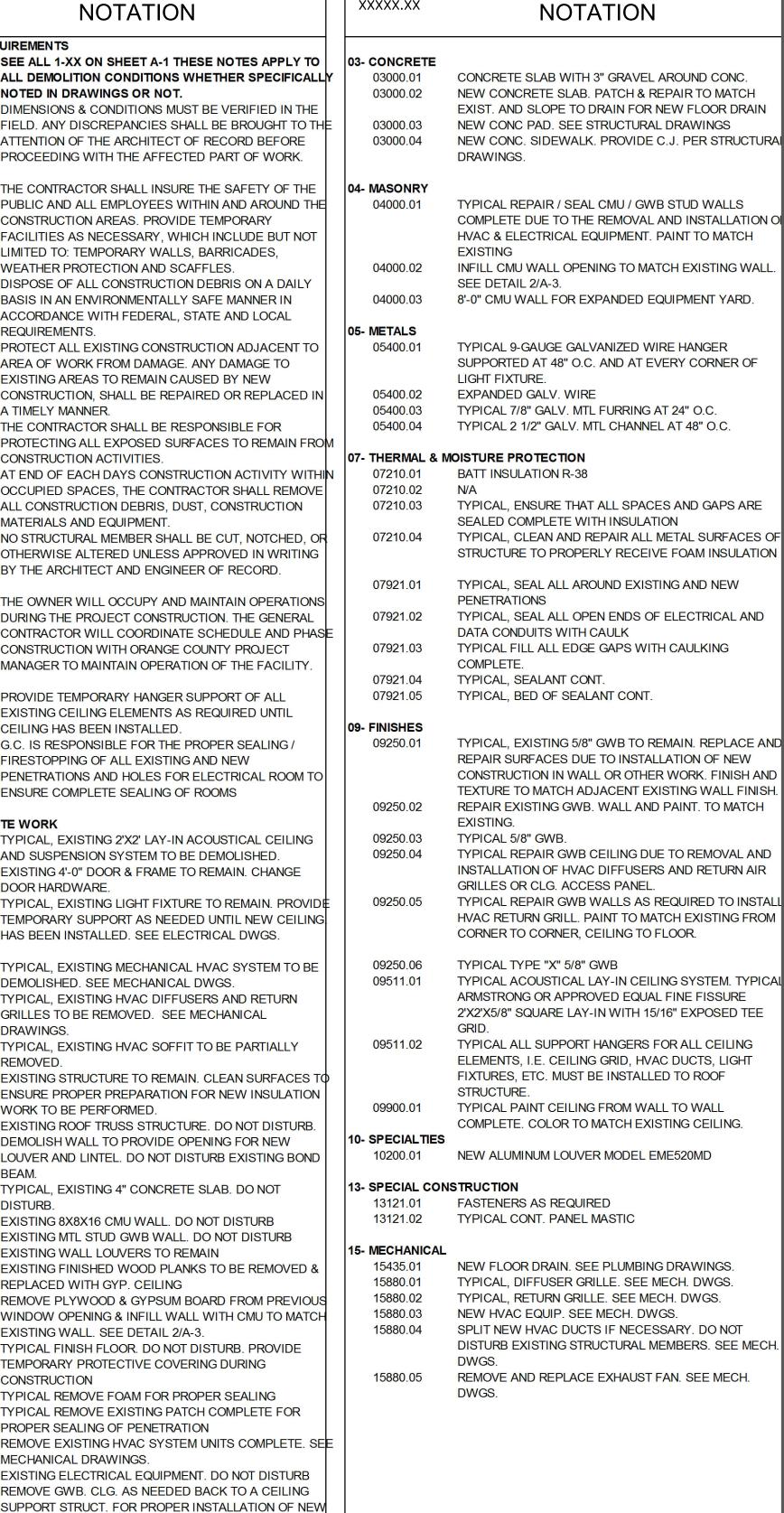
PROVIDE 3' GRAVEL AROUND THE NEW CONC. SLAB.

PARTIALLY DEMOLISH CONC. SLAB TO PROVIDE FOR

EXISTING EQUIPMENT YARD FENCE & GATE TO BE

GATE & 8'-0"H. CHAN LINK FENCE W/ CMU WALL

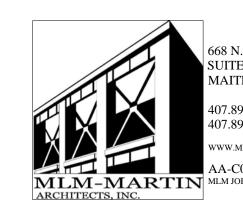
ROOM. REMOVE INSIDE EXISTING SHELVING.



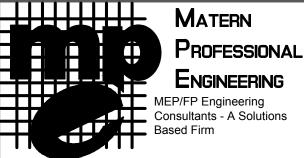
NOTATION LIST

DIVISION#

-NUMERIC NOTE DESIGN



668 N. ORLANDO AVE. SUITE 107 MAITLAND, FL 32751 407.897.6764 (VOICE) 407.894.1338 (FAX)



ORLANDO I Fort Myers I Jacksonville I Tampa Matern Professional Engineering, Inc. 130 Candace Drive Maitland, FI 32751-3331

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ENG. BUS. No. EB-0005096 CERT. OF AUTH. No. 5096 WILLOW STREET **COMMUNITY**

CENTER HVAC

REPLACEMENT

6565 WILLOW STREET

MT. DORA, FLORIDA

MIGUEL LAZARO MARTIN AR NO. 8255

SEAL

Revisions

Description No. Date

MPE PROJ#: 2013-126

Designed By: --

Drawn By: MCH

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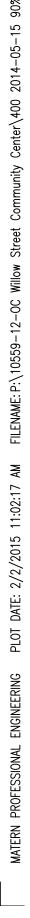
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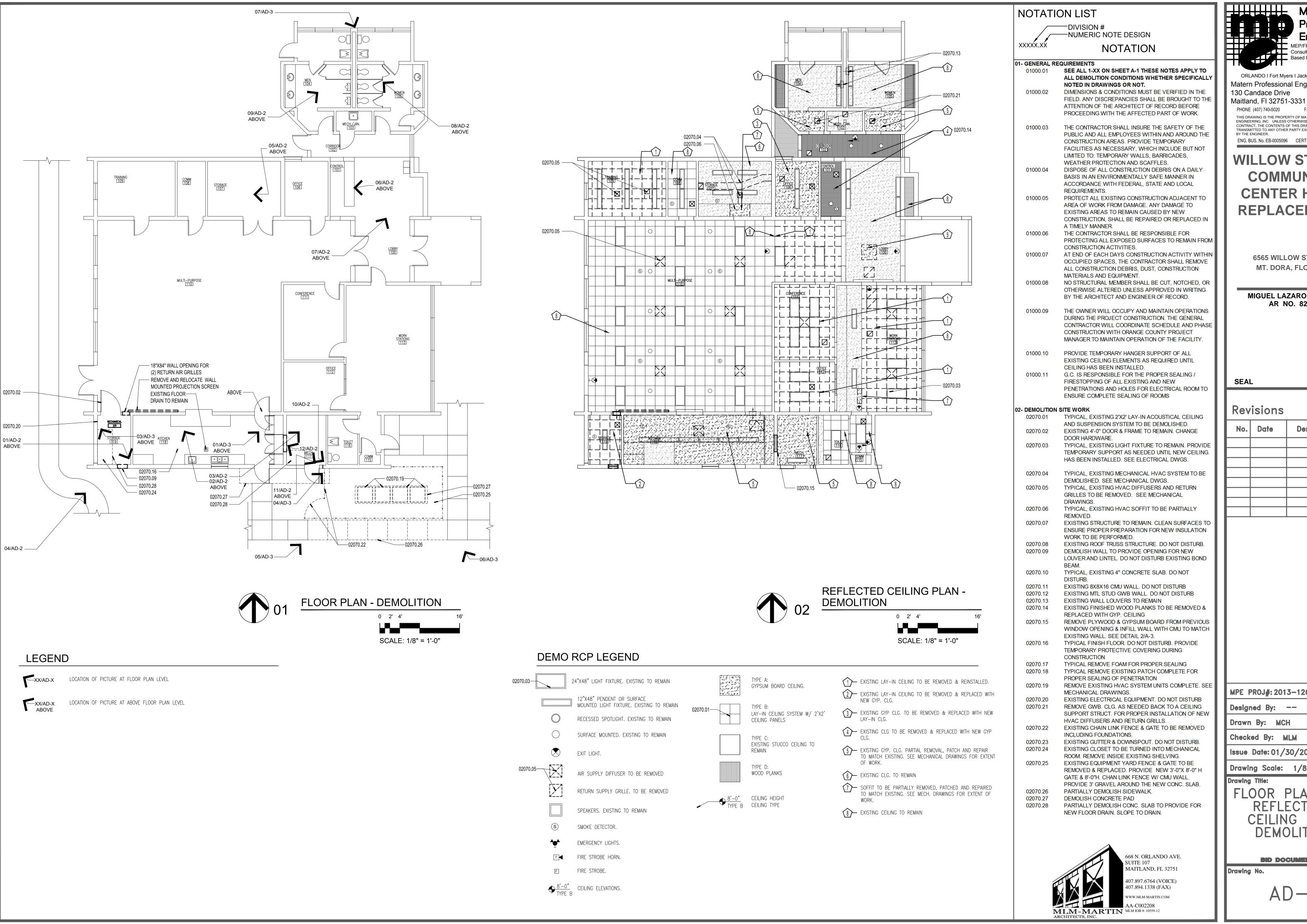
ABBREVIATIONS SYMBOLS INDEX AND NOTES

BID DOCUMENTS

Drawing No.

A-





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WILLOW STREET COMMUNITY CENTER HVAC REPLACEMENT

> 6565 WILLOW STREET MT. DORA, FLORIDA

MIGUEL LAZARO MARTIN AR NO. 8255

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| Drawing Scale: 1/8"=1'-0"

FLOOR PLAN AND

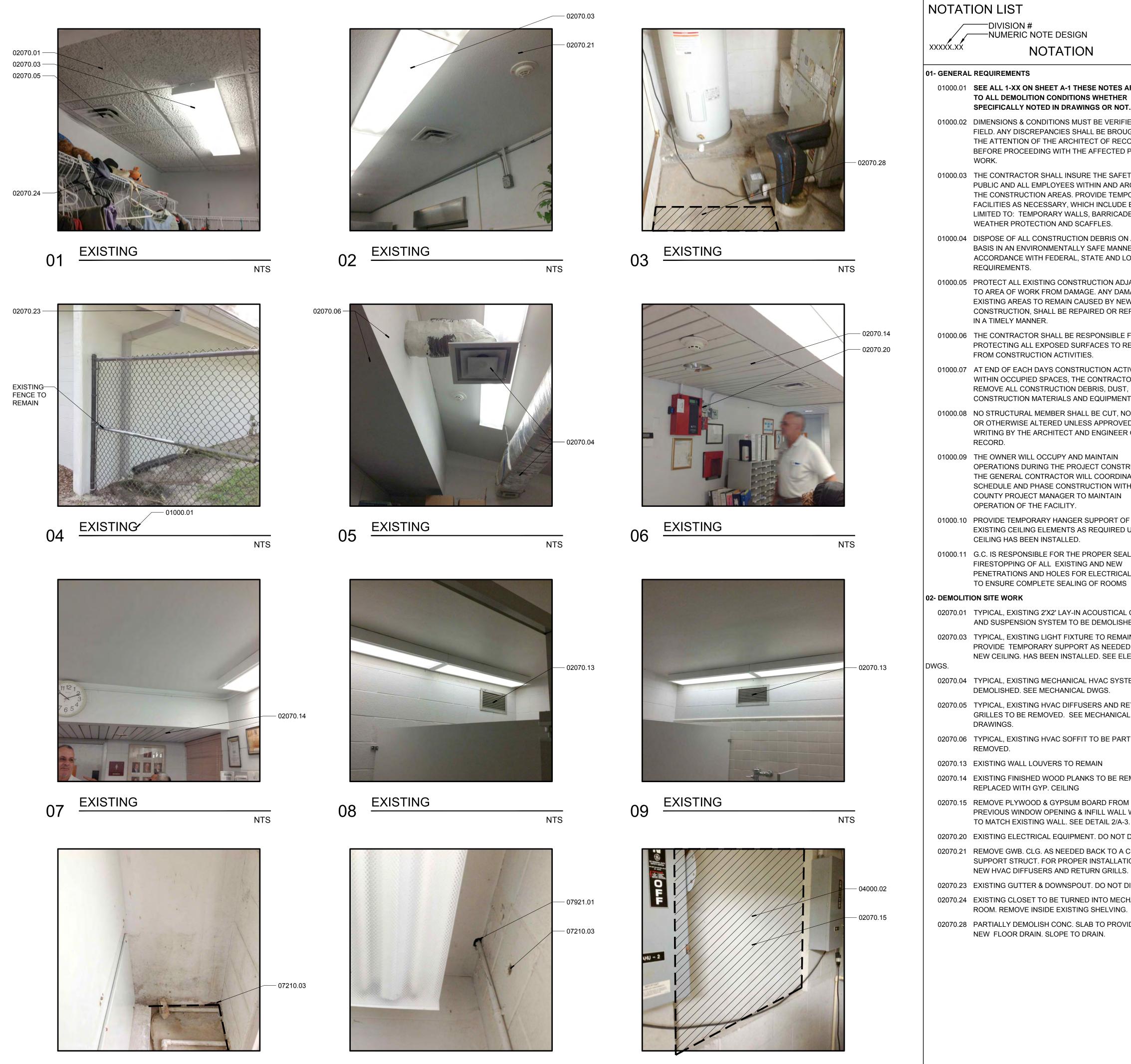
REFLECTED CEILING PLAN **DEMOLITION**

BID DOCUMENTS

Drawing No.

AD-1

EXISTING



EXISTING

NTS

EXISTING

NTS

NTS

NOTATION LIST

DIVISION # -NUMERIC NOTE DESIGN XXXXXXXX **NOTATION**

01- GENERAL REQUIREMENTS

01000.01 SEE ALL 1-XX ON SHEET A-1 THESE NOTES APPLY TO ALL DEMOLITION CONDITIONS WHETHER SPECIFICALLY NOTED IN DRAWINGS OR NOT.

01000.02 DIMENSIONS & CONDITIONS MUST BE VERIFIED IN THE 07- THERMAL & MOISTURE PROTECTION FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OF RECORD BEFORE PROCEEDING WITH THE AFFECTED PART OF

01000.03 THE CONTRACTOR SHALL INSURE THE SAFETY OF THE PUBLIC AND ALL EMPLOYEES WITHIN AND AROUND THE CONSTRUCTION AREAS. PROVIDE TEMPORARY FACILITIES AS NECESSARY, WHICH INCLUDE BUT NOT LIMITED TO: TEMPORARY WALLS, BARRICADES, WEATHER PROTECTION AND SCAFFLES.

01000.04 DISPOSE OF ALL CONSTRUCTION DEBRIS ON A DAILY BASIS IN AN ENVIRONMENTALLY SAFE MANNER IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REQUIREMENTS.

01000.05 PROTECT ALL EXISTING CONSTRUCTION ADJACENT TO AREA OF WORK FROM DAMAGE. ANY DAMAGE TO EXISTING AREAS TO REMAIN CAUSED BY NEW CONSTRUCTION, SHALL BE REPAIRED OR REPLACED IN A TIMELY MANNER.

01000.06 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXPOSED SURFACES TO REMAIN FROM CONSTRUCTION ACTIVITIES.

01000.07 AT END OF EACH DAYS CONSTRUCTION ACTIVITY WITHIN OCCUPIED SPACES, THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS, DUST, CONSTRUCTION MATERIALS AND EQUIPMENT.

01000.08 NO STRUCTURAL MEMBER SHALL BE CUT, NOTCHED, OR OTHERWISE ALTERED UNLESS APPROVED IN WRITING BY THE ARCHITECT AND ENGINEER OF RECORD.

01000.09 THE OWNER WILL OCCUPY AND MAINTAIN OPERATIONS DURING THE PROJECT CONSTRUCTION. THE GENERAL CONTRACTOR WILL COORDINATE SCHEDULE AND PHASE CONSTRUCTION WITH ORANGE COUNTY PROJECT MANAGER TO MAINTAIN OPERATION OF THE FACILITY.

01000.10 PROVIDE TEMPORARY HANGER SUPPORT OF ALL EXISTING CEILING ELEMENTS AS REQUIRED UNTIL CEILING HAS BEEN INSTALLED.

01000.11 G.C. IS RESPONSIBLE FOR THE PROPER SEALING / FIRESTOPPING OF ALL EXISTING AND NEW PENETRATIONS AND HOLES FOR ELECTRICAL ROOM TO ENSURE COMPLETE SEALING OF ROOMS

02- DEMOLITION SITE WORK

02070.01 TYPICAL, EXISTING 2'X2' LAY-IN ACOUSTICAL CEILING AND SUSPENSION SYSTEM TO BE DEMOLISHED.

02070.03 TYPICAL, EXISTING LIGHT FIXTURE TO REMAIN. PROVIDE TEMPORARY SUPPORT AS NEEDED UNTIL NEW CEILING. HAS BEEN INSTALLED. SEE ELECTRICAL

02070.04 TYPICAL, EXISTING MECHANICAL HVAC SYSTEM TO BE DEMOLISHED. SEE MECHANICAL DWGS.

02070.05 TYPICAL, EXISTING HVAC DIFFUSERS AND RETURN GRILLES TO BE REMOVED. SEE MECHANICAL

02070.06 TYPICAL, EXISTING HVAC SOFFIT TO BE PARTIALLY REMOVED.

02070.13 EXISTING WALL LOUVERS TO REMAIN

02070.14 EXISTING FINISHED WOOD PLANKS TO BE REMOVED & REPLACED WITH GYP. CEILING

PREVIOUS WINDOW OPENING & INFILL WALL WITH CMU TO MATCH EXISTING WALL. SEE DETAIL 2/A-3.

02070.20 EXISTING ELECTRICAL EQUIPMENT. DO NOT DISTURB

02070.21 REMOVE GWB. CLG. AS NEEDED BACK TO A CEILING SUPPORT STRUCT. FOR PROPER INSTALLATION OF NEW HVAC DIFFUSERS AND RETURN GRILLS.

02070.23 EXISTING GUTTER & DOWNSPOUT. DO NOT DISTURB.

02070.24 EXISTING CLOSET TO BE TURNED INTO MECHANICAL ROOM. REMOVE INSIDE EXISTING SHELVING.

02070.28 PARTIALLY DEMOLISH CONC. SLAB TO PROVIDE FOR NEW FLOOR DRAIN. SLOPE TO DRAIN.

NOTATION LIST

DIVISION # -NUMERIC NOTE DESIGN XXXXXX.XX **NOTATION**

04- MASONRY

04000.02 INFILL CMU WALL OPENING TO MATCH EXISTING WALL SEE DETAIL 2/A-3.04000.038'-0" CMU WALL FOR EXPANDED EQUIPMENT YARD.

07210.03 TYPICAL, ENSURE THAT ALL SPACES AND GAPS ARE SEALED COMPLETE WITH INSULATION

07921.01 TYPICAL, SEAL ALL AROUND EXISTING AND NEW PENETRATIONS

07921.03 TYPICAL FILL ALL EDGE GAPS WITH CAULKING COMPLETE.



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WILLOW STREET COMMUNITY **CENTER HVAC REPLACEMENT**

> 6565 WILLOW STREET MT. DORA, FLORIDA

MIGUEL LAZARO MARTIN AR NO. 8255

Revisions

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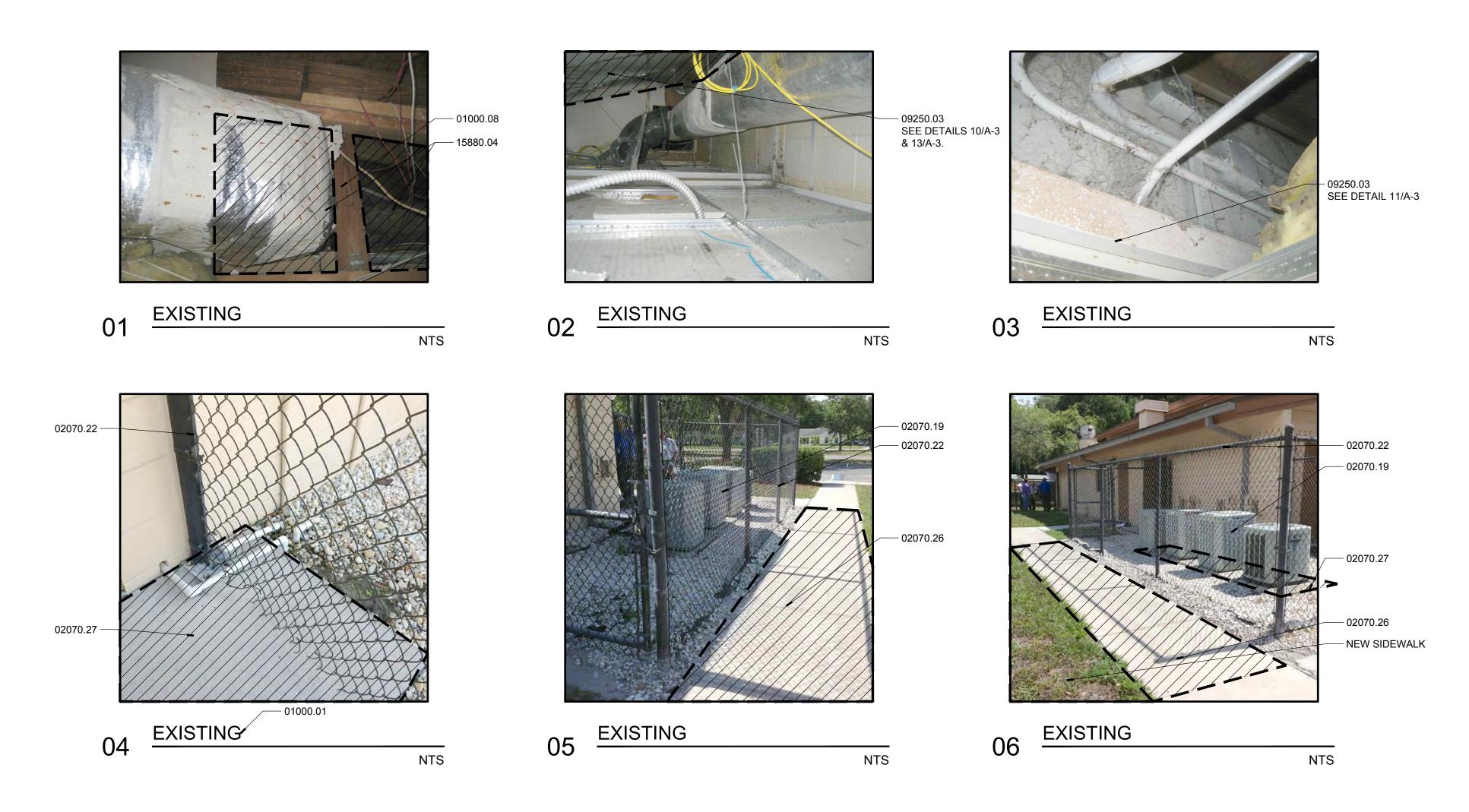
EXISTING CONDITIONS AND DEMOLITION

BID DOCUMENTS

Drawing No.

AD-2







EXISTING NTS **NOTATION LIST**

DIVISION # -NUMERIC NOTE DESIGN XXXXXX.XX **NOTATION**

01- GENERAL REQUIREMENTS

01000.01 SEE ALL 1-XX ON SHEET AD-3 THESE NOTES APPLY TO ALL DEMOLITION CONDITIONS WHETHER SPECIFICALLY NOTED IN DRAWINGS OR NOT.

01000.02 DIMENSIONS & CONDITIONS MUST BE VERIFIED IN TH FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OF RECORD BEFORE PROCEEDING WITH THE AFFECTED PART OF

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01000.08 NO STRUCTURAL MEMBER SHALL BE CUT, NOTCHED, OR OTHERWISE ALTERED UNLESS APPROVED IN WRITING BY THE ARCHITECT AND ENGINEER OF RECORD.

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01000.10 PROVIDE TEMPORARY HANGER SUPPORT OF ALL EXISTING CEILING ELEMENTS AS REQUIRED UNTIL CEILING HAS BEEN INSTALLED.

01000.11 G.C. IS RESPONSIBLE FOR THE PROPER SEALING / FIRESTOPPING OF ALL EXISTING AND NEW PENETRATIONS AND HOLES FOR ELECTRICAL ROOM TO ENSURE COMPLETE SEALING OF ROOMS

02- DEMOLITION SITE WORK

02070.19 REMOVE EXISTING HVAC SYSTEM UNITS COMPLETE. SEE MECHANICAL DRAWINGS.

02070.22 EXISTING CHAIN LINK FENCE & GATE TO BE REMOVED INCLUDING FOUNDATIONS.

02070.27 DEMOLISH CONCRETE PAD

02070.28 PARTIALLY DEMOLISH CONC. SLAB TO PROVIDE FOR NEW FLOOR DRAIN. SLOPE TO DRAIN.

15- MECHANICAL

15880.05 REMOVE AND REPLACE EXHAUST FAN. SEE MECH.

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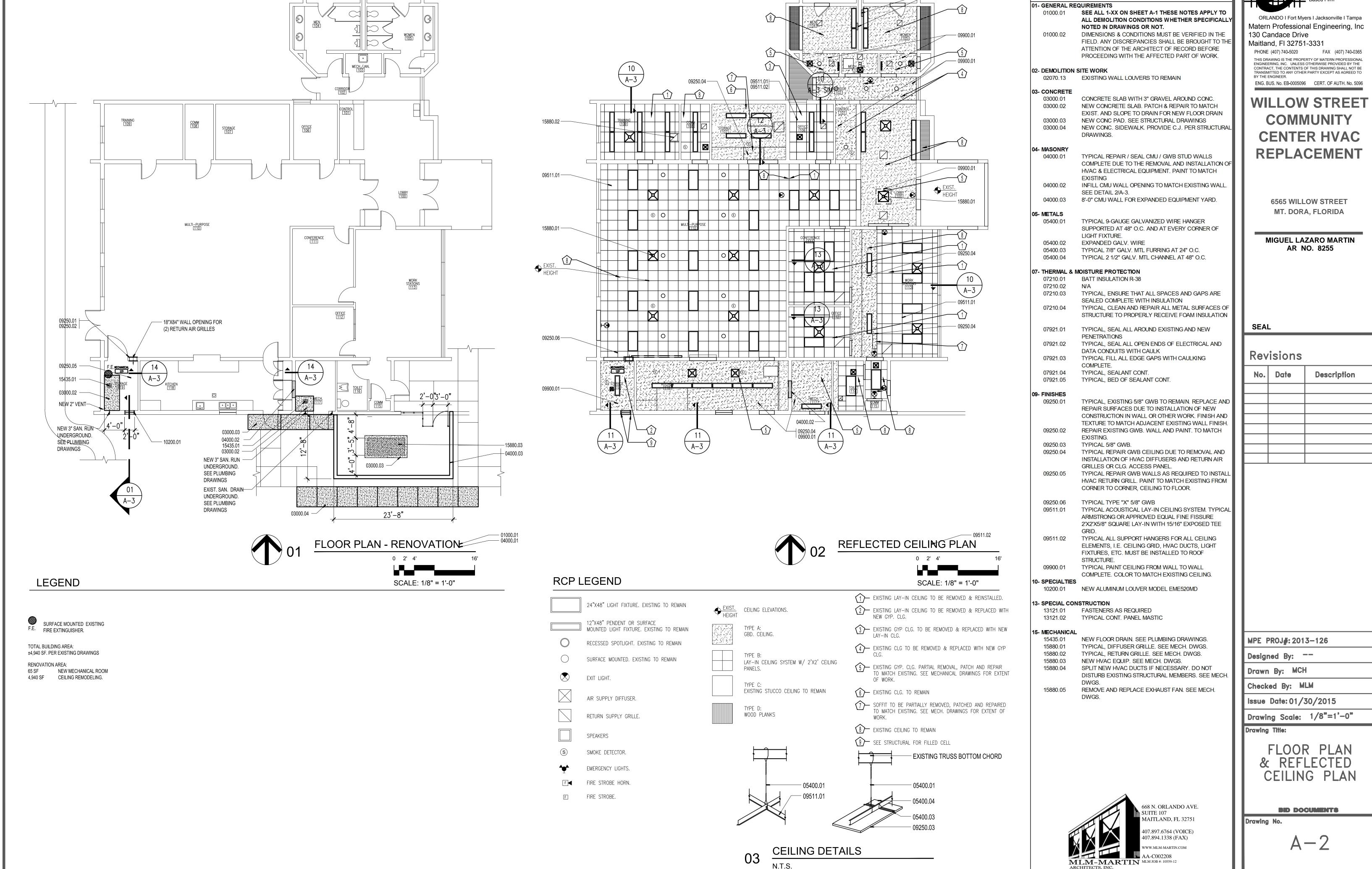
EXISTING CONDITIONS AND DEMOLITION

BID DOCUMENTS

Drawing No.

AD-3





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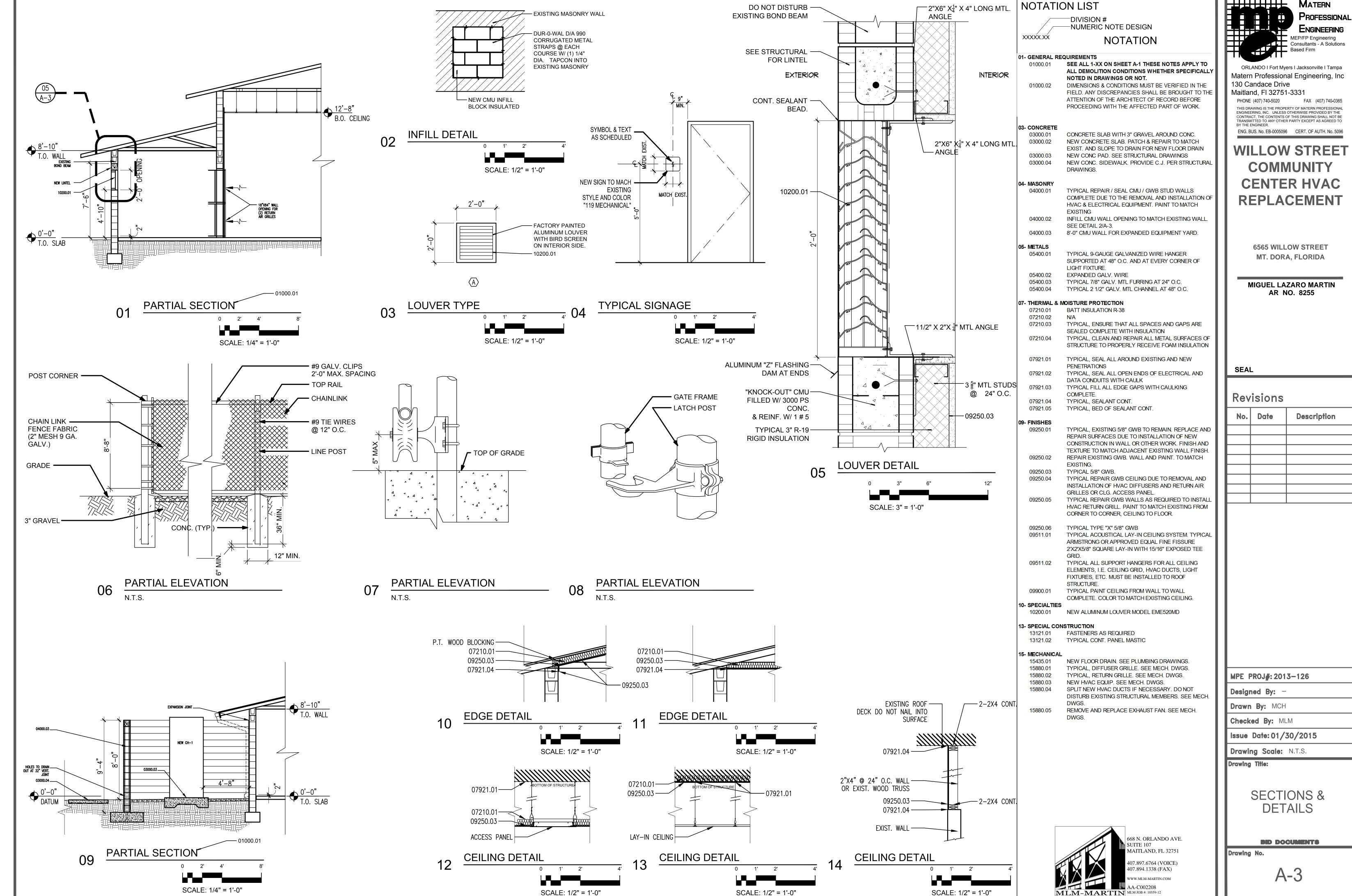
NOTATION LIST

XXXXX.XX

DIVISION#

-NUMERIC NOTE DESIGN

NOTATION



MATERN

No.	Date	Description

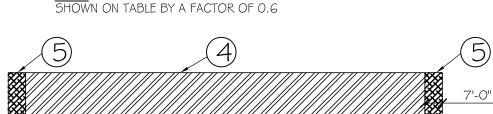
STRUCTURAL NOTES

STRUCTURAL DESIGN CRITERIA

- D-I CODES: FLORIDA BUILDING CODE 2010 WITH 2012 SUPPLEMENT
- D-2 DESIGN LIVE LOADS: ROOF: 20 PSF.
- D-3 GROUND SNOW LOAD: NOT USED
- ULTIMATE DESIGN WIND SPEED V ult = 135 MPH, 3-SEC. GUST NOMINAL DESIGN WIND SPEED V asd = 105 MPH, 3-SEC. GUST RISK CATEGORY II
 - EXPOSURE C ENCLOSED BLDG, INTERNAL PRESSURE COEFFICIENT $(GCp_1) = +/-0.18$
- D-5 ALLOWABLE SOIL BEARING PRESSURE 2000 PSF
- COMPONENTS AND CLADDING ULTIMATE WIND PRESSURES

ROC	OF PRESSURES	6 ULTIMATE	PRESSURES IN PSF.			
TRI AR	BUTARY EA	INTERIOR (1)	PERIMETER (2)	CORNER (3)		
^	=20	-44.3	-74.3	-111.8		
A	=20	+18.0	+18.0	+18.0		
20	<a<=50< td=""><td>-43.2</td><td>-66.4</td><td>-92.6</td></a<=50<>	-43.2	-66.4	-92.6		
20	<a<-50< td=""><td>+16.9</td><td>+16.9</td><td>+16.9</td></a<-50<>	+16.9	+16.9	+16.9		
50	<a<=100< td=""><td>-41.7</td><td>-55.9</td><td>-67.2</td></a<=100<>	-41.7	-55.9	-67.2		
50	<a<-100< td=""><td>+15.4</td><td>+15.4</td><td>+15.4</td></a<-100<>	+15.4	+15.4	+15.4		
	O <a< td=""><td>-40.5</td><td>-48.0</td><td>-48.0</td></a<>	-40.5	-48.0	-48.0		
	0~4	+14.3	+14.3	+14.3		

NOTE: TO OBTAIN NOMINAL "ASD" WIND PRESSURES MULTIPLY VALUES



WALL PRESSURES I	JLTIMATE F	PRESSURES IN PSF.
TRIBUTARY AREA	INTERIOR (4)	EXTERIOR (5)
A<=20	-43.2	-53.2
A<=20	+39.9	+39.9
20 <a<=50< td=""><td>-41.5</td><td>-49.8</td></a<=50<>	-41.5	-49.8
20 <a<=50< td=""><td>+38.1</td><td>+38.1</td></a<=50<>	+38.1	+38.1
50 <a<=100< td=""><td>-39.1</td><td>-45.0</td></a<=100<>	-39.1	-45.0
50 <a<=100< td=""><td>+35.7</td><td>+35.7</td></a<=100<>	+35.7	+35.7
	-37 3	-414

NOTE: TO OBTAIN NOMINAL "ASD" WIND PRESSURES MULTIPLY VALUES

+33.9

+33.9

GENERAL NOTES

100<A

G- I REVIEW ALL PROJECT DOCUMENTS PRIOR TO FABRICATION AND START OF CONSTRUCTION. REPORT ANY DISCREPANCIES TO ARCHITECT OR STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH WORK.

SHOWN ON TABLE BY A FACTOR OF 0.6

- G-2 ONLY WRITTEN CHANGES APPROVED BY THE ARCHITECT AND ENGINEER SHALL BE PERMITTED.
- G-3 IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY LINES FROM ALL DAMAGE DURING CONSTRUCTION.
- G-4 NO STRUCTURAL MEMBER SHALL BE CUT, NOTCHED OR OTHERWISE REDUCED IN SIZE OR STRENGTH WITHOUT PRIOR APPROVAL IN WRITING FROM THE STRUCTURAL ENGINEER.
- G-5 COORDINATE STRUCTURAL AND OTHER DRAWINGS THAT ARE PART OF THE CONTRACT DOCUMENTS FOR ANCHORED, EMBEDDED OR SUPPORTED ITEMS WHICH AFFECT THE STRUCTURAL DRAWINGS.
- G-6 ALL DETAILS AND SECTIONS ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT EXCEPT WHERE A SEPARATE DETAIL IS SHOWN.
- G-7 THE INTENTION OF THE PLANS AND SPECIFICATIONS IS TO PROVIDE ALL NECESSARY DETAILS TO CONSTRUCT A COMPLETE STRUCTURE. GENERAL CONTRACTOR SHALL COORDINATE THE STRUCTURAL DRAWINGS WITH ALL OTHER DISCIPLINES. WHEN SPECIFIC INFORMATION IS MISSING OR IS IN CONFLICT, THE CONTRACTOR SHALL USE A SIMILAR DETAIL AND/OR THE MORE COSTLY ITEM OF CONFLICT. THE CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
- G-8 PHOTOGRAPHIC REPRODUCTIONS OF THE STRUCTURAL DRAWINGS FOR SHOP DRAWINGS SHALL NOT BE PERMITTED.
- G-9 REVIEW ALL SHOP DRAWINGS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND FOR COMPLETENESS AND ANSWER ALL CONTRACTOR RELATED QUESTIONS. STAMP AND INITIAL ALL SHEETS PRIOR TO SUBMITTING SHOP DRAWINGS TO ARCHITECT FOR REVIEW. NONCOMPLIANCE WITH THIS REQUIREMENT WILL RESULT IN REJECTION OF SUBMITTAL.
- G-10 ALL WORK TO BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE FLORIDA BUILDING CODE AND ALL APPLICABLE LOCAL CODES.
- G-11 CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS & DIMENSIONS RELATIVE TO THE SAME. WHERE THERE ARE CONFLICTS BETWEEN ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ARCHITECT/ENGINEER'S ATTENTION AND THE NECESSARY ADJUSTMENTS MADE PER THEIR COORDINATION.
- G-12 IF THERE ARE ANY DISCREPANCIES BETWEEN THE STRUCTURAL DRAWINGS, ARCHITECTURAL DRAWINGS, STRUCTURAL DETAILS, STRUCTURAL NOTES, THE PROJECT SPECIFICATIONS, OR APPLICABLE CODES THE STRICTEST SHALL GOVERN.

REINFORCED CONCRETE

- RC-I ALL CONCRETE DESIGN PLACEMENT SHALL BE IN STRICT ACCORDANCE WITH THE ACI "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE," ACI 318 LATEST EDITION.
- RC-2 STRUCTURAL CONCRETE SHALL CONFORM TO ACI 30 | SPECIFICATIONS. ALL CONCRETE TYPE I PORTLAND CEMENT. (ASTM C 150) 3000 psi. TYP COMPRESSIVE STRENGTH AT 28 DAYS (U.O.N.). 3500 psi. AT SECOND FLOOR DECK AND 4000 psi. AT COLUMNS AND BEAMS

FOOTINGS 4" +/- |" COLUMNS 4" +/- | " SLABS 4" +/- |" TIE BMS & TIE COL'S 4" +/- 1" WATER: POTABLE CHLORIDE: NONE

- RC-3 PROVIDE NORMAL WEIGHT AGGREGATES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM C33.
- RC-4 FLY ASH WHEN USED, SHALL BE LIMITED TO 20% OF THE CEMENTITOUS MATERIAL.
- RC-5 ALL PUMPED CONCRETE WITH #57 AGGREGATE IS TO CONTAIN A HIGH RANGE WATER REDUCING AGENT. MINIMUM SIZE OF DISCHARGE TO BE 4" I.D.
- RC-6 A 2" I.D. DISCHARGE MAY BE USED WITH #8 AGGREGATE. USE PLASTICIZER ADMIXTURE IF NECESSARY TO INCREASE SLUMPS BEYOND THAT NOTED
- RC-7 CHAMFER ALL EDGES OF EXPOSED CONCRETE 3/4" UNLESS NOTED OTHERWISE.
- RC-8 ALL REINFORCING STEEL SHALL BE DETAILED. FABRICATED AND INSTALLED IN ACCORDANCE WITH ACI 318-95 AND ACI DETAILING MANUAL, ACI 315 1988
- RC-9 REINFORCING STEEL SHALL BE NEW DEFORMED BARS THAT ARE FREE FROM RUST, SCALE AND OIL AND CONFORM TO ASTM AG 15, GRADE 60, WITH MINIMUM YIELD STRENGTH = 60,000. WHERE WELDING REQUIRED ASTM A706, GRADE 60
- RC-10 ALL SLABS ON GRADE SHALL BE REINFORCED WITH WELDED WIRE FABRIC AS SHOWN IN THE DRAWINGS.
- RC-11 WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
- RC-12 LAP CONT. BOTTOM STEEL OVER SUPPORT AND CONT. TOP STEEL AT MID SPAN UNLESS OTHERWISE SPECIFIED. MIN. LENGTH OF LAPPED SPLICES SHALL BE AS FOLLOWS UNLESS NOTED. STAGGER SPLICES SO THAT NO TWO ADJACENT BARS ARE SPLICED IN THE SAME LOCATION UNLESS SHOWN OTHERWISE. WELDED WIRE FABRIC SHALL BE LAPPED ONE FULL MESH AT THE SIDES AND ONE FULL MESH PLUS 2" AT THE ENDS. MAKE ALL BARS CONTINUOUS AROUND CORNERS OF PROVIDE CORNER BARS OF EQUAL SIZE AND SPACING.

BAR SIZE: SPLICE SIZE: 22"

TO REBAR FABRICATION.

- RC-13 TERMINATE ALL DISCONTINUOUS TOP BARS WITH STANDARD 90 DEGREE HOOK (PLACED VERTICALLY) UNLESS NOTED OTHERWISE.
- RC-14 PROVIDE THE FOLLOWING CONCRETE COVERAGE'S OVER REINFORCING,

B.O. FOOTINGS \$ UNFORMED EDGES- 3" CLR. BEAMS ¢COLUMNS (TIES)- 1 1/2" CLR. SLABS (TOP \$ BOT.-STEEL) INTERIOR- 3/4" CLR. EXTERIOR- 1 1/2" CLR.

- CONC. WALLS- AS NOTED (1 1/2" CLR. MIN.) RC-15 SHOP DRAWINGS FOR PLACEMENT SHALL BE SUBMITTED FOR REVIEW PRIOR
- RC-16 SLEEVE ALL PENETRATIONS THROUGH BEAMS AND SLABS INDIVIDUALLY CORE DRILLING WILL NOT BE PERMITTED. SUBMIT LOCATION AND SIZE OF SLEEVES THROUGH BEAMS TO ENGINEER FOR REVIEW PRIOR TO CASTING CONCRETE.
- RC-17 NO REINFORCING BARS SHALL BE CUT TO ACCOMMODATE THE INSTALLATION OF ANCHORS, EMBEDS OR OTHER ITEMS.
- RC-18 USE THE STRUCTURAL DRAWINGS INCLUDING REVISIONS AND ADDENDA IN CONJUNCTION WITH REVIEWED SHOP DRAWINGS FOR PLACEMENT OF REINFORCING.
- RC-19 AT CHANGES IN DIRECTION OF CONCRETE WALLS, BEAMS & STRIP FOOTINGS, PROVIDE CORNER BARS OF SAME SIZE AND QUANTITY (U.O.N.) AS HORIZONTAL STEEL. REFER TO TYPICAL DETAIL.
- RC-20 ALL EMBEDDED ITEMS SHALL BE SECURELY TIED IN PLACE PRIOR TO CONCRETE PLACEMENT.
- RC-2 | WEDGE BOLTS SHALL BE ITW RAMSET/REDHEAD BOLTS OR APPROVED EQUIVALENT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. 3/4" DIAMETER WEDGE BOLTS SHALL BE OF LENGTH REQUIRED TO PROVIDE 3-1/4" MIN. EMBEDMENT, 2.0 KIPS TENSION AND 4.1 KIPS SHEAR WORKING
- TO INSTALL. RC-22 DOWEL BAR SPLICERS SHALL BE A COMPLETE ASSEMBLY, INCLUDING COUPLER, FROM ATTACHMENT (WHEN REQUIRED) AND THREADED BAR

LOADS IN 3000psi CONCRETE (U.O.N.) DO NOT CUT EXISTING REINFORCING

ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. A SCREEN TUBE

- CAPABLE OF DEVELOPING THE BAR BEING SPLICED IN ACCORDANCE WITH ACI 318 SECTION 12.14.3. RC-23 ADHESIVE ANCHORS SHALL BE ITW RAMSET/REDHEAD EPCON CERAMIC 6 EPOXY ANCHORING SYSTEM OR APPROVED EQUIVALENT INSTALLED IN
- RC-24 SLABS AND GRADE BEAMS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE. ALL REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION

MUST BE UTILIZED FOR INSTALLATION IN HOLLOW BLOCK AND BRICK

MASONRY. DO NOT CUT EXISTING REINFORCING TO INSTALL.

RC-25 PROVIDE (2) #5 BARS WITH 2'-0" PROJECTION ON ALL SIDES OF ALL OPENINGS OR RE-ENTRANT CORNERS IN CONCRETE

MASONRY

- M-I MASONRY CONSTRUCTION SHALL CONFORM TO ACI "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI/ASCE 530) AND "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI/ASCE 530,1) EXCEPT AS AMENDED BELOW.
- M-2 CONTRACTOR SHALL OBTAIN COPY OF MASONRY CODE AND SPECIFICATIONS FOR REFERENCE AT THE JOBSITE.
- M-3 STRUCTURE HAS BEEN DESIGNED AS A BEARING WALL STRUCTURE. ALL MASONRY UNITS SHALL BE LAID PRIOR TO CONCRETE PLACEMENT OF COLUMNS, BEAMS AND SLABS FOR THE SAME STORY.
- M-4 USE TYPE "S" MORTAR WITH MINIMUM COMPRESSIVE STRENGTH OF 1800psi. IN ACCORDANCE WITH ASTM C270
- M-5 MASONRY UNITS SHALL CONFORM TO ASTM C90, GRADE N WITH A MINIMUM COMPRESSIVE STRENGTH OF 1900ps ON NET SECTION TO PROVIDE NET AREA COMPRESSIVE STRENGTH OF MASONRY (F'm) OF 1500psi., LAID IN RUNNING BOND.
- M-6 PROVIDE FILLED CELLS AS SHOWN ON PLANS. IN ADDITION, PROVIDE FILLED CELLS W/ (1) #5 VERTICAL ADJACENT TO ALL OPENINGS, AND AT ANCHORAGE OF CONNECTIONS.
- M-7 PROVIDE FULL MORTAR BEDDING AROUND ALL FILLED CELLS WITH VERTICAL REINFORCING.
- M-8 REINFORCING FOR FILLED CELLS SHALL CONFORM TO ASTM A615, GRADE 60. PROVIDE THE FOLLOWING LAP SPLICES FOR REINFORCING.

SPLICE SIZE: 30"

- M-9 ALL FILLED CELLS AND COLUMNS SHALL BE POURED AT LEAST TWO (2) HOURS PRIOR TO POURING BEAMS AND LINTELS.
- M-10 REINFORCING WALL WITH LADDER TYPE REINFORCEMENT ("DUR-O-WALL" OR EQUAL) IN BED JOINTS AT 16" O.C. MEASURED VERTICALLY. LAP SPLICE ALL HORIZONTAL WALL REINFORCING 6", PROVIDE PREFABRICATED "TEE" OR CORNER SECTIONS AT ALL INTERSECTING WALLS.
- M-II REFER TO TYPICAL WALL SECTIONS FOR MAXIMUM CONSTRUCTION HEIGHT OF MASONRY WALLS. PROVIDE CLEAN-OUT HOLES AT BASE OF FILLED CELLS WHEN THE CONCRETE POUR EXCEEDS 5 FEET IN HEIGHT.
- M-I2 CONCRETE FOR FILLED CELLS SHALL BE VIBRATED DURING PLACEMENT USING A "PENCIL" TYPE VIBRATOR.
- M-13 THE TYPICAL LINTELS OVER OPENINGS IN THE WALL SHALL HAVE (1) #5 BAR ABOVE OPENING FILLED SOLID UNLESS NOTED OTHERWISE PROVIDE THE FOLLOWING LINTELS OVER ALL MASONRY WALL OPENINGS.

-PROVIDE MINIMUM END BEARING OF 8". CUT OUT BOTTOM OF LINTEL AT END TO ALLOW CONTINUATION OF FILLED CELL REINFORCING.

- M-14 PROVIDE (1) #5 CONTINUOUS HORIZONTAL IN KNOCK-OUT BLOCK BELOW ALL WINDOW SILLS, UNLESS NOTED OTHERWISE.
- M-15 PROVIDE VERTICAL REINFORCEMENT IN 3000psi GROUT FILLED CMU CELL FROM FOOTING TO BEAM AT TOP OF WALL AS SHOWN IN PLANS AND:

(2) #5 HORIZONTAL BAR AT 2'-0" O.C. HORIZONTAL JOINT REINFORCEMENT 16" O.C.

- M-16 CMU CELLS INDICATED IN PLAN OR NOTES AS FILLED CELLS SHALL BE GROUTED SOLID WITH 3000 psi CONCRETE GROUT (8" TO 10" SLUMP).
- M-17 SUBMIT REBAR PLACING SHOP DRAWINGS FOR REVIEW, ALSO INCLUDE
- LOCATION OF MASONRY CONTROL JOINTS. M-18 REINFORCING STEEL SHALL BE NEW DEFORMED BARS THAT ARE FREE FROM RUST, SCALE AND OIL AND CONFORM TO ASTM AG 15, GRADE GO, WITH
- MINIMUM YIELD STRENGTH = 60,000. WHERE WELDING REQUIRED ASTM A706, GRADE 60
- M-19 A MINIMUM OF (3) FILLED CELLS SHALL BE LOCATED AT CONCENTRATED LOADS ON TYPICAL WALLS.
- M-20 PROVIDE (3) FILLED CELLS AT ALL CORNERS AND ENDS OF WALLS.
- M-21 LAP ALL BOND BEAMS WHERE STEPPED 4'-0".
- M-22 ALL DOWELS FROM THE FOUNDATION SHALL MATCH SIZE \$ LOCATION OF THE VERTICAL REINFORCING IN MASONRY, UNLESS NOTED DIFFERENTLY. EXTEND DOWEL A MIN. OF 48 BAR DIAMETERS FROM THE FOUNDATION.
- M-23 EXPANSION BOLTS SHALL BE "HILTI KWIK BOLT II" OR APPROVED EQUAL. MINIMUM EMBED SHALL BE 5" FOR $\frac{3}{4}$ " DIA., $3\frac{1}{2}$ " FOR $\frac{1}{2}$ " DIA. AND $2\frac{1}{2}$ " FOR $\frac{3}{8}$ " DIA.
- M-24 CHEMICAL ANCHORS SHALL BE "HILTI C-100" OR APPROVED EQUAL. MINIMUM EMBEDMENT SHALL BE $6\frac{5}{8}$ " FOR $\frac{3}{4}$ " DIA., $4\frac{1}{4}$ " FOR $\frac{1}{2}$ " DIA., $3\frac{1}{2}$ " FOR $\frac{3}{8}$ " DIA.
- M-25 THREADED ANCHORS SHALL BE ASTM A36 OR A307 QUALITY. ALL CMU CELLS TO RECEIVE ANCHORS SHALL BE GROUTED SOILD. NOTIFY ENGINEER PRIOR TO SUBSITUTION OF ANY BOLTS INDICATED IN THE DRAWINGS.

FIELD VERIFY CONDITIONS

- FV-I CONTRACTOR SHALL VERIFY CONDITIONS AND DIMENSIONS RELATIVE TO THE SAME. WHERE THERE ARE CONFLICTS BETWEEN ACTUAL FIELD CONDITIONS AND DATA PRESENTED IN THE DRAWINGS, SUCH CONDITIONS SHALL BE CALLED TO THE ARCHITECT'S ATTENTION AND THE NECESSARY ADJUSTMENTS SHALL BE MADE PER THEIR INSTRUCTIONS.
- FV-2 GENERAL CONTRACTOR SHALL REVIEW AND APPROVE SHOP DRAWINGS BEFORE SUBMITTING THEM TO THE ENGINEER, OTHERWISE THEY WILL BE REJECTED.
- FV-3 IF THERE ARE ANY DISCREPANCIES THE STRICTER SHALL GOVERN.

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WILLOW STREET **COMMUNITY CENTER HVAC** REPLACEMENT

6565 WILLOW STREET MT. DORA, FLORIDA



CORPORATION TELEPHONE: 407-423-7585 1528 VASSAR STREET ORLANDO, FL 32804 EB5026 FEDERICO J. BOWEN P.E. # 38153

Revisions

No.	Date	Description

Key Plan

MPE PROJ#: 2013-126

Designed By: Drawn By:

Checked By:

Issue Date: 01/30/2015

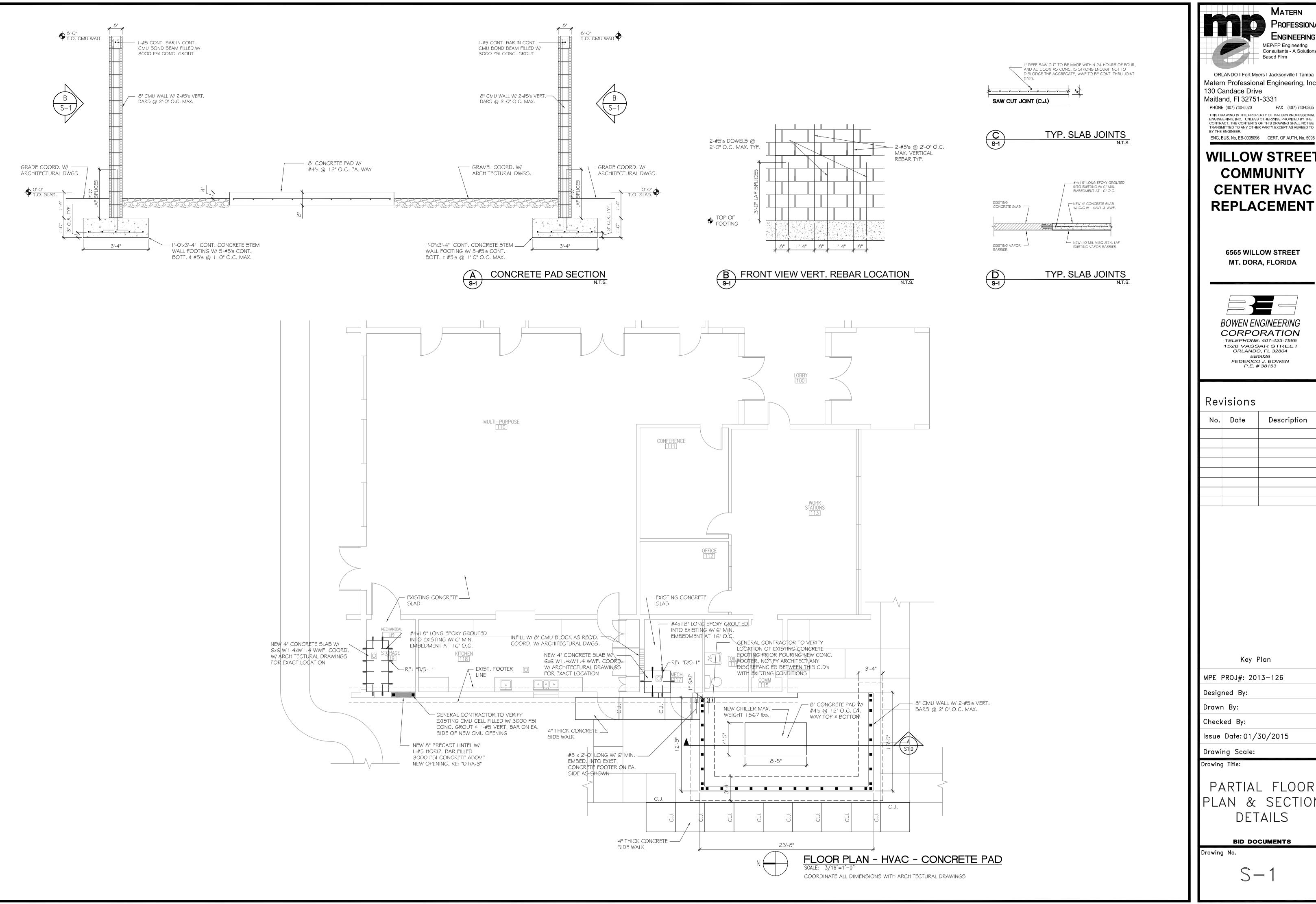
Drawing Scale:

Orawing Title:

STRUCTURAL

BID DOCUMENTS

Orawing No.



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WILLOW STREET COMMUNITY **CENTER HVAC REPLACEMENT**

6565 WILLOW STREET MT. DORA, FLORIDA



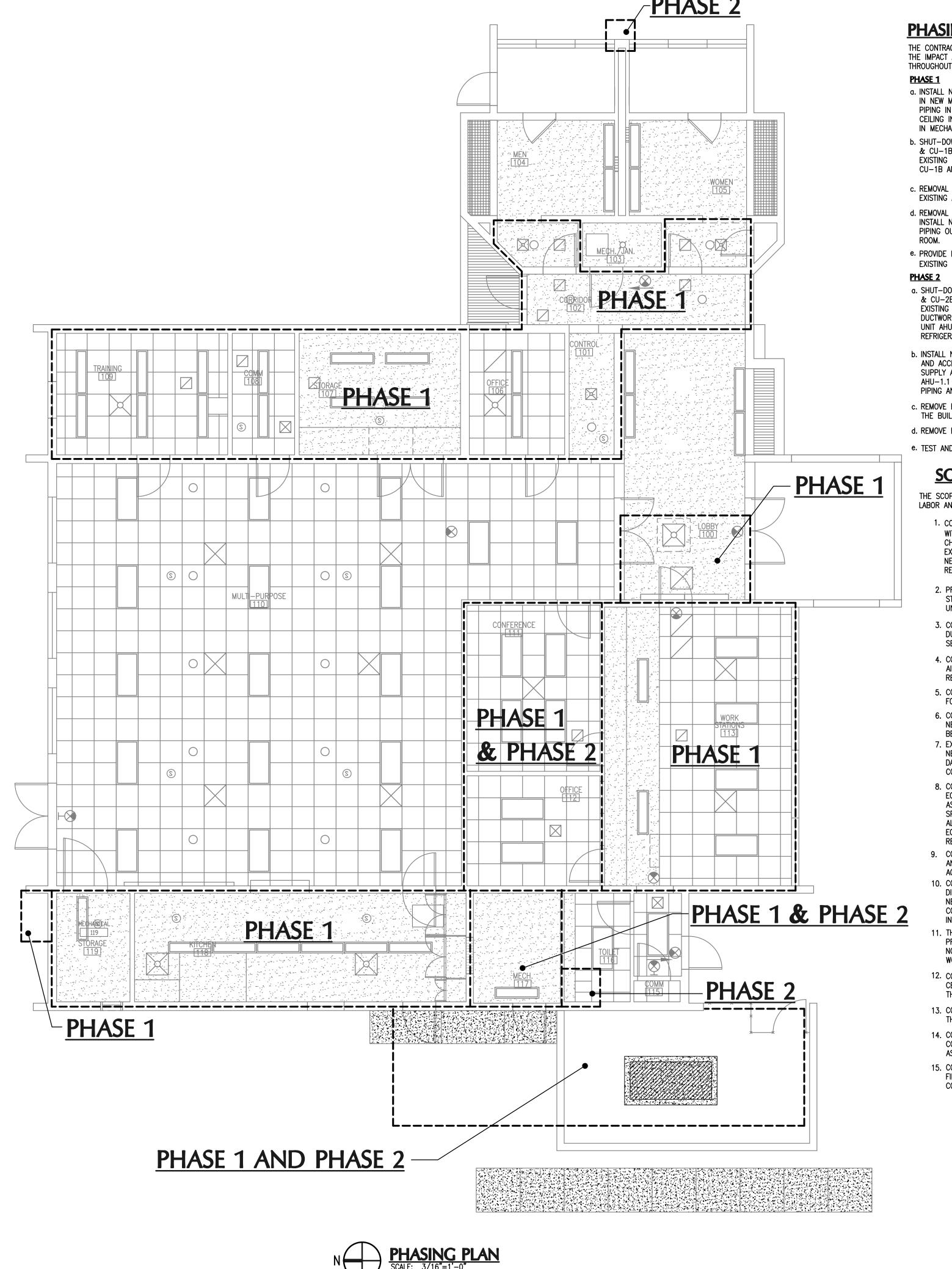
No.	Date	Description

MPE PROJ#: 2013-126

Issue Date: 01/30/2015

PARTIAL FLOOR PLAN & SECTION DETAILS

BID DOCUMENTS



PHASING NOTES

THE CONTRACTOR SHALL PERFORM WORK ON DAYS, NIGHTS AND WEEKENDS SO AS TO MINIMIZE THE IMPACT AND DOWNTIME OF THE FACILITY. THE FACILITY SHALL REMAIN FULLY OPERATIONAL THROUGHOUT CONSTRUCTION. THE PROJECT WILL BE BROKEN UP INTO PHASES AS FOLLOWS:

- a. INSTALL NEW CHILLED WATER AIR HANDLING UNIT AHU-1.2, DUCTWORK AND PIPING IN NEW MECHANICAL ROOM 11. INSTALL NEW CHILLED WATER PIPING AND CONDENSATE DRAIN PIPING IN MECHANICAL ROOM. RUN NEW DUCTWORK AND CHILLED WATER PIPING ABOVE THE CEILING IN THE EXISTING KITCHEN INTO EXISTING MECHANICAL ROOM. INSTALL NEW FLOOR DRAIN IN MECHANICAL ROOM.
- b. SHUT-DOWN EXISTING AIR HANDLING UNIT AHU-1 AND ASSOCIATED CONDENSING UNITS CU-1A & CU-1B. REMOVE ALL SUPPLY AIR, RETURN AIR AND OUTDOOR AIR DUCTWORK IN THE EXISTING MECHANICAL ROOM ASSOCIATED WITH AHU-1. REMOVE CONDENSING UNITS CU-1A & CU-1B AND ASSOCIATED REFRIGERANT AND CONDENSATE PIPING.
- c. REMOVAL ALL EXISTING ZONE DAMPERS AND DUCTWORK ABOVE THE CEILINGS ASSOCIATED WITH EXISTING AHU-1. INSTALL NEW VAV BOXES AND ASSOCIATED DUCTWORK ABOVE THE CEILING.
- d. REMOVAL SECTION OF EXISTING CONCRETE PAD FROM REMOVED CONDENSING UNITS AND INSTALL NEW CHILLER AND CHILLED WATER STORAGE TANK. INSTALL ALL NEW CHILLED WATER PIPING OUTSIDE THE BUILDING AND RUN CHILLED WATER PIPING INTO EXISTING MECHANICAL
- e. PROVIDE NEW ELECTRICAL SERVICE (240 VOLT, 3 PHASE) TO THE BUILDING AND CONNECT TO EXISTING POWER PANEL (240 VOLT 1 PHASE) AND TO NEW CHILLER.
- a. SHUT-DOWN EXISTING AIR HANDLING UNIT AHU-2 AND ASSOCIATED CONDENSING UNITS CU-2A & CU-2B. REMOVE ALL SUPPLY AIR, RETURN AIR AND OUTDOOR AIR DUCTWORK IN THE EXISTING MECHANICAL ROOM ASSOCIATED WITH AHU-2 AND REMOVE AHU-2 RETURN AIR DUCTWORK RUN ABOVE THE CEILING OVER OFFICE SPACES. REMOVE EXISTING AIR HANDLING UNIT AHU-1 AND AHU-2. REMOVE CONDENSING UNITS CU-1A & CU-1B AND ASSOCIATED REFRIGERANT AND CONDENSATE PIPING.
- b. INSTALL NEW AIR HANDLING UNIT AHU-1.1. INSTALL ALL NEW CHILLED WATER PIPING, VALVES AND ACCESSORIES FOR AHU-1.1 AND AHU-1.2 IN THE MECHANICAL ROOM. INSTALL ALL NEW SUPPLY AIR, RETURN AIR AND OUTDOOR AIR DUCTWORK IN THE MECHANICAL ROOM FOR AHU-1.1 AND AHU-1.2 AND CONNECT TO EXISTING DUCTWORK. INSTALL CONDENSATE DRAIN PIPING AND DRYWELL FOR AHU-1.1. INSTALL NEW FLOOR DRAIN IN MECHANICAL ROOM.
- c. REMOVE EXISTING BUILDING TEMPERATURE CONTROLS AND INSTALL NEW DDC CONTROLS FOR THE BUILDING INCLUDING ALL TEMPERATURE SENSOR AND CONTROLLERS.
- d. REMOVE EXISTING RESTROOM EXHAUST FANS AND REPLACE WITH NEW FANS.
- e. TEST AND BALANCE (AIR & WATER) ALL HVAC SYSTEMS.

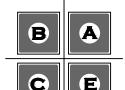
SCOPE OF WORK

THE SCOPE OF WORK FOR THIS PROJECT INCLUDES BUT IS NOT LIMITED TO ALL LABOR AND MATERIALS NECESSARY FOR THE FOLLOWING ITEMS:

- 1. CONTRACTOR SHALL REPLACE THE (2) EXISTING DX SPLIT SYSTEMS IN THE BUILDING WITH (2) NEW CHILLED WATER AIR HANDLING UNITS AND (1) NEW AIR COOLED CHILLER. SEE PLANS AND SCHEDULES FOR MORE INFORMATION. ALL EXISTING EXHAUST FANS SERVING THE RESTROOMS SHALL BE REMOVED AND REPLACED WITH NEW FANS. EXISTING KITCHEN HOOD AND ASSOCIATED EXHAUST AND SUPPLY FANS TO
- 2. PROVIDE NEW AIR COOLED PACKAGED CHILLER WITH DUAL PUMPS AND CHILLED WATER STORAGE TANK. INSTALL INSULATED CHILLED WATER PIPING TO ALL NEW AIR HANDLING
- 3. CONTRACTOR SHALL REPLACE ALL EXISTING SUPPLY AIR, RETURN AIR, OUTSIDE AIR DUCTWORK IN EXISTING MECHANICAL ROOM AND CONNECT TO EXISTING DUCTWORK SERVING THE BUILDING..
- 4. CONTRACTOR SHALL REPLACE ALL EXISTING VVT ZONE DAMPERS WITH NEW VARIABLE AIR VOLUME BOXES AND SHALL INSTALL ADDITIONAL VAV BOXES AND DUCTWORK AS REQUIRED.
- 5. CONTRACTOR SHALL FURNISH AND INSTALL NEW ELECTRICAL PROVISIONS AS REQUIRED FOR ALL NEW AND REPLACED HVAC FOLIRMENT
- 6. CONTRACTOR SHALL REMOVE AND REPLACE ALL HARD CEILINGS IN THE BUILDING AS NECESSARY TO ACCOMPLISH THE HVAC WORK. ALL HARD CEILINGS REPLACED SHALL
- BE PREPPED, PRIMED AND PAINTED.

 7. EXISTING LAY—IN CEILING TILES AND GRID SHALL BE REMOVED AND REINSTALLED AS NECESSARY TO ACCOMPLISH THE HVAC WORK. THE CONTRACTOR SHALL REPLACE ALL DAMAGED CEILING TILES AND CEILING GRID DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER
- 8. CONTRACTOR SHALL DISCONNECT, REMOVE, STORE AND REINSTALL ALL ELECTRICAL EQUIPMENT MOUNTED IN THE CEILING OR ON WALLS FOR AREAS TO BE RENOVATED AS NECESSARY TO ACCOMPLISH THE WORK. THIS INCLUDES LIGHTING FIXTURES, SPEAKERS, SMOKE DETECTORS, ETC. TEMPORARILY TERMINATE WIRES AND SUPPORT ALL CONDUIT FROM STRUCTURE THAT MAY BE RESTING ON THE CEILING. ELECTRICAL EQUIPMENT AND LIGHT FIXTURES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL PROTECT OR TEMPORARILY RELOCATE ALL FIXTURES, EQUIPMENT AND FURNITURE IN THE BUILDING THROUGHOUT CONSTRUCTION AS NECESSARY TO ACCOMMODATE THE WORK.
- 10. CONTRACTOR SHALL TEST AND BALANCE ALL OF THE NEW HVAC SYSTEMS AND AIR DISTRIBUTION SYSTEMS. THIS WORK ALSO INCLUDES THE TEST AND BALANCE OF THE NEW EXHAUST SYSTEMS. TEST & BALANCE HVAC SYSTEMS AFTER EACH PHASE IS COMPLETED AND PERFORM A FINAL TEST & BALANCE ON THE ENTIRE BUILDING INCLUDING HVAC AND EXHAUST SYSTEMS AFTER LAST PHASE IS COMPLETED.
- 11. THE FACILITY SHALL REMAIN FULLY OCCUPIED AND FUNCTIONAL THROUGHOUT THE PROJECT CONSTRUCTION. CONTRACTOR SHALL WORK DURING OCCUPIED AND NON-OCCUPIED HOURS, EVENINGS, WEEKENDS AND HOLIDAYS TO PERFORM THE WORK.
- 12. CONTRACTOR SHALL REPLACE/REPAIR SECTIONS OF THE EXISTING DRYWALL/PLASTER CEILING OR WALL AS NECESSARY TO ACCOMPLISH THE WORK. THIS IS DIRECTED TO THE CEILINGS AND WALLS SURROUNDING EXHAUST FANS TO BE REPLACED.
- 13. CONTRACTOR SHALL REPLACE THE EXISTING TRANE CONTROLS SYSTEM AND ALL THERMOSTATS AND TEMPERATURE SENSORS WITH A NEW DDC CONTROLS SYSTEM.
- 14. CONTRACTOR SHALL PROVIDE TEMPORARY COOLING AND HEATING THROUGHOUT THE CONSTRUCTION OF THE PROJECT, AS NECESSARY TO ACCOMMODATE THE WORK AND AS DIRECTED BY THE OWNER OR THEIR REPRESENTATIVE.
- 15. CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISITING INTERIOR OR EXTERIOR FINISHES DAMAGED DURING CONSTRUCTION, AS DIRECTED BY THE OWNER, AT THE CONTRACTORS COST.

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WILLOW STREET COMMUNITY CENTER HVAC REPLACEMENT

6565 WILLOW STREET MT. DORA, FLORIDA

Revisions

No.	Date	Description

Key Plan

MPE PROJ#: 2013-126

Designed By: ABJr

Drawn By: MB

Checked By: ABJr

Issue Date: 01/30/2015

Drawing Scale: 3/16"=1'-0"

Drawing Title:

HVAC PHASING PLAN

BID DOCUMENTS

Drawing No.

PH-1

	DUCT ELBOW DOWN	•
	DUCT ELBOW UP	•
	DUCT RISE	Q
D	DUCT DOWN	Ø
SA 🔀	DUCT UNDER POSITIVE PRESSURE	─
RA OA	DUCT UNDER NEGATIVE PRESSURE	\longrightarrow
F	ELBOW W/TURNING VANES	1
-/-	TAKE-OFF W/EXTRACTOR	─ ₩—
	FLEXIBLE DUCT	—————————————————————————————————————
	FLEXIBLE CONNECTION	—
─ ⊠ ─	SUPPLY AIR TERMINAL ARROW INDICATES THROW	─ ₩
	RETURN OR EXHAUST AIR	^-
	LINEAR DIFFUSERS	Ą
Zhini	SIDE MOUNTED EHD	A
	BOTTOM MOUNTED EHD	– ਯ
FS	FIRE DAMPER	— CHWS —
SD	SMOKE DAMPER	— CHWR —
S/F	SMOKE AND FIRE DAMPER	— н w s —
vo <u>—</u>	VOLUME DAMPER	— HWR —
RVD	REMOTE VOLUME DAMPER	RHG
MD ==	MOTORIZED DAMPER	— RL —
BDD	BACKDRAFT DAMPER	—— RS——
S—	SMOKE DETECTOR (DUCT MOUNTED)	D
AD	CEILING ACCESS DOOR	
AD	DUCT ACCESS DOOR	<u> </u>
Đ	HUMIDITY SENSOR	
<u> </u>	ROOM SENSOR	
$ar{\mathbb{Q}}$	THERMOSTAT	-
		Ø

HVAC SYMBOL LEGEND

NEW TO EXISTING WORK

THERMOMETER

PRESSURE GAUGE

UNION OR FLANGE

CHECK VALVE

FLEXIBLE PIPE

MANUAL AIR VENT

AUTOMATIC AIR VENT

CHILLED WATER SUPPLY

CHILLED WATER SUPPLY

HOT WATER SUPPLY

HOT WATER RETURN

REFRIGERANT HOT GAS

REFRIGERANT LIQUID

REFRIGERANT SUCTION

CONDENSATE DRAIN

PIPE ELBOW DOWN

PIPE ELBOW UP

PIPE TEE DOWN

PIPE ELBOW

PIPE TEE UP

ROUND

3/4" HOSE END DRAIN PIPE

STRAINER

BALL OR BUTTERFLY VALVE

MODULATING CONTROL VALVE

TWO POSITION CONTROL VALVE

PLUG VALVE W/ MEMORY

POINT OF EXTENT OF REMOVAL

DUCT-FIRST DIM. IS WIDTH
DUCT-SECOND DIM. IS HEIGHT

DUCT ELBOW DOWN

AC	AIR CONDITIONING	HD	HUB DRAIN		
AHU	AIR HANDLING UNIT	HOA	HAND/OFF/AUTOMATIC		
AFF	ABOVE FINISHED FLOOR	HP	HORSEPOWER		
BDD	BACKDRAFT DAMPER	HVAC	HEATING, VENTILATING & AIR CONDITIONING		
BHP	BRAKE HORSEPOWER	H20	WATER		
BMS	BUILDING MANAGEMENT SYSTEM	INIT	INTITIAL		
BTU	BRITISH THERMAL UNIT	KSU	KITCHEN AIR SUPPLY UNI		
CF	CHEMICAL FEEDER	LAT	LVG. AIR TEMPERATURE		
CFM	CUBIC FEET PER MINUTE	LD	LINEAR DIFFUSER		
CLG	CEILING	LR	LINEAR RETURN		
CYC	CYCLES	LVG	LEAVING		
COND	CONDENSATE	LWT	LVG. WATER TEMPERATURE		
CC	COOLING COIL	MAU	MAKE UP AIR UNIT (KITCHEN HOOD)		
CD	CEILING DIFFUSER	MBH	MEGA BTU PER HOUR		
CG	CEILING GRILLE	MD	MOTORIZED DAMPER		
DIM	DIMENSION	NC	NOISE CRITERIA		
DB	DRY BULB	NIC	NOT IN CONTRACT		
•F	DEGREES FARENHEIT	OA	OUTSIDE AIR		
DWG	DRAWING	OPER	OPERATING		
EA	EXHAUST AIR	OV	OUTLET VELOCITY		
EAT	ENTERING AIR TEMPERATURE	ERATURE PCF PUMP, CHEMICAL			
EG	EXHAUST AIR GRILLE	PCH PUMP, CHILLED WATE			
EHC	ELECTRIC HEATING COIL	PD	PRESSURE DROP		
EHD	ELECTRIC HEATER, DUCT	PH	PHASE		
EHU	ELECTRIC UNIT HEATER	RG	RETURN AIR GRILLE		
EHW	ELECTRIC HEATER, WALL	ROT	ROTATION		
ENT	ENTERING	RPM	REVOLUTION PER MINUTE		
ER	EXHAUST AIR REGISTER	RVD	REMOTE VOLUME DAMPER		
EWT	ENT. WATER TEMPERATURE	SA	SUPPLY AIR		
F	FILTER	SENS	SENSIBLE		
FCU	FAN COIL UNIT	SD	SPLITTER DAMPER		
EF	EXHAUST FAN	SP	STATIC PRESSURE		
EFG	EXHAUST FAN, GREASE	SR	SUPPLY AIR REGISTER		
FF	FLY FAN	TG	TRANSFER AIR GRILLE		
FPI	FINS PER INCH	TEMP	TEMPERATURE		
FPM	FEET PER MINUTE	UD	UNDERCUT DOOR		
FR	FAN, RETURN	VG	VENT, GRAVITY		
SF	SUPPLY FAN	W	WATTS		
GPM	GALLONS PER MINUTE	WB	WET BULB		
	1	W/	WITH		

ZONE IDENTIFICA	TION			STANDARD) CASE: ASHRAE	STD 62.1-20	004 VERIFICATIO	n rate pr	OCEDURE/2010) FLORIDA BU	ILING CODE	(MECHANICA	L) TABLE 40	03.3
ZONE	OCCUPANCY CATEGORY	Az Zone Floor Area (SF)	Rp PEOPLE OUTDOOR AIR RATE (CFM/ PERSON)	Ra AREA OUTDOOR AIR RATE (CFM/ SF)	Pz Zone Population	BREATHING ZONE OUTDOOR AIR FLOW (CFM)	Table 6–2 Zone Air Distribution Effectiveness Ez		PRIMARY OUTDOOR AIR FRACTION Zp=Voz/Vpz	TABLE 6-3 SYSTEM VENTILATION EFFICENCY Ev	OUTDOOR	OUTDOOR	MEETS STANDARD	UNIT TAG
_OBBY 100	ASSEMBLY LOBBIES	298	5.0	.06	4	38	1.0	38	.09	1.0	38	103	YES	AHU−1.1
CONFERENCE ROOM 111	GENERAL (MEETING)	183	5.0	.06	6	41	1.0	41	.20	.9	46	46	YES	AHU−1.1
SUPERVISOR OFFICE 112	OFFICE BUILDING	122	5	.06	2	18	1.0	18	.15	1.0	18	28	YES	AHU−1.1
PEN OFFICE 113	OFFICE BUILDING	432	5.0	.06	4	46	1.0	46	.08	1.0	46	138	YES	AHU-1.1
CORRIDOR 114	GENERAL (CORRIDOR)	32		.06		2	1.0	2	.08	1.0	2	5	YES	AHU-1.1
COMM ROOM 115	GENERAL (STROAGE)	8		.12		1	1.0	1	.02	1.0	1	11	YES	AHU-1.1
RECEPTION 101	OFFICE (RECEPTION)	56	5.0	.06	2	14	1.0	14	.19	.9	16	18	YES	AHU-1.1
CORRIDOR 102	GENERAL (CORRIDOR)	91		.06		6	1.0	6	.05	1.0	6	31	YES	AHU-1.1
OFFICE 106	OFFICE BUILDING	96	5.0	.06	2	16	1.0	16	.16	.9	18	25	YES	AHU-1.1
STORAGE 107	GENERAL (STORAGE)	163		.12		20	1.0	20	.16	.9	23	31	YES	AHU-1.1
RAINING ROOM 109	OFFICE BUILDING	172	5.0	.06	4	31	1.0	31	.13	1.0	31	62	YES	AHU-1.1
OTAL											245	498		VENT CFM - 560
MULTIPURPOSE ROOM 110	GENERAL (MEETING)	1590	5.0	.06	60	396	1.0	396	.19	.9	440	525	YES	AHU-1.2
ITCHEN 118	FOOD SERVICE	298	7.5	.18	2	69	1.0	69	.12	1.0	69	150	YES	AHU-1.2
TOTAL	1 COD SERVICE	230	7.5	.10		- 03	1.0	0.0	•14	1.0	509	675	ILO	VENT CFM - 700

HVAC GENERAL NOTES

- 1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2010 FLORIDA BUILDING CODE, THE 2010 FLORIDA MECHANICAL CODE, THE 2010 FLORIDA ENERGY EFFICIENCY CODE AND THE ORANGE COUNTY BUILDING DEPARTMENT REQUIREMENTS AND ALL OTHER APPLICABLE CODES AND
- 2. CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS IN THE FIELD FOR EQUIPMENT, DUCTWORK AND WALL OR ROOF PENETRATIONS. COORDINATE DUCTWORK DISTRIBUTION SYSTEM WITH THE EXISTING VARYING HEIGHTS OF THE ROOF SUPPORT STRUCTURE,
- 3. REFER TO ARCHITECTURAL DRAWINGS FOR CLEARANCES WITHIN THE CEILING SPACE, MECHANICAL ROOMS, LOCATIONS AND SIZES OF BEAMS AND CEILING AND SOFFIT HEIGHTS. EXISTING ARCHITECTURAL DRAWINGS (PDF FORMAT) OF THE WILLOW STREET COMMUNITY CENTER BUILDING CAN BE OBTAINED FROM ORANGE COUNTY FACILITIES DEPARTMENT.
- 4. DUCTWORK AND EQUIPMENT LOCATIONS AND CLEARANCES SHALL BE COORDINATED WITH GENERAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL CONTRACTORS. REFER TO EXISTING ARCHITECTURAL PLANS FOR BUILDING SECTIONS AND DETAILS.
- 5. CONNECTION TO ALL EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURERS CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR ALL EQUIPMENT FURNISHED.
- 6. COORDINATE DIFFUSER, REGISTER AND GRILLE LOCATION WITH LIGHTING, SPRINKLER AND ARCHITECTURAL CEILING PLANS. ALSO COORDINATE THE TYPE OF DIFFUSER FRAME WITH THE CEILING TYPE.
- 7. ALL EQUIPMENT SHALL BE PROPERLY SUPPORTED AND ISOLATED TO PREVENT NOISE AND VIBRATION TRANSMISSION. ALL AIR HANDLING EQUIPMENT SHALL BE SUPPORTED OR SUSPENDED WITH SPRING VIBRATION ISOLATORS PADS. ALL CONNECTIONS BETWEEN AIR HANDLING EQUIPMENT AND DUCTWORK SHALL BE CANVAS FLEXIBLE CONNECTORS.
- 8. ALL MECHANICAL EQUIPMENT SHALL BE LOCATED WITH RESPECT TO BUILDING CONSTRUCTION AND OTHER EQUIPMENT SO AS TO PERMIT ACCESS TO THE MECHANICAL EQUIPMENT IN CONFORMITY WITH ANY CLEARANCE WHICH MAY BE RECOMMENDED BY THE MANUFACTURER OF THE EQUIPMENT. SUFFICIENT CLEARANCE SHALL BE MAINTAINED FOR CLEANING COILS, MOTORS, BURNERS, AS WELL AS CHANGING FILTERS. ALL EQUIPMENT SHALL BE LOCATED WITHIN THE MECHANICAL ROOM AND CEILING SPACES WITH ADEQUATE CLEARANCES FOR REPAIR AND MAINTENANCE. ALL PIPING AND DUCTWORK SHALL BE INSTALLED TO PROVIDE ADEQUATE CLEARANCE FOR ACCESS TO ALL EQUIPMENT. INSTALLATION OF ALL MECHANICAL EQUIPMENT SHALL COMPLY WITH THE MANUFACTURERS SPECIFICATION AND CLEARANCE REQUIREMENT.
- 9. ALL DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
- 10. THE INSIDE OF ALL DUCTS VISIBLE THRU THE FACE OF DIFFUSERS, REGISTERS, AND GRILLES SHALL BE PAINTED FLAT BLACK WITH NON TOXIC PAINT.
- 11. ALL SUPPLY AIR, RETURN AIR, OUTSIDE AIR AND EXHAUST AIR DUCTWORK SHALL BE GALVANIZED STEEL SHEETS. FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS FOR A 2 INCH PRESSURE CLASSIFICATION.
- 12. ALL SUPPLY AIR AND RETURN AIR DUCTWORK SHALL BE GALVANIZED STEEL SHEETS FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS FOR A 2 INCH PRESSURE CLASS. EXHAUST DUCTWORK SHALL BE GALVANIZED STEEL SHEETS IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR A 1 INCH PRESSURE CLASSIFICATION.
- 13. FLEXIBLE DUCTWORK SHALL BE INSULATED VINYL TYPE (R-6) WITH WIRE SPIRAL SUPPORT. FLEXIBLE DUCTWORK SHALL BE RUN IN MAXIMUM LENGTHS OF 16'-0". FLEXIBLE DUCTWORK SHALL BE PROPERLY SUPPORTED WITH GALVANIZED STEEL STRAPS 1" WIDE AND SHALL BE RUN AS STRAIGHT AS POSSIBLE WITH NO KINKS OR BENDS TO RESTRICT AIRFLOW.
- 14. ALL DUCTWORK, EXCEPT THE EXHAUST SYSTEM, SHALL BE EXTERNALLY INSULATED WITH 2.2" THICK (R-6) FIBERGLASS BLANKET INSULATION WITH FOIL JACKETING UNLESS OTHERWISE NOTED. INSULATION R VALUE IS WITH 25% COMPRESSION IN ACCORDANCE WITH FBCM 604.7 IDENTIFICATION.
- 15. ALL DUCTWORK TRANSVERSE AND LONGITUDINAL SEAMS AND JOINTS SHALL BE SEALED WITH APPROVED MASTIC.
- 16. ALL FIBROUS GLASS INSULATION JOINTS, SEAMS AND CONNECTIONS SHALL BE CONSTRUCTED WITH PRESSURE SENSITIVE TAPE, FAB, STAINLESS STEEL STAPLES AND THEN SEALED WITH MASTIC. HEAT AND PRESSURE SENSITIVE TAPE ARE NOT ACCEPTABLE AS A FINAL CLOSURE.
- 17. PROVIDE HANGER STRAPS FOR ALL DUCTS MADE OF 1" WIDE, 22 GAGE GALVANIZED STEEL—SPACED ACCORDING TO SMACNA STANDARDS AND ALL OTHER APPLICABLE GOVERNING CODES AND STANDARDS.
- 18. ALL DUCT BRANCH TAKE OFFS FROM MAIN DUCT FOR INDIVIDUAL AIR OUTLETS, INLETS AND BOXES SHALL HAVE BALANCING DAMPERS.
- 19. ALL DUCTWORK STORED ON SITE OR ALREADY INSTALLED SHALL HAVE ALL OPEN ENDS SEALED WITH VISQUINE TO PREVENT DUST AND DEBRIS FROM ACCUMULATING INSIDE OF THE DUCTWORK, INTERIORS OF ALL DUCTWORK SHALL BE THOROUGHLY CLEANED PRIOR TO
- 20. ALL DAMPERS AND EXTRACTORS SHALL HAVE LOCKING QUADRANTS AND SHALL BE ACCESSIBLE.
- 21. PROVIDE REMOTE VOLUME DAMPER (RVD) OPERATORS IN ALL NON-ACCESSIBLE CEILINGS. EQUAL TO YOUNG REGULATOR COMPANY MODEL 270-896C BOWDEN CABLE CONTROL UNIT OR METROPOLITAN AIR. CONTROL FOR EACH REMOTE VOLUME DAMPER SHALL BE LOCATED WITHIN THE DIFFUSER OR REGISTER BEING SERVED.
- 22. BEVELED TAKE OFFS AND DAMPERS SHALL BE INSTALLED IN ALL BRANCH DUCTWORK LEADING FROM MAIN TRUNK LINES.
- 23. ALL SPLITTER DAMPERS SHALL BE BALANCED AND SET PRIOR TO THE INSTALLATION OF THE
- 24. OUTSIDE AIR INTAKE LOUVERS SHALL HAVE 1/2" x 1/2" MINIMUM MESH SCREEN, AND SHALL BE LOCATED AS HIGH ABOVE FINISH GRADE AS POSSIBLE.
- 25. OUTSIDE AIR WALL LOUVERS SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY EXHAUST AIR DISCHARGE, COMBUSTION AIR DISCHARGE OR ANY PLUMBING VENT TERMINATION.
- 26. ALL WALL LOUVERS SHALL BE ALUMINUM CONSTRUCTION AND SHALL BE FLORIDA PRODUCT
- 27. PROVIDE ADJUSTABLE PULLEYS WITH CONSTANT VOLUME AIR HANDLING UNITS AND BELT DRIVE FANS.
- 28. EXHAUST FAN OUTLETS SHALL BE INSTALLED A MINIMUM OF 10'-0" FROM FRESH AIR INTAKES OF MECHANICAL EQUIPMENT AS WELL AS ALL OPERABLE WINDOWS AND DOORS.
- 29. ALL FANS AND AIR HANDLING UNITS SHALL BE PROPERLY SUPPORTED AND ISOLATED TO PREVENT NOISE AND VIBRATION TRANSMISSION. ALL AIR HANDLING EQUIPMENT SHALL BE SUPPORTED OR SUSPENDED WITH SPRING ISOLATORS. ALL CONNECTIONS BETWEEN FANS OR AIR HANDLING UNITS AND DUCTWORK SHALL BE CANVAS FLEXIBLE CONNECTORS.
- 30. ALL EQUIPMENT LOCATED WITHIN THE CEILING SPACES SHALL HAVE ADEQUATE CLEARANCES FOR REPAIR AND MAINTENANCE. ALL PIPING AND DUCTWORK SHALL BE INSTALLED TO PROVIDE ADEQUATE CLEARANCE FOR ACCESS TO ALL EQUIPMENT.
- 31. SET ALL CONDENSING UNITS ON 4" THICK CONCRETE SERVICE PAD. THE SERVICE PAD SHALL BE A MINIMUM OF 4" LARGER THEN CONDENSING UNIT ON ALL SIDES OF THE UNIT. PROVIDE 1" THICK NEOPRENE CORK VIBRATION ISOLATION PADS UNDERNEATH CONDENSING UNIT.
- 32. ALL AIR HANDLING UNITS SHALL BE MOUNTED ON A MINIMUM 4" TALL STEEL SKIDS OR CUSTOM BUILT AHU SUPPORT STAND, SEE DETAIL.
- 33. REFER TO MECHANICAL AND ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL FIRE AND SMOKE RATED PARTITIONS. ALL PENETRATIONS THROUGH FIRE RATED/SMOKE RATED PARTITIONS OR FLOORS AND CEILINGS SHALL HAVE FIRE/SMOKE DAMPERS. ALL FIRE WALL PENETRATIONS SHALL HAVE FIRE DAMPERS. PROVIDE ACCESS DOORS IN WALL OR HARD CEILING FOR THESE DAMPERS.

- 34. ALL FIRE/SMOKE DAMPERS ARE NORMALLY OPENED, 110 VOLTS. ALL DAMPERS SHALL CLOSE WHEN THE SMOKE DETECTOR IN THE AREA DETECTS SMOKE OR IF THE FIRE ALARM SYSTEM IS ACTIVATED. ONCE THE FIRE ALARM SYSTEM IS RESET, THE SMOKE DAMPERS SHALL RETURN TO THE NORMALLY OPENED POSITION.
- 35. PROVIDE ACCESS DOORS (24"x24") FOR ALL FIRE/SMOKE DAMPERS AND FIRE DAMPERS IN NON-ACCESSIBLE CEILINGS.
- 36. PROVIDE ACCESS PANELS IN DRYWALL CEILINGS AS REQUIRED FOR ACCESS TO MECHANICAL EQUIPMENT. COORDINATE WITH GENERAL CONTRACTOR TO PROVIDE WORK PLATFORMS AS REQUIRED FOR ALL EQUIPMENT LOCATED WITHIN THE CEILING SPACE.
- 37. FURNISH AND INSTALL INSULATED PVC CONDENSATE DRAINS WITH TRAPS FOR ALL COOLING COILS. DRAIN LINE SIZE SHALL MATCH THE OPENING OF THE CONDENSATE DRAIN PAN.
- 38. ALL REFRIGERANT PIPING AND CONDENSATE PIPING SHALL BE FULLY SUPPORTED IT'S ENTIRE

LENGTH AND SHALL BE ANCHORED TO PREVENT SWAY AND VIBRATION.

- 39. CONTRACTOR SHALL SUPPLY AND WIRE ALL SMOKE DETECTORS IN THE SUPPLY AIR DUCTWORK OF ALL AIR HANDLING UNITS 2000 CFM AND ABOVE TO SHUT DOWN THE FANS IN THE EVENT OF A FIRE. DUCT SMOKE DETECTOR SHALL BE OF PHOTOELECTRIC TYPE AND LOW VOLTAGE. DIVISION 15 CONTRACTOR SHALL INSTALL ALL SMOKE DETECTORS.
- 40. ALL WALL SENSORS, VARIABLE SPEED CONTROL SWITCHES, ON-OFF SWITCHES AND MOTOR STARTERS SHALL BE INDIVIDUALLY LABELED. LABELS SHALL INDICATED THE UNIT CONTROLLED, TYPE OF CONTROL AND AREA SERVED. THE LABELS SHALL BE PLASTIC LAMINATE, PERMANENT TYPE, WHITE WITH BLACK LETTERING, AND SHALL BE MOUNTED OUTSIDE OF THE COVER PLATE, OF THE CONTROL DEVICE.
- 41. FURNISH ALL DIRECT DRIVE EXHAUST FANS WITH SOLID STATE VARIABLE SPEED CONTROLLER. MOUNT CONTROLLER TO FAN CABINET IN CEILING SPACE.
- 42. FURNISH ALL EXHAUST FANS WITH BACK DRAFT DAMPERS.
- 43. COORDINATE ALL CONTROL DEVICES WITH THE ELECTRICAL CONTRACTOR.
- 44. ALL CONTROL WIRING, CONDUIT AND HARDWARE TO COMPLETE THE HVAC CONTROL SYSTEM SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 15 MECHANICAL.
- 45. ALL CONTROL WIRING AND INTERLOCK WIRING LOCATED IN MECHANICAL ROOMS, INSIDE OF WALLS AND IN NON ACCESSIBLE CEILINGS SHALL BE IN CONDUIT.
- 46. THERMOSTAT LOCATIONS ARE TENTATIVE. FINAL THERMOSTAT LOCATIONS SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION. THERMOSTATS SHALL BE LOCATED 48"-54" ABOVE THE FINISHED FLOOR IN ACCORDANCE WITH ADA REQUIREMENTS AND THE 2010 FLORIDA ACCESSIBILITY CODE.
- 47. ALL EXISTING GREASE DUCTWORK SHALL HAVE INTERIOR OF THE DUCTWORK THOROUGHLY CLEANED DURING CONSTRUCTION.
- 48. AIR FILTERS SHALL BE 1" OR 2" PLEATED, MERV 7 OR MERV 8, 30% EFFICIENT (MIN.) OR EQUAL IN AIR HANDLING EQUIPMENT. FILTERS SHALL BE INSTALLED PRIOR TO UNIT START UP, REPLACED A MINIMUM OF ONCE PER MONTH DURING THE CONSTRUCTION PERIOD, REPLACED PRIOR TO TEST AND BALANCE, AND REPLACED MONTHLY UNTIL FINAL COMPLETION.
- 49. ALL REFRIGERANT LINES FOR SPLIT SYSTEM DX UNITS SHALL HAVE FILTER DRYERS AND SIGHT GLASSES. ALL PIPING BELOW SLAB SHALL BE WITHOUT JOINTS AND RUN IN A PIPING CHASE OR CONDUIT OF SUFFICIENT SIZE TO ALLOW REPLACEMENT OF THE PIPING IN THE FUTURE. EACH END OF THE CHASE SHALL BE SEALED AIR TIGHT AND WATERTIGHT.
- 50. ALL REFRIGERANT PIPING EXPOSED TO THE EXTERIOR SHALL BE INSULATED WITH 1" THICK CLOSED CELL FOAM INSULATION (ARMAFLEX) AND SHALL BE WRAPPED WITH ALUMINUM JACKETING.
- 51. ALL REFRIGERANT PIPING IN CONCEALED CHASES FOR SPLIT DX UNITS SHALL BE SOFT DRAWN TYPE K COPPER. SERVICE FITTINGS FOR REFRIGERANT LINES SHALL BE LOCATED IN A MANNER TO BE INACCESSIBLE TO THE PUBLIC. INSULATE ALL EXTERIOR EXPOSED REFRIGERANT LINES WITH 1" ARMAFLEX INSULATION AND WRAP WITH ALUMINUM JACKETING.
- 52. ALL HVAC SYSTEM'S AIRFLOW SHALL BE BALANCED BASED ON THE ACTUAL INSTALLED STATIC PRESSURE OF THE SYSTEM. CONTRACTOR SHALL PROVIDE POSITIVE MEANS FOR BALANCING EACH INDIVIDUAL AIR OUTLET AND INLET.
- 53. THE CONTRACTOR SHALL HIRE AN INDEPENDENT TEST AND BALANCE FIRM TO TEST AND BALANCE ALL AIR CONDITIONING SYSTEMS—SEE SPECIFICATIONS. THE TEST & BALANCE CONTRACTOR SHALL BE CERTIFIED BY NABA OR ABAA.
- 54. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE TEST AND BALANCE FIRM. PRIOR TO TEST AND BALANCE, THE CONTRACTOR SHALL START-UP, PRE-BALANCE THE SYSTEM, AND REPLACE ALL AIR FILTERS FOR EVERY AHU BEING TESTED. ALL DISCREPANCIES, DRIVE CHANGES, ETC. REPORTED BY ENGINEER OR THE TEST AND BALANCE FIRM SHALL BE CORRECTED BY THE CONTRACTOR WITHIN FIVE CALENDAR DAYS AT NO ADDITIONAL COST.
- 55. PROVIDE VANDAL PROOF COIL GUARDS ON ALL GROUND MOUNTED CONDENSING UNITS TO PROTECT CONDENSING UNIT COIL FROM WEATHER. PROVIDE VANDAL PROOF CAGE OVER ALL CONDENSING UNIT 5 TONS AND SMALLER.
- 56. PROVIDE VANDAL PROOF CAPS ON ALL GROUND MOUNTED CONDENSING UNIT REFRIGERANT SERVICE VALVES TO PREVENT UNAUTHORIZED RELEASE OF REFRIGERANT.
- 57. CONTRACTOR SHALL LABEL ALL EQUIPMENT (FANS, AIR HANDLING UNITS AND CONDENSING UNITS) WITH ENGRAVED TYPE PHENOLIC LABELS PERMANENTLY AFFIXED TO THE EQUIPMENT.

 CONTRACTOR SHALL AN INSTALL ADDITIONAL PHENOLIC LABEL TO THE CEILING GRID TEE BELOW ANY CEILING MOUNTED EQUIPMENT LOCATED ABOVE ACOUSTICAL LAY—IN CEILINGS. CONTRACTOR SHALL INSTALL AN ADDITIONAL PHENOLIC LABEL TO THE CEILING ACCESS PANEL LOCATED BELOW ANY CEILING MOUNTED EQUIPMENT LOCATED ABOVE GYPSUM BOARD CEILINGS.
- 58. THE CONTRACTOR SHALL PROVIDE A WRITTEN GUARANTEE THAT SHALL WARRANT ALL WORKMANSHIP AND MATERIALS FOR ONE (1) YEAR DURING THE FIRST YEAR ALL SYSTEM MALFUNCTIONS SHALL BE REPAIRED AT NO EXPENSE TO THE OWNER. THE COMPRESSORS SHALL HAVE A 5 YEAR WARRANTY (LABOR & MATERIALS).
- 59. OPERATION AND MAINTENANCE MANUALS SHALL INCLUDE AS A SEPARATE SUBMITTAL ITEM, PREVENTATIVE MAINTENANCE REQUIREMENTS ALONG WITH TIME SCHEDULE(S) FOR EACH ITEM. THE SEQUENCE OF OPERATION SHALL ALSO INCLUDE A DEFINITIVE SEQUENCE OF OPERATION OF THE MECHANICAL SYSTEM AND COMPONENTS AS THEY FUNCTION INTEGRALLY AND INDEPENDENTLY WITH THE SYSTEM.
- 60. THE CONTRACTOR SHALL PREPARE REDLINED AS—BUILT DRAWINGS OF THE HVAC SYSTEMS AT THE COMPLETION OF THE PROJECT CONSTRUCTION AND SHALL INCLUDE THOSE AS—BUILT DRAWINGS AT PROJECT CLOSEOUT ALONG WITH THE O&M MANUAL.
- 61. CONTRACTOR SHALL PROVIDE TEMPORARY COOLING AND HEATING THROUGHOUT THE CONSTRUCTION OF THE PROJECT AS NECESSARY TO ACCOMMODATE THE WORK.
- 62. CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING INTERIOR OR EXTERIOR FINISHES (WALLS/FLOORS) DAMAGED DURING CONSTRUCTION, AS DIRECTED BY THE OWNER, AT THEIR OWN

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WILLOW STREET COMMUNITY CENTER HVAC REPLACEMENT

RANSMITTED TO ANY OTHER PARTY EXCEPT AS AGREED TO

6565 WILLOW STREET MT. DORA, FLORIDA

Revisions

No.	Date	Description

Key Plan

MPE PROJ#:2013-126

Designed By: ABJr

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LEGEND, NOTES

AND DETAILS HVAC

BID DOCUMENTS

Drawing No.

M-O



EXISTING KITCHEN HOOD TO REMAIN

EXISTING AIR HANDLING AHU-1

EXISTING REFRIGERANT PIPING

FROM AHU'S TO BE REMOVED

EXISTING REFRIGERANT PIPING

OUTSIDE BUILDING TO BE REMOVED

UNIT TO BE REMOVED



EXISTING BMS CONTROLS PANEL TO BE REMOVED



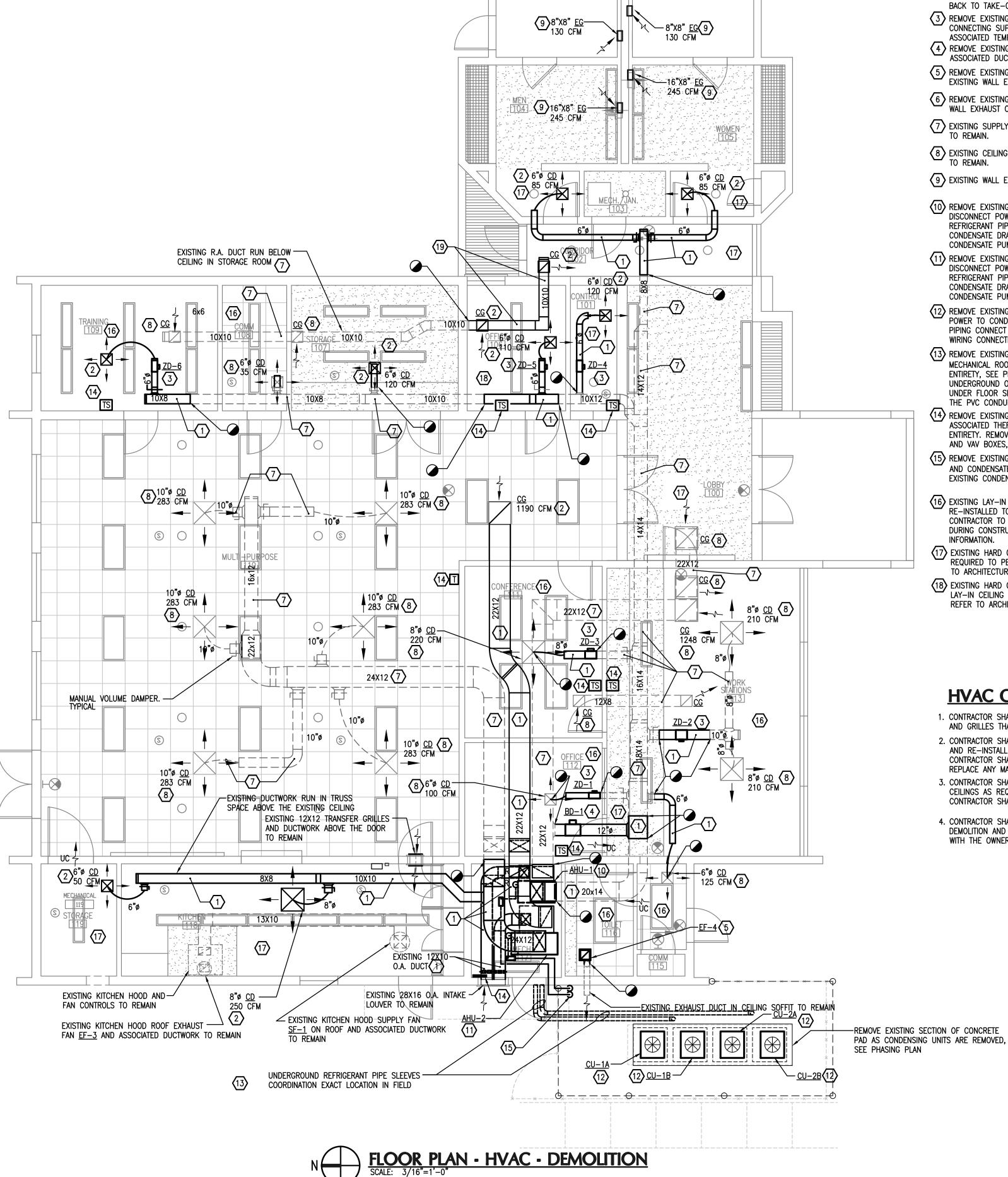
EXISTING AIR HANDLING AHU-2 UNIT TO BE REMOVED



EXISTING RESTROOM EXHAUST FAN TO BE REMOVED



EXISTING AIR COOLED CONDENSING UNITS TO BE REMOVED



HVAC KEY NOTES - DEMOLITION

REMOVE EXISTING SUPPLY AIR DUCTWORK OR RETURN AIR DUCTWORK ABOVE THE CEILING TO POINT INDICATED.

REMOVE EXISTING CEILING MOUNTED SUPPLY AIR DIFFUSER OR CEILING RETURN AIR GRILLE. REMOVE EXISTING CONNECTING FLEXIBLE DUCT

BACK TO TAKE-OFF. REMOVE EXISTING ZONE DAMPER \underline{ZD} ABOVE THE CEILING. REMOVE CONNECTING SUPPLY DUCTWORK BACK TO ITS TAKE-OFF. REMOVE ALL

ASSOCIATED TEMPERATURE CONTROLS. 4 REMOVE EXISTING BYPASS DAMPER <u>BD-1</u> ABOVE THE CEILING AND ASSOCIATED DUCTWORK.

REMOVE EXISTING CEILING EXHAUST FAN AND ASSOCIATED DUCTWORK. EXISTING WALL EXHAUST VENT TO REMAIN.

REMOVE EXISTING WALL MOUNTED CENTRIFUGAL EXHAUST FAN. EXISTING WALL EXHAUST OPENING TO REMAIN.

7 EXISTING SUPPLY AIR OR RETURN AIR DUCTWORK ABOVE THE CEILING

8 EXISTING CEILING SUPPLY AIR DIFFUSER OR CEILING RETURN AIR GRILLE TO REMAIN.

9 EXISTING WALL EXHAUST GRILLE TO REMAIN.

REMOVE EXISTING AIR HANDLING UNIT AHU-1, SEE PHASING PLAN. DISCONNECT POWER TO AHU. DISCONNECT AND REMOVE EXISTING REFRIGERANT PIPING. DISCONNECT AND REMOVE EXISTING PVC CONDENSATE DRAIN AND ASSOCIATED CONDENSATE PUMP, TURN CONDENSATE PUMP OVER TO OWNER.

11) REMOVE EXISTING AIR HANDLING UNIT AHU-2, SEE PHASING PLAN. DISCONNECT POWER TO AHU. DISCONNECT AND REMOVE EXISTING REFRIGERANT PIPING. DISCONNECT AND REMOVE EXISTING PVC CONDENSATE DRAIN AND ASSOCIATED CONDENSATE PUMP, TURN CONDENSATE PUMP OVER TO OWNER.

(12) REMOVE EXISTING CONDENSING UNITS, SEE PHASING PLAN. DISCONNECT POWER TO CONDENSING UNIT. DISCONNECT AND REMOVE REFRIGERANT PIPING CONNECT TO CU. DISCONNECT AND REMOVE EXISTING CONTROL WIRING CONNECTED TO CU.

(13) REMOVE EXISTING REFRIGERANT PIPING RUN UNDERGROUND, INTO MECHANICAL ROOM AND CONNECTED TO EXISTING AHU'S IN ITS ENTIRETY, SEE PHASING PLAN. REMOVE EXISTING PVC CONDUIT RUN UNDERGROUND OUTSIDE THE BUILDING. ABANDONED PVC CONDUIT RUN UNDER FLOOR SLAB IN MECHANICAL ROOM, CAP REMAINING ENDS OF THE PVC CONDUIT.

REMOVE EXISTING BUILDING CONTROL PANEL (TRANE) AND ALL ASSOCIATED THERMOSTATS, CONTROL WIRING AND ACCESSORIES IN ITS ENTIRETY. REMOVE CONTROL WIRING TO OUTDOOR CONDENSING UNITS AND VAV BOXES, SEE PHASING PLAN.

(15) REMOVE EXISTING PUMPED CONDENSATE PIPING, CONDENSATE PUMPS AND CONDENSATE DRAIN PIPING FROM EXISTING AHU'S. REMOVE EXISTING CONDENSATE DRY WELL OUTSIDE THE BUILDING.

(16) EXISTING LAY-IN CEILING TILES & GRID SHALL BE REMOVED AND RE-INSTALLED TO PERFORM THE HVAC WORK ABOVE THE CEILING. CONTRACTOR TO REPLACE ANY CEILING TILES AND GRID DAMAGED DURING CONSTRUCTION. REFER TO ARCHITECTURAL DRAWING FOR MORE

(17) EXISTING HARD CEILING SHALL BE REMOVED AND PATCHED AS REQUIRED TO PERFORM THE HVAC WORK ABOVE THE CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.

(18) EXISTING HARD CEILING SHALL BE REMOVED AND REPLACED WITH LAY-IN CEILING TO PERFORM THE HVAC WORK ABOVE THE CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.

HVAC GENERAL NOTES

1. CONTRACTOR SHALL PROTECT ALL EXISTING HVAC DUCTWORK, DIFFUSER AND GRILLES THAT ARE TO REMAIN THROUGHOUT CONSTRUCTION.

2. CONTRACTOR SHALL REMOVE EXISTING LAY-IN CEILING TILES AND GRID AND RE-INSTALL CEILING & GRID AFTER HVAC WORK IS COMPLETE. CONTRACTOR SHALL PROTECT EXISTING CEILING TILES AND GRID AND REPLACE ANY MATERIAL DAMAGED DURING CONSTRUCTION.

3. CONTRACTOR SHALL REMOVE EXISTING SECTION OF HARD GYPSUM CEILINGS AS REQUIRED TO INSTALL NEW DUCTWORK AND VAV BOXES. CONTRACTOR SHALL PATCH AND PAINT REMOVED HARD CEILINGS.

4. CONTRACTOR SHALL REFER TO PHASING PLAN TO PERFORM HVAC DEMOLITION AND RENOVATION WORK. COORDINATE PHASING OF WORK WITH THE OWNER OR THEIR REPRESENTATIVE.

MPE PROJ#: 2013-126

Key Plan

Revisions

No. Date

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COMMUNITY

CENTER HVAC

REPLACEMENT

6565 WILLOW STREET

MT. DORA, FLORIDA

Description

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Designed By: ABJr

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Drawing Title:

FLOOR PLAN HVAC DEMOLITION

BID DOCUMENTS

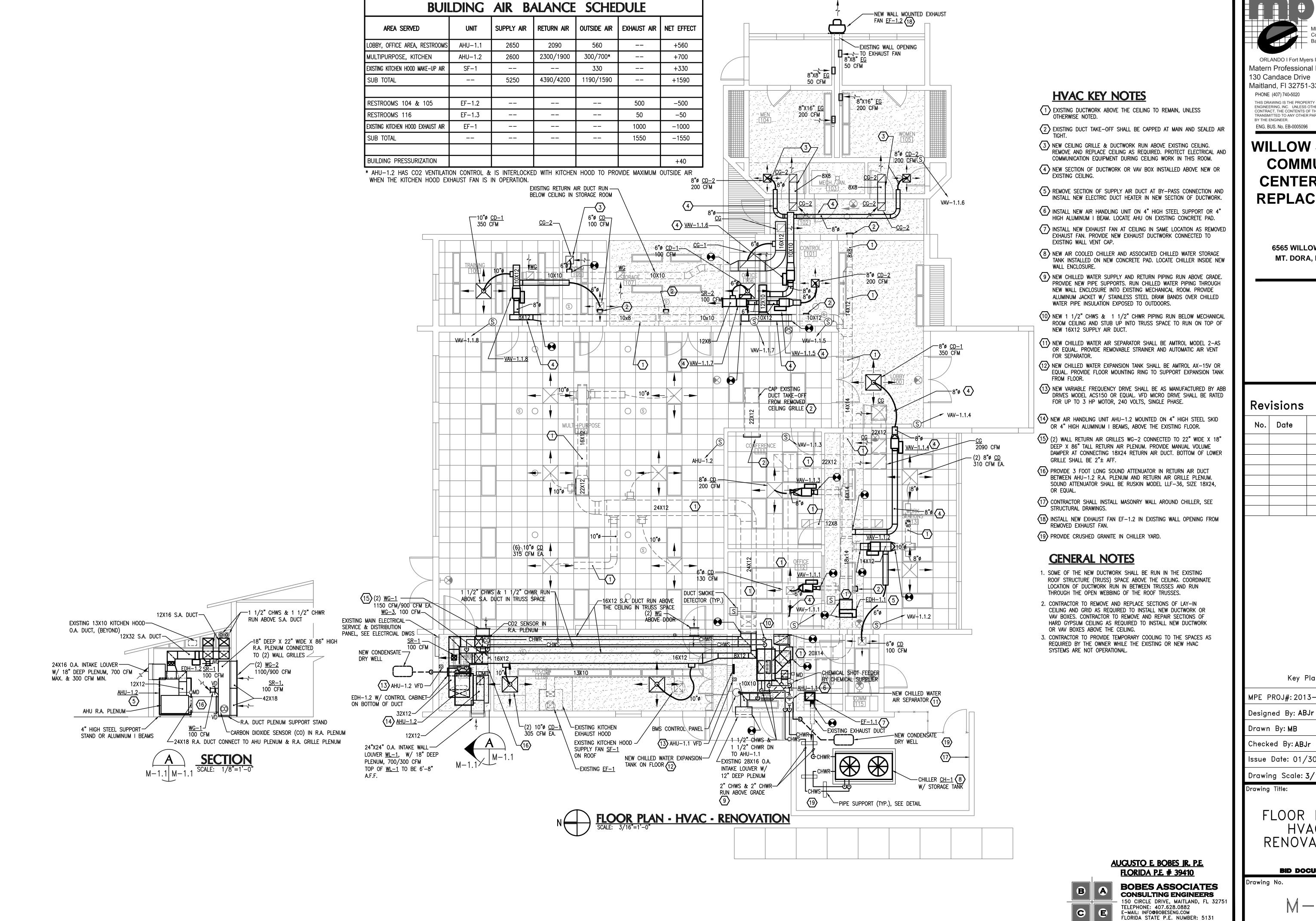
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MD-1

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WILLOW STREET COMMUNITY CENTER HVAC REPLACEMENT

6565 WILLOW STREET MT. DORA, FLORIDA

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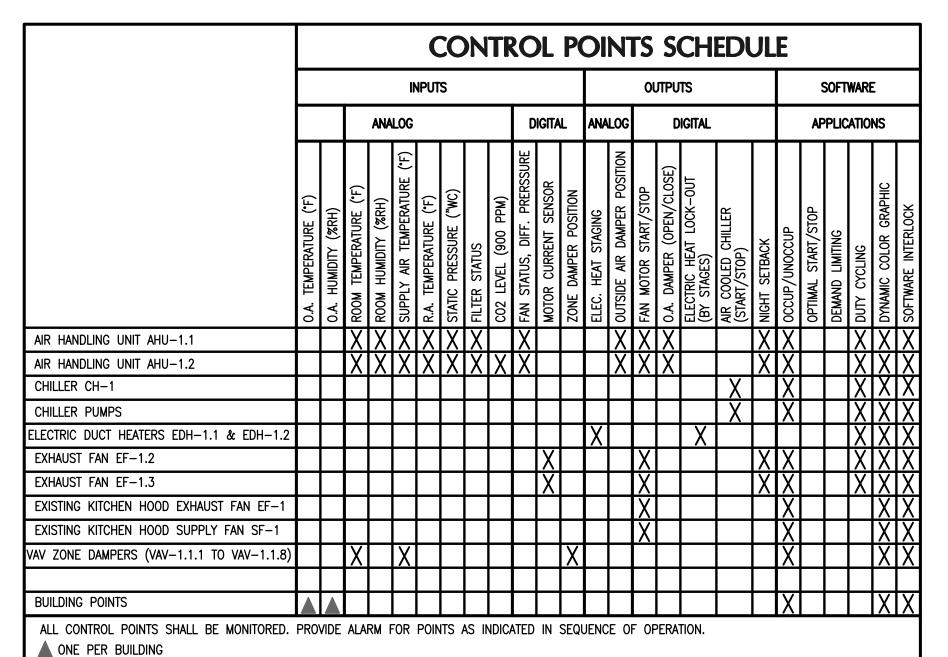
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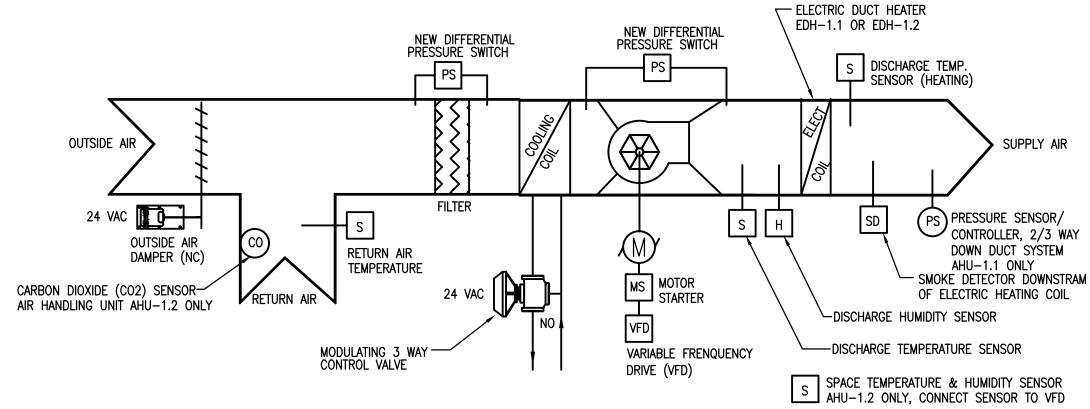
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FLOOR PLAN HVAC RENOVATION

BID DOCUMENTS

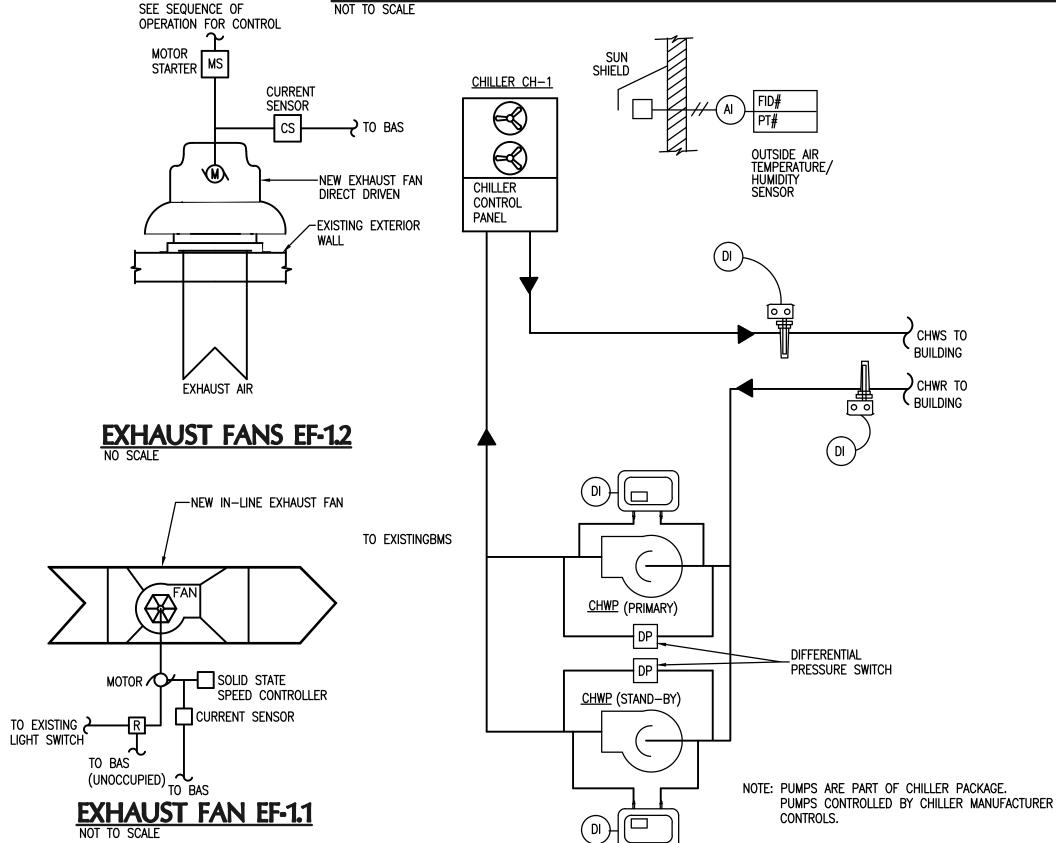
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AIR HANDLING UNIT AHU-1.1 & AHU-1.2 CONTROL DIAGRAM

CHILLER CONTROLS



SEQUENCE OF OPERATION

A. GENERAL:

1. THE BUILDING AUTOMATION SYSTEM (BAS) SHALL HAVE ALL SYSTEM CONTROLLERS, RELAYS, TIME CLOCK AND CONTROL POWER TRANSFORMER (120V/24V) IN AN NEMA 1 ENCLOSURE WITH DOOR LOCK. CONTRACTOR SHALL PROVIDE ALL LOW VOLTAGE WIRING TO REMOTE CONTROLLERS, ZONE DAMPERS, EXHAUST FANS, CHILLER CONTROL PANEL INTERLOCK AND SPACE SENSORS FOR A COMPLETE AND WORKING HVAC CONTROL

- 2. THE BAS SYSTEM SHALL BE A STAND ALONE SYSTEM SERVING ONLY THIS BUILDING. HOWEVER THE BAS SYSTEM SHALL HAVE A WEB BASE USER INTERFACE BASED ON MICROSOFT INTERNET EXPLORER. PROPRIETARY SOFTWARE IS NOT ALLOWED ON THIS PROJECT. COORDINATE WITH ORANGE COUNTY ISS DEPARTMENT FOR REMOTE ACCESS COMMUNICATION PORT.
- 3. ALL TEMPERATURE SENSORS SHALL HAVE TEMPERATURE AND HUMIDITY READOUT AND CONTROL AS INDICATED IN THE SEQUENCE OF OPERATION.
- 4. THE BUILDING MANAGEMENT SYSTEM (BAS) SHALL DETERMINE IF THE BUILDING SHOULD BE IN THE COOLING MODE OR HEATING MODE BASED ON OUTDOOR AIR TEMPERATURE. WHEN OUTDOOR AIR TEMPERATURE IS 55°F OR ABOVE THE HVAC SYSTEMS SHALL BE IN THE COOLING MODE. WHEN OUTDOOR AIR TEMPERATURE IS 50°F OR BELOW THE HVAC SYSTEM SHALL BE IN THE HEATING MODE.

B. CHILLER SEQUENCING

NORMAL OPERATION

THE BAS SHALL ENABLE THE CHILLER AT PRESET TIME (ADJUSTABLE). THE CHILLER CONTROL PANEL SEQUENCING SOFTWARE WILL START AND STOP CHILLED WATER PUMPS AND CHILLER. WHEN THE CHILLED WATER SYSTEM IS ENABLED THE

a. START THE CHILLED WATER PUMP AND PROVE FLOW THROUGH THE EVAPORATOR. b. START THE CHILLER AFTER CHILLED WATER FLOW IS PROVEN.

c. THE CHILLER CONTROL PANEL SHALL INITIATE a, b. d. The Bas shall index the chiller on and off based on a schedule. CHILLER SHALL CYCLE ITS OPERATION TO MAINTAIN A 44°F (ADJUSTABLE)

CHILLED WATER SUPPLY TEMPERATURE. a. CHILLED WATER PUMP CONTROL

1. THE CHILLED PUMPS SHALL RUN WHEN THE CHILLER IS INDEXED TO RUN.

- 2. THE DIFFERENTIAL PRESSURE SWITCH SHALL AUTOMATICALLY SWITCH DUAL PUMP OPERATION TO THE STAND-BY PUMP SHOULD THE PRIMARY PUMP FAIL TO OPERATE. PROVIDE AN ALARM TO REMOTE LOCATION SHOULD THE PRIMARY PUMP FAIL TO OPERATE.
- 3. THE CHILLER CONTROL PANEL SHALL CHANGE WHICH DUAL PUMP SHOULD BE THE PRIMARY PUMP EVERY 14 DAYS.

C. AIR HANDLING UNITS AHU-1.1 AND AHU-1.2 (VARIABLE VOLUME)

a. THE BUILDING AUTOMATION SYSTEM (BAS) SHALL ENABLE THE AIR HANDLING UNITS AHU-1.1 AND AHU-1.2 AT A PRE-SET TIME (ADJUSTABLE). THE AIR HANDLING UNIT SUPPLY FAN AHU-1.1 AND AHU-1.2 SHALL START AND RUN CONTINUOUSLY. THE DIFFERENTIAL PRESSURE SWITCH AT THE SUPPLY FAN SHALL SIGNAL THE BAS TO ACTIVATE AN ALARM SHOULD ITS SUPPLY FAN FAIL TO RUN WHEN COMMANDED TO START. THE BAS SHALL PROVIDE AN "OFF NORMAL OPERATION" ADVISORY SIGNAL TO A REMOTE LOCATION.

- b. THE AIR HANDLING UNIT MOTORIZED OUTDOOR AIR DAMPER SHALL OPEN WHEN ITS AHU SUPPLY FAN IS ENABLED. AIR HANDLING UNIT AHU-1.2 OUTSIDE AIR DAMPER SHALL OPEN TO IT MINIMUM POSITION UNLESS CO2 SENSOR CONTROLLING VENTILATION INDICATE CO2 LEVEL ABOVE SET-POINT (900 PPM) AND THE OUTSIDE AIR DAMPER SHALL OPEN TO ITS MAXIMUM POSITION. AIR HANDLING UNIT AHU-1.2 OUTDOOR AIR DAMPER SHALL BE INTERLOCKED WITH THE KITCHEN HOOD EXHAUST FAN TO OPEN ITS OUTDOOR AIR DAMPER TO ITS MAXIMUM POSITION WHEN THE KITCHEN HOOD
- c. THE AIR HANDLING UNITS SHALL HAVE A DISCHARGE TEMPERATURE OF 53°F (ADJUSTABLE) IN COOLING MODE AND IN HEATING MODE COOLING COIL DISCHARGE TEMPERATURE WILL VARY WITH OUTDOOR AIR TEMPERATURE, NO DIRECT HEATING AT THE AIR HANDLING UNIT.

2. **COOLING MODE:**

- a. THE BAS SHALL ENABLE THE 3-WAY CHILLED WATER VALVE (NO) TO MODULATE CLOSED TO MAINTAIN AIR HANDLING UNIT DISCHARGE TEMPERATURE OF 55°F (ADJUSTABLE).
- b. THE BAS SHALL LOCK-OUT THE ELECTRIC DUCT HEATERS WHEN IN THE NORMAL COOLING MODE.

3. **DE-HUMIDIFICATION MODE:**

- a. SHOULD ANY SPACE TEMPERATURE/HUMIDITY SENSOR FOR AHU-1.1 OR THE SPACE TEMPERATURE/HUMIDITY SENSOR FOR AHU-1.2 INDICATE A SPACE RELATIVE HUMIDITY 5% RH ABOVE THE 58% RH (ADJUSTABLE) SET-POINT. THE BAS SHALL LOWER THE AHUS DISCHARGE AIR TEMPERATURE TO 53°F (ADJUSTABLE) AND SET ALL AHU-1.1 VAV BOXES AT 50% OPEN AND AHU-1.2 TO ITS 50% AIR VOLUME UNTIL SPACE HUMIDITY DROPS BELOW SET-POINT.
- b. The bas shall enable each ahu electric duct heater at its minimum output SETTING SHOULD SPACE TEMPERATURE FALL BELOW 70°F DURING THE DEHUMIDIFICATION CYCLE ONLY. THE ELECTRIC DUCT HEATER SHALL CYCLE ITS OPERATION UNTIL SPACE HUMIDITY IS AT OR BELOW SET-POINT HUMIDITY, THEN ELECTRIC HEATER SHALL TURN

4. **HEATING MODE:**

- a. THE BAS SHALL SET ALL AHU-1.1 VAV BOXES TO 50% OPEN AND SET AIR HANDLING UNIT AHU-1.2 AIR VOLUME TO 50% OF MAXIMUM AIR FLOW. THE BAS SHALL ENABLE THE ELECTRIC DUCT HEATER ASSOCIATED WITH ITS RESPECTIVE AIR HANDLING UNIT TO MAINTAIN A 90°F (ADJUSTABLE) LEAVING AIR TEMPERATURE. THE ELECTRIC DUCT HEATER SHALL CYCLE ITS OPERATION TO MAINTAIN THE LEAVING AIR TEMPERATURE. AIR HANDLING UNIT VFD SHALL MODULATE THE SUPPLY AIR FLOW FROM 50% TO MAXIMUM TO MAINTAIN SPACE TEMPERATURE.
- b. THE BAS SHALL LOCK-OUT THE CHILLER WHEN IN THE HEATING MODE.

D. <u>VAV ZONE DAMPERS</u>

1. <u>GENERAL:</u>

a. THE VAV ZONE DAMPERS SHALL BE ACTIVATED BY THE BUILDING AUTOMATION SYSTEM (BAS) WHENEVER THE BUILDING IS IN THE OCCUPIED MODE. THE ZONE VAV DAMPER (NO) SHALL BE OPEN TO ITS FULL OPEN POSITION WHEN ACTIVATED.

2. **COOLING MODE:**

a. THE SPACE TEMPERATURE SENSOR SHALL MODULATE THE VAV ZONE DAMPER TOWARDS ITS MINIMUM POSITION TO MAINTAIN SPACE TEMPERATURE COOLING SET-POINT OF 75°F (ADJUSTABLE)

3. **HEATING MODE:**

a. THE SPACE TEMPERATURE SENSOR SHALL MODULATE THE VAV ZONE DAMPER FROM ITS 50% OPEN POSITION TO MAXIMUM POSITION TO MAINTAIN SPACE TEMPERATURE HEATING SET-POINT OF 70°F (ADJUSTABLE). THE 50% MINIMUM AIR FLOW IS TO MAINTAIN ELECTRIC DUCT HEATER MINIMUM AIR FLOW REQUIREMENTS.

D. <u>VAV CONTROL</u>

- 1. A STATIC PRESSURE SENSOR MOUNTED 2/3 WAY DOWN THE SUPPLY AIR DUCT FROM AIR HANDLING UNITS AHU-1.1 SHALL MODULATE THE AIR HANDLING UNITS VARIABLE FREQUENCY DRIVE (VFD) TO MAINTAIN A CONSTANT STATIC PRESSURE (ADJUSTABLE) IN THE SUPPLY AIR DUCT. PROVIDE FEEDBACK SIGNAL TO THE BAS TO INDICATE THE HERTZ OUTPUT AT THE VARIABLE FREQUENCY DRIVE
- 2. THE SPACE TEMPERATURE SENSOR FOR AIR HANDLING UNIT AHU-1.2 SHALL SIGNAL ITS VARIABLE FREQUENCY DRIVE (VFD) TO MODULATE SUPPLY AIR VOLUME TO MAINTAIN SET-POINT TEMPERATURE. FOR COOLING AS SPACE TEMPERATURE RISES ABOVE SET-POINT (75°F ADJUSTABLE) THE VFD SHALL INCREASE SUPPLY AIR AIR VOLUME FROM MINIMUM TO MAXIMUM TO MAINTAIN SPACE TEMPERATURE. FOR HEATING AS SPACE TEMPERATURE DROPS BELOW SET-POINT (70°F ADJUSTABLE) THE VFD SHALL INCREASE AIR VOLUME FROM 50% MINIMUM TO MAXIMUM TO MAINTAIN SPACE TEMPERATURE. PROVIDE FEEDBACK SIGNAL TO THE BAS TO INDICATE THE HERTZ OUTPUT AT THE VARIABLE FREQUENCY DRIVE.

E. <u>UN-OCCUPIED MODE</u>

- 1. THE BUILDING AUTOMATION SYSTEM SHALL SHUT-OFF THE CHILLER AND ALL AIR HANDLING UNITS AT A PRESET TIME (ADJUSTABLE). THE CHILLER WILL SHUT-DOWN AND ASSOCIATED CHILLED WATER PUMP SHALL CONTINUE TO RUN FOR 10 MINUETS AFTER CHILLER SHUTDOWN. AIR HANDLING UNIT FANS SHALL SHUT-OFF AND IT ASSOCIATED MOTORIZED OUTDOOR AIR DAMPER SHALL CLOSE.
- 2. THE BUILDING AUTOMATION SYSTEM SHALL SHUT-OFF ALL BUILDING EXHAUST FANS. THE EXHAUST FANS SHALL REMAIN OFF DURING THE ENTIRE UN-OCCUPIED MODE.
- 3. ALL SPACE TEMPERATURE SENSORS SHALL BE RESET FOR NIGHT SET BACK MODE.

F. <u>NIGHT SET-BACK MODE</u>

- 1. THE BUILDING AUTOMATION SYSTEM (BAS) SHALL RESET SPACE TEMPERATURE SENSORS TO 85°F FOR COOLING AND 65°F FOR HEATING.
- 2. SHOULD SPACE TEMPERATURE RISE 5°F ABOVE COOLING SET-BACK SET-POINT AT ANY TEMPERATURE SENSOR THE BAS SHALL ENABLE THE CHILLER AND THE AIR HANDLING UNIT ASSOCIATED WITH THAT SPACE SENSOR. THE CHILLER AND PUMPS SHALL START AND THE ASSOCIATED AIR HANDLING UNIT FAN SHALL START, THE AIR HANDLING UNIT OUTDOOR AIR DAMPER SHALL REMAIN CLOSED. WHEN SPACE TEMPERATURE IS AT COOLING RESET SET-POINT THE CHILLER AND AIR HANDLING UNIT SHALL SHUT-OFF. THE HVAC SYSTEM SHALL CYCLE ITS OPERATION TO MAINTAIN NIGHT SET-BACK SPACE TEMPERATURE.
- 3. SHOULD SPACE TEMPERATURE DROP 5°F BELOW HEATING SET-BACK SET-POINT AT ANY TEMPERATURE SENSOR THE BAS SHALL ENABLE THE THE AIR HANDLING UNIT AND ASSOCIATED ELECTRIC DUCT HEATER ASSOCIATED WITH THAT SPACE SENSOR. THE AIR HANDLING UNIT FAN SHALL START, THE ELECTRIC DUCT HEATER SHALL BE ENABLED. THE AIR HANDLING UNIT OUTDOOR AIR DAMPER SHALL REMAIN CLOSED. WHEN SPACE TEMPERATURE IS AT HEATING RE-SET SET-POINT THE AIR HANDLING UNIT AND ASSOCIATED ELECTRIC DUCT HEATER SHALL SHUT-OFF. THE HVAC SYSTEM SHALL CYCLE ITS OPERATION TO MAINTAIN NIGHT SET-BACK SPACE TEMPERATURE.
- 4. ALL EXHAUST FAN SHALL REMAIN OFF DURING NIGHT SET-BACK MODE.

G. MORNING START UP

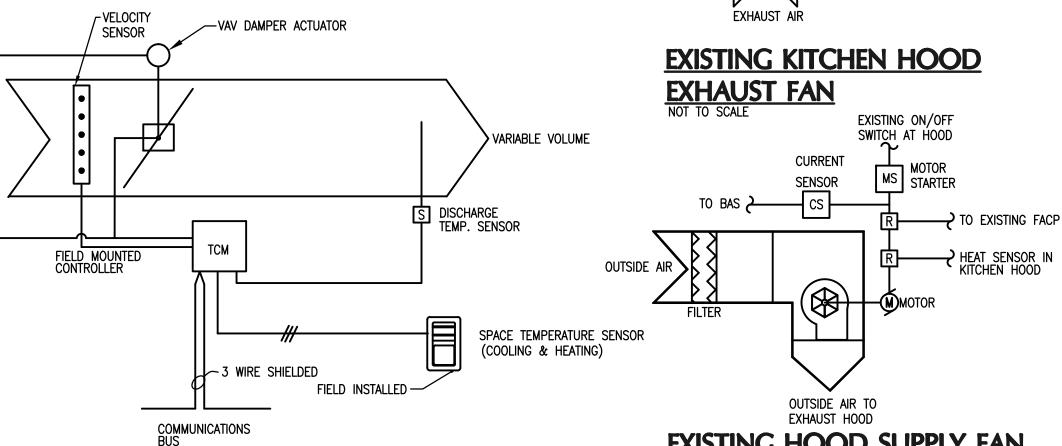
1. THE MORNING START-UP CYCLE IS ACTIVATED BY THE BAS CONTROL SYSTEM ON A PREDETERMINED TIME (ADJUSTABLE), 1 HOUR PRIOR TO BUILDING OCCUPANCY. THE BAS SYSTEM SHALL RESET ALL SPACE TEMPERATURE SENSORS TO THEIR OCCUPIED SET-POINTS. THE BAS SHALL LOOK AT ALL TEMPERATURE SENSORS AND DETERMINE IF THE SYSTEM SHOULD GO INTO A MORNING WARM UP CYCLE OR A MORNING COOL DOWN CYCLE SCHEDULE FOR HVAC SYSTEMS INVOLVED.

a. <u>Morning warm up cycle</u>

- 1. UPON START UP. THE HVAC AIR HANDLING UNITS AND ASSOCIATED ELECTRIC DUCT HEATERS SHALL BE ENERGIZED. THE AIR HANDLING UNITS SHALL HAVE THEIR MOTORIZED OUTDOOR AIR DAMPERS CLOSED DURING THE WARM-UP CYCLE. THE AIR HANDLING UNIT FAN & ELECTRIC DUCT HEATER SHALL BE CYCLED TO MAINTAIN OCCUPIED SET-POINT TEMPERATURE.
- 2. ALL EXHAUST FANS SHALL BE IN THE OFF POSITION DURING THE ENTIRE MORNING WARM UP CYCLE.
- 3. AFTER THE MORNING START UP PERIOD HAS ELAPSED, THE SYSTEM SHALL RETURN TO NORMAL OCCUPIED OPERATION.

b. MORNING COOL DOWN CYCLE

- 1. UPON START UP, THE HVAC AIR HANDLING UNITS AND CHILLED WATER SYSTEM SHALL BE ENERGIZED. THE AIR HANDLING UNITS MOTORIZED OUTDOOR AIR DAMPERS SHALL BE CLOSED DURING THE COOL-DOWN CYCLE. AIR HANDLING UNIT FAN CHILLED WATER SYSTEM SHALL CYCLE TO MAINTAIN OCCUPIED SET-POINT TEMPERATURE.
- 2. ALL EXHAUST FANS SHALL REMAIN IN THE OFF POSITION DURING THE ENTIRE MORNING COOL DOWN CYCLE.
- 3. AFTER THE MORNING START UP PERIOD HAS ELAPSED. THE SYSTEM SHALL RETURN TO NORMAL OCCUPIED OPERATION.



ZONE DAMPERS (TYPICAL)

H. EXHAUST FANS:

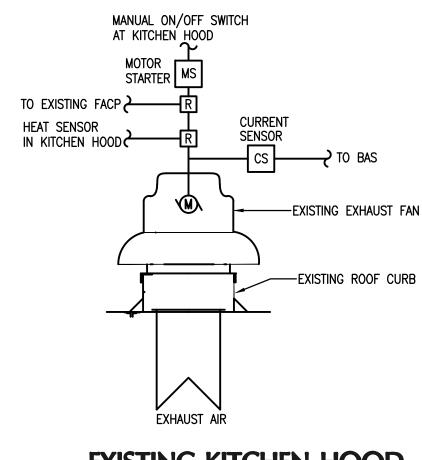
1. THE RESTROOM EXHAUST FAN EF-1.2 SHALL BE ENABLED BY THE BUILDING AUTOMATION CONTROL SYSTEM (BAS) TO RUN DURING OCCUPIED HOURS. THE CURRENT SENSOR SHALL SIGNAL THE BAS SHOULD THE FAN FAIL TO RUN WHEN COMMANDED TO START. THE BAS SHALL ACTIVATE AN ALARM AT A REMOTE LOCATION. THE EXHAUST FAN EF-1.1 SHALL BE OPERATED BY EITHER LIGHT SWITCH IN THE MENS OR WOMENS RESTROOM SERVED. WHEN THE LIGHT SWITCH IS ON THE EXHAUST FAN SHALL BE ON AND WHEN THE LIGHT SWITCH IS OFF THE EXHAUST FAN SHALL CONTINUE TO FOR 10 MINUETS AND THEN SHUT-OFF.

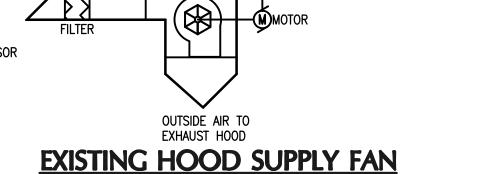
a. The building automation control system (BAS) shall prevent exhaust fan EF-1.2 FROM RUNNING DURING UNOCCUPIED HOURS.

- 2. THE EXHAUST FANS EF-1.1 SHALL BE ENABLED BY THE BUILDING AUTOMATION CONTROL SYSTEM (BAS) TO RUN DURING OCCUPIED HOURS. THE CURRENT SENSOR SHALL SIGNAL BAS SHOULD THE FAN FAIL TO RUN WHEN COMMANDED TO START. THE BAS SHALL ISSUE AN "OFF NORMAL OPERATION" ADVISORY TO A REMOTE LOCATION. THE LIGHT SWITCH IN RESTROOM SERVED SHALL ACTIVE THE FAN WHEN THE LIGHT IS ON AND DE-ACTIVATE THE FAN WHEN THE LIGHT SWITCH IS OFF. PROVIDE A TIME DELAY OF 10 MINUETS TO KEEP FAN RUNNING AFTER LIGHT SWITCH IS TURNED OFF.
- a. THE BUILDING AUTOMATION CONTROL SYSTEM (BAS) SHALL PREVENT EXHAUST FAN EF-1.1 FROM RUNNING DURING UNOCCUPIED HOURS.
- 3. THE EXISTING KITCHEN HOOD EXHAUST FAN AND ASSOCIATED SUPPLY FAN SHALL BE ENABLED BY THE MANUAL SWITCH AT THE EXISTING KITCHEN EXHAUST HOOD, BOTH EXHAUST FAN AND SUPPLY FAN SHALL RUN SIMULTANEOUSLY. PROVIDE A CURRENT SENSOR FOR EACH FAN. THE CURRENT SENSOR SHALL SIGNAL THE BAS SHOULD EITHER FAN FAIL TO RUN WHEN COMMANDED TO START. THE BAS SHALL ISSUE AN "OFF NORMAL OPERATION" ADVISORY TO A REMOTE LOCATION.
- a. Provide a heat sensor and relays in the exhaust hood that will AUTOMATICALLY ACTIVATE HOOD EXHAUST FAN AND SUPPLY FAN SHOULD ANY COOKING APPLIANCE UNDER THE HOOD BE ON. AFTER 15 MINUETS OF THIS OPERATION THE BAS SHALL SIGNAL AND ALARM AT A REMOTE LOCATION. THE HEAT SENSOR OPERATION SHALL BE ENABLED BY THE MANUAL SWITCH AT THE EXHAUST HOOD WHEN THE SWITCH IS TURNED OFF.

EMERGENCY:

- THE SMOKE DETECTOR IN THE SUPPLY AIR DUCTWORK FOR AHU-1.1 & AHU-1.2 SHALL SIGNAL THE EXISTING BUILDING FIRE ALARM CONTROL PANEL (FACP) UPON SMOKE DETECTOR ACTIVATION. THE FACP SHALL DETERMINE IF THE FIRE ALARM SYSTEM SHOULD BE ACTIVATED. SHOULD THE FACP ACTIVATE AN ALARM CONDITION ALL AIR HANDLING UNIT FANS AHU-1.1 AND AHU-1.2 SHALL BE SHUT-OFF. THE CHILLED WATER SYSTEM SHALL BE DE-ACTIVATED.
- 2. THE EXISTING KITCHEN FIRE SUPPRESSION SYSTEM UPON ACTIVATION SHALL SIGNAL THE EXISTING FACP TO ACTIVATE AN ALARM CONDITION. KITCHEN HOOD EXHAUST FAN EF-1 AND SF-1 SHALL TURN OFF UPON HOOD FIRE SUPPRESSION SYSTEM ACTIVATION. PROVIDE OVERRIDE SWITCH NEAR THE EXISTING FACP TO ACTIVATE HOOD EXHAUST FAN MANUALLY BY FIRE DEPARTMENT PERSONNEL SHOULD KITCHEN HOOD FIRE SUPPRESSION SYSTEM BE ACTIVATED. THE FACP SHALL SHUT DOWN ALL AIR HANDLING UNITS AND THE CHILLED WATER SYSTEM.





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WILLOW STREET COMMUNITY CENTER HVAC REPLACEMENT

6565 WILLOW STREET MT. DORA, FLORIDA

Revisions

No. Date Description

Key Plan MPE PROJ#: 2013-126

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Issue Date: 01/30/2015

Drawing Scale: NO SCALE

Drawing Title:

HVAC **CONTROLS**

Orawing No.

M-1

BID DOCUMENTS

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				FAN	DATA											C00	LING C	OIL DATA	\					6	ELECTRIC	DATA			FILTER	DATA		
UNIT NUMBER	NOM. TONS	LOCATION	AREA SERVED	OUTSIDE AIR	MAX. CFM	TOTAL STATIC	MIN. EXT. STATIC	MAX. OUTLET VFI	RPM	внр н	P EN	T. AIR •F	LVG.	AIR F	TOTAL MBH	SENS. MBH	F.P.I	FACE NO	STATIC	EWT	Γ̈́ΜΤ	GPM	P.D.	VOLTS	PHASE	UNIT MCA	MOPD	TYPE	CLEAN P.D. IN.	NO./SIZE	MANUFACTURER/MODEL	NOTES
HOMBEN	\longmapsto					1	<u>'IN. W.G.</u>	<u>. F.P.M.</u>			<u>DB</u>	WB		MR.					W.G.	 	[*]		W.G.						W.G.			
AHU-1.1	7.5	MECH ROOM	LOBBY & OFFICE AREA	560	2650		1.0		824	 2 .	4 79.7	66.7	54.1	53.3	108.2	74.1	15	8.3		44	54	21.6	4.2	240	1	13.8	20	DISP.	.2"	4/16"X24"X2"	CARRIER 40RUS008 OR APPROVED EQUAL	1
AHU-1.2	7.5	MECH ROOM	MUTIPURPOSE & KITCHEN AREA	300/700	2600		1.0		819	2.	4 81.4	67.8	54.2	53.4	115.6	77.2	15	8.3 3		44	54	23.1	4.7	240	1	13.8	20	DISP.	.2"	4/16"X24"X2"	CARRIER 40RUS008 OR APPROVED EQUAL	1 & 2
																							·									

NOTES:

1. NEW AIR HANDLING UNIT SHALL BE VERTICAL FAN AND COIL SECTION WITH FILTERS. PROVIDE VARIABLE SPEED DRIVE FOR AHU FAN — ABB DRIVES MODEL ACS 150 MICRO DRIVE RATED FOR 3.0 HP MOTOR AT 240V.

2. PROVIDE CO2 SENSOR TO CONTROL OUTDOOR AIR VENTILATION AND ALSO PROVIDE INTERLOCK WITH KITCHEN HOOD EXHAUST FAN TO OPEN OUTDOOR AIR DAMPER TO MAXIMUM POSITION WHEN KITCHEN HOOD EXHAUST FAN IS IN OPERATION.

							Al	R CO	OLED	WA	TER CH	HILLER																
UNIT	SERVICE	LOCATION	MINIMUM		СН	HILLED WAT	TER		REFRIG		COMPRESSOR		AMBIEN	T ' F	CON	idenser f	'AN			El	ectric se	ERVICE		MIN		MANUFACTURER	WEIGHT	
NUMBER			CAPACITY (TONS)	GPM	% GLYCOL	EWT (°F)	LWT (°F)	MAX P.D. (FT.)	TYPE	QTY	TYPE	NO. Stages	MAX	MIN	QTY	HP FA	RPM	KW	MCA	MOPD	VOLTS	PHASE	HERTZ	EER	IPLV		LBS	NOTES
CH-1	CHILLED WATER	OUTSIDE	25	45	-	54.2	44	17.8	410A	2	SCREW	22	95	30	2	-	-	31.1	140	175	240	3	60	10.3	15.3	CARRIER 30RAP025 OR APPROVED EQUAL	1567	1

I. CHILLER MANUFACTURER SHALL PROVIDE SINGLE POINT POWER, ULTRA LOW SOUND FANS AND COMPRESSOR BLANKET, COOLER HEATER, DUAL HYDRONIC PUMP PACKAGE, HAIL GUARDS, CHILLED WATER STORAGE TANK (WEIGHT 1200 LBS), AND UNIT MOUNTED DISCONNECT. CHILLER SHALL SIT ON TOP OF MANUFACTURERS STORAGE TANK. BASIS OF DESIGN: CARRIER CORP. TRANE & YORK ARE APPROVED EQUALS.

				_		SCHE			
AHU	VALVE SIZE	ROTATION	MAX FLOW (GPM)	MAX ∆P (PSID)	MAX SYS PRES.(PSI)	CONNECTION T-THREADED F-FLANGED	FLUID W-WATER G-GLYCOL	TEMP. RANGE *F	MANUFACTURER/MODEL
AHU-1.1	1 1/4"	90	21.6	5	50	T	W	45°-60°	BELIMO B329 OR APPROVED EQUAL
AHU-1.2	1 1/4"	90	22.2	5	50	T	W	45°-60°	BELIMO B329 OR APPROVED EQUAL

						P	UMP	SCH	EDULE									
UNIT	SERVICE	LOCATION	CASING		UID	GPM	NPSHR	HEAD	SHUT-OFF	IMPELLER	WORKING	PUMP	BHP	VOLTS	PHASE	CYCLES	MOTOR	BASIS OF DESIGN
NUMBER			TYPE	TYPE	TEMP		(FT.)	(FT.)	HEAD (FT.)	SIZE (IN.)	PRESS. (PSIG)	RPM					HP	
P-1	PRIMARY CHW	CHILLER	DUAL AREA	WATER	45 F	45	_	86.4	_	4.25	150	3500		240	3	60	5	BY CHILLER MANUFACTURER
P-1A	STAND-BY	CHILLER	DUAL AREA	WATER	45 F	45	_	86.4	-	4.25	150	3500		240	3	60	5	BY CHILLER MANUFACTURER

2. ALL DIFFUSERS AND REGISTERS SHALL HAVE A MINIMUM FLAME SPREAD RATING OF NOT OVER 25 AND A MINIMUM SMOKE DEVELOPED

RATING OF NOT OVER 50 AND SHALL BE IN COMPLIANCE WITH SECTIONS 603.15 AND 603.15.1 OF THE FLORIDA BUILDING CODE, MECHANICAL.

PROVIDE TFC MOTOR. ALSO PROVIDE ALTERNATORS. PROVIDE COMBINATION STARTER-DISCONNECT FOR P-1 AND P-1A. CONTROLS: PROVIDE AUTOMATIC SWITCH OVER OF PUMP IF RUNNING PUMP FAILS, ALSO PROVIDE AUTOMATIC SWITCH OVER OF PUMP BASED ON RUNNING EVERY 15 DAYS. PROVIDE ALL PUMPS WITH CHECK VALVES, ISOLATION VALVES AND STRAINERS.

				4	AIR C	GRILLE +	REGISTE	R SCHEE	DULE					
UNIT SER NUMBER	SERVICE	MOUNT	C.F.M. RANGE	SIZE L"xH"	N.C. MAX	FRAME	MAX. P.D. IN. W.G.	PATTERN	DAMPER	GRID	CONSTRUCTION	FINISH	MANUFACTURER/MODEL	NOTES
CG RET	RETURN	CLG	SEE DWG			LAY-IN		EGG CRATE	NO	1/2"	ALUMINUM	WHITE	EXISTING CEILING GRILLE	4
CG-1 RET	RETURN	CLG	SEE DWG	24x24	24	LAY-IN	0.054	EGG CRATE	NO	1/2"	ALUMINUM	WHITE	TITUS 50F/PRICE 80 OR APPROVED EQUAL	1, 2 & 3
ER EXH	XHAUST	WALL	SEE DWG	SEE DWG		SURFACE			NO			WHITE	EXISTING WALL EXHAUST GRILLE	4
SR-1 SUF	SUPPLY	SURFACE	SEE DWG	6X6	24	SURFACE	0.054	1-WAY	NO		ALUMINUM	WHITE	TITUS 301FS OR APPROVED EQUAL	
SR-2 SUF	SUPPLY	WALL	SEE DWG	12X8	24	SURFACE	0.054	2-WAY	NO		ALUMINUM	WHITE	TITUS 300 FL OR APPROVED EQUAL	1 & 2
WG-2 RET	RETURN	WALL	1100	20X42	22	SURFACE	0.008	LOUVERED	NO	3/4"-35°	ALUMINUM	WHITE	TITUS 350 FL OR APPROVED EQUAL	1 & 2

DIFFUSER SCHEDULE PATTERN DAMPER FINISH SURFACE PANEL CONSTRUCTION MANUFACTURER/MODEL NOTES 24x24 | SEE DWG. | SEE DWG. | 25 | 0.13 | 4-WAY | NO | WHITE | 24x24 | ALUMINUM TITUS TMSA-AA OR APPROVED EQUAL 1 & 2 12x12 SEE DWG. SEE DWG. 25 0.13 4-WAY NO WHITE 24x24 CD-2 SURFACE CEILING TITUS TMSA-AA OR APPROVED EQUAL 1 & 2 ALUMINUM CD SEE DWG CEILING SEE DWG. SEE DWG. NO 1. SEE ARCHITECTURAL CEILING PLAN FOR FRAME TYPE.

- 1. ALL GRILLES, REGISTERS AND DIFFUSERS SHALL HAVE A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE
- DEVELOPED RATING OF 50 IN COMPLIANCE WITH SECTIONS 603.15 AND 603.15.1 OF THE FLORIDA BUILDING CODE. 2. PAINT FLAT BLACK INSIDE OF DUCTS BEHIND GRILLES.
- 3. PROVIDE T-BAR PLASTER FRAME FOR ALL REGISTERS LOCATED IN HARD CEILING APPLICATION.
- 4. EXISTING CEILING GRILLE SHALL HAVE FACE OF GRILLE THOROUGHLY CLEANED.

						F	۸N	1	SC	CH	E	Dυ	LE					
UNIT	ŀ	PERFOR	MANCE	DATA		CONSTRUCTIO	N DATA	,		MO	TOR D	ATA	E	LECTRICA	ΛL.	MANUFACTURER/MODEL	WFIGHT	NOTES
UNIT NUMBER	CFM	SP	RPM	SONES	BHP	FAN TYPE	CLASS	ROT	DISCH	HP	WATTS	START TYPE	VOLTS	PHASE	CYCLES	in the most in the	WEIGHT LBS	
EF-1.1	50	.375"	755	1.8		CEILING CABINET, DIRECT					50		120	1	60	LOREN COOK GC-122 OR APPROVED EQUAL	13	2
EF-1.2	500	.50"	1234	7.2		WALL CENTRIFUGAL, DIRECT				1/8			120	1	60	LOREN COOK ACWD 101W15D OR APPROVED EQUAL	30	1
EF-K1	1000			1		ROOF CENTRIFUGAL										EXISTING HOOD EXHAUST FAN		3
SF-K1	330			1		ROOF CENTRIFUGAL										EXISTING HOOD SUPPLY FAN		3
MOTEC.		•				•			•		•	•		•				

1. MANUFACTURER SHALL PROVIDE BACKDRAFT DAMPER AND SOLID STATE VARIABLE SPEED CONTROLLER.

2. MANUFACTURER SHALL PROVIDE BACKDRAFT DAMPER, ALUMINUM INTAKE GRILLE, AND SOLID STATE VARIABLE SPEED CONTROLLER.

3. EXISTING FAN TO REMAIN. PROVIDE AIR BALANCE OF THE EXISTING FANS.

			V	AV Z	ONE	DAM	PERS	(ELEC	<u></u>	
		CFM	RANGE		CONTROL	INPUT	OUTPUT	TRAVEL	MANUFACTURER/ MODEL	NOTEO
UNIT NUMBER	INLET SIZE	MAX CFM	MIN CFM	MIN AP (IN W.G.)	CONTROL VOLTS	POWER (VA)	TORQUE (IN-LB)	TIME	MANOFACTORERY MODEL	NOTES
VAV-1.1.1	4 " ø	130	40	0.04	24	2	35	15	CARRIER 35E-04 OR APPROVED EQUAL	1
VAV-1.1.2	10 " ø	720	200	0.04	24	2	35	15	CARRIER 35E-10 OR APPROVED EQUAL	1
VAV-1.1.3	6 " ø	200	60	0.07	24	2	35	15	CARRIER 35E-06 OR APPROVED EQUAL	1
VAV-1.1.4	8 " ø	350	100	0.04	24	2	35	15	CARRIER 35E-08 OR APPROVED EQUAL	1
VAV-1.1.5	6 " ø	200	60	0.04	24	2	35	15	CARRIER 35E-06 OR APPROVED EQUAL	1
VAV-1.1.6	8 " ø	400	200	0.04	24	2	35	15	CARRIER 35E-08 OR APPROVED EQUAL	1
VAV-1.1.7	6 " ø	200	60	0.07	24	2	35	15	CARRIER 35E-06 OR APPROVED EQUAL	1
VAV-1.1.8	8 " ø	450	140	0.04	24	2	35	15	CARRIER 35E-08 OR APPROVED EQUAL	1

1. PROVIDE FACTORY INSTALLED 1" FIBERGLASS INSULATION. PROVIDE HANGER BRACKETS.

			1	ELE	CT	RIC	D	U C	T H	E A	TER SO	CHE	DU	LE			
UNIT NUMBER	SERVICE	LOCATION	HEATING	TYPF	INPUT	OUTPUT	AIR TEI	MP(°F)	DUCT	SIZE	AREA	# OF	ELECT	TRICAL D	ATA	INTER-	MANUFACTURER/MODEL
NUMBER	SERVICE	LOCATION	CFM		KW	MBH	ENT	LVG	W(IN)	H(IN)	SERVED	ŜTEPS	VOLTS	PHASE	CYCLE	LOCK	MANOFACTORERY MODEL
DH-1.1	AHU-1.1	MECH RM	1325	OPEN	15	51	53.6	89.3	32	12	LOBBY/OFFICE AREA		240	1	60	AHU-1.1	DELL, INDEECO, MARKEL, OR APPROVED EQUAL
DH-1.2	AHU-1.2	OFFICE 113	1300	OPEN	15	51	49.8	86.2	20	14	MUTILPURPOSE		240	1	60	AHU-1.2	DELL, INDEECO, MARKEL, OR APPROVED EQUAL

. MANUFACTUER TO PROVIDE AIR FLOW SWITCH, OVERCURRENT AND OVERHEAT PROTECTION, MERCURY CONTACTORS, FUSED DISCONNECT SWITCH AND SCR CONTROLLER. SCR CONTROLLER SHALL BE INTEGRATED INTO BUILDING BAS SYSTEM.

> <u>AUGUSTO E. BOBES JR. P.E.</u> FLORIDA P.E. # 39410



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MATERN PROFESSIONAL ENGINEERING

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ENG. BUS. No. EB-0005096 CERT. OF AUTH. No. 5096

WILLOW STREET COMMUNITY **CENTER HVAC REPLACEMENT**

6565 WILLOW STREET MT. DORA, FLORIDA

Revisions

No.	Date	Description

Key Plan

MPE PROJ#: 2013-126 Designed By: ABJr

Drawn By: MB

Checked By: ABJr

Issue Date: 01/30/2015

Drawing Scale: NO SCALE

Drawing Title:

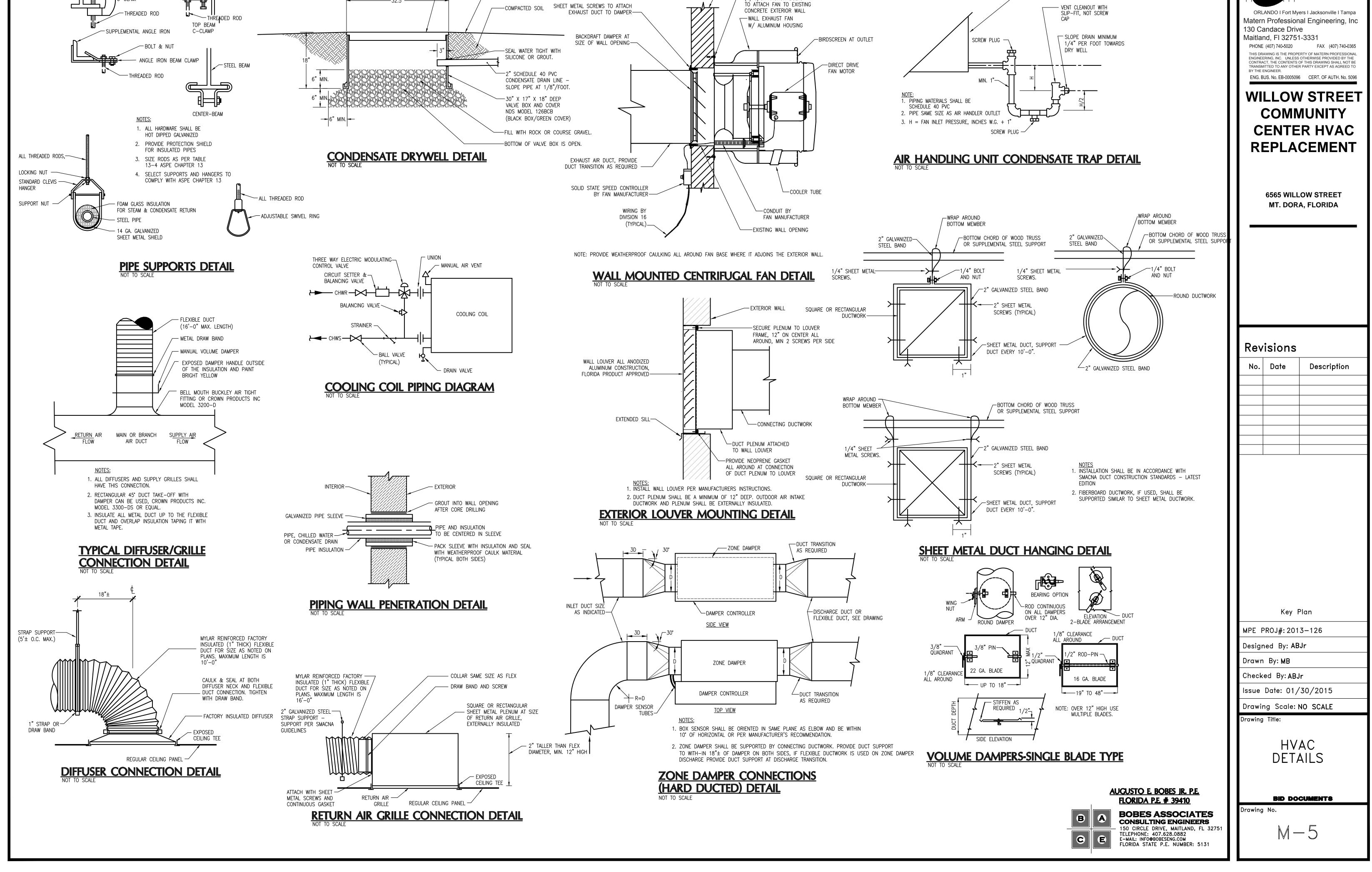
HVAC SCHEDULES

BID DOCUMENTS Drawing No.

M-3

- STEEL BEAM OR JOIST

STEEL BEAM OR JOIST



—EXISTING EXTERIOR WALL

-(4) 3/8" ANCHOR BOLTS

TO ATTACH FAN TO EXISTING

-OVERLAPPING VALVE

-GRADE, SOD OR LANDSCAPING - SLOPE

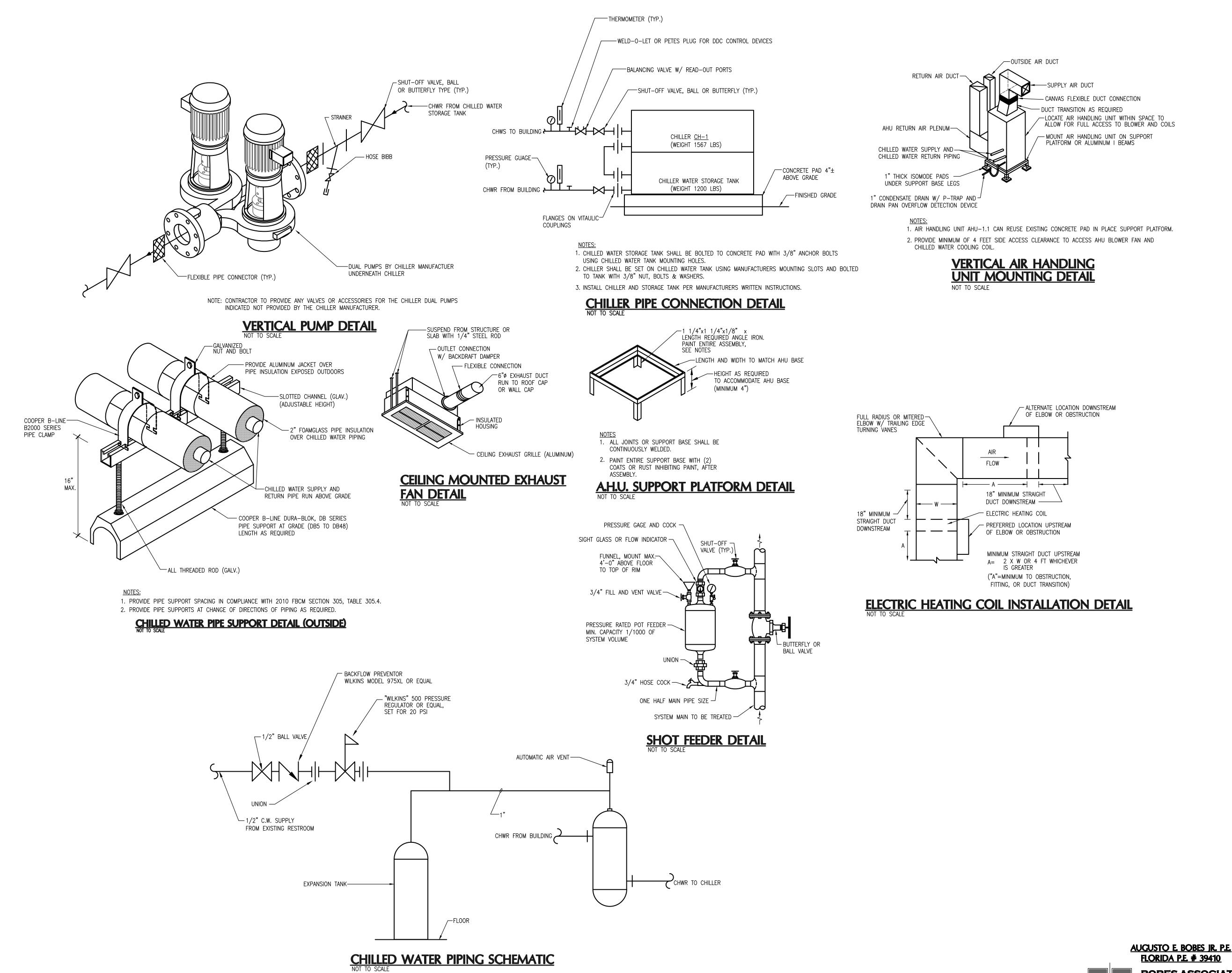
BOX COVER (GREEN)

AWAY FROM DRYWELL.

MATERN PROFESSIONAL ENGINEERING Consultants - A Solutions

- AIR HANDLER CONDENSATE

DRAIN PAN



PROFESSIONAL
ENGNEERING
MEP/FP Engineering
Consultants - A Solutions
Based Firm

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WILLOW STREET COMMUNITY CENTER HVAC REPLACEMENT

6565 WILLOW STREET MT. DORA, FLORIDA

Revisions

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	I	

Key Plan

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Drawing Title:

HVAC DETAILS II

BID DOCUMENTS

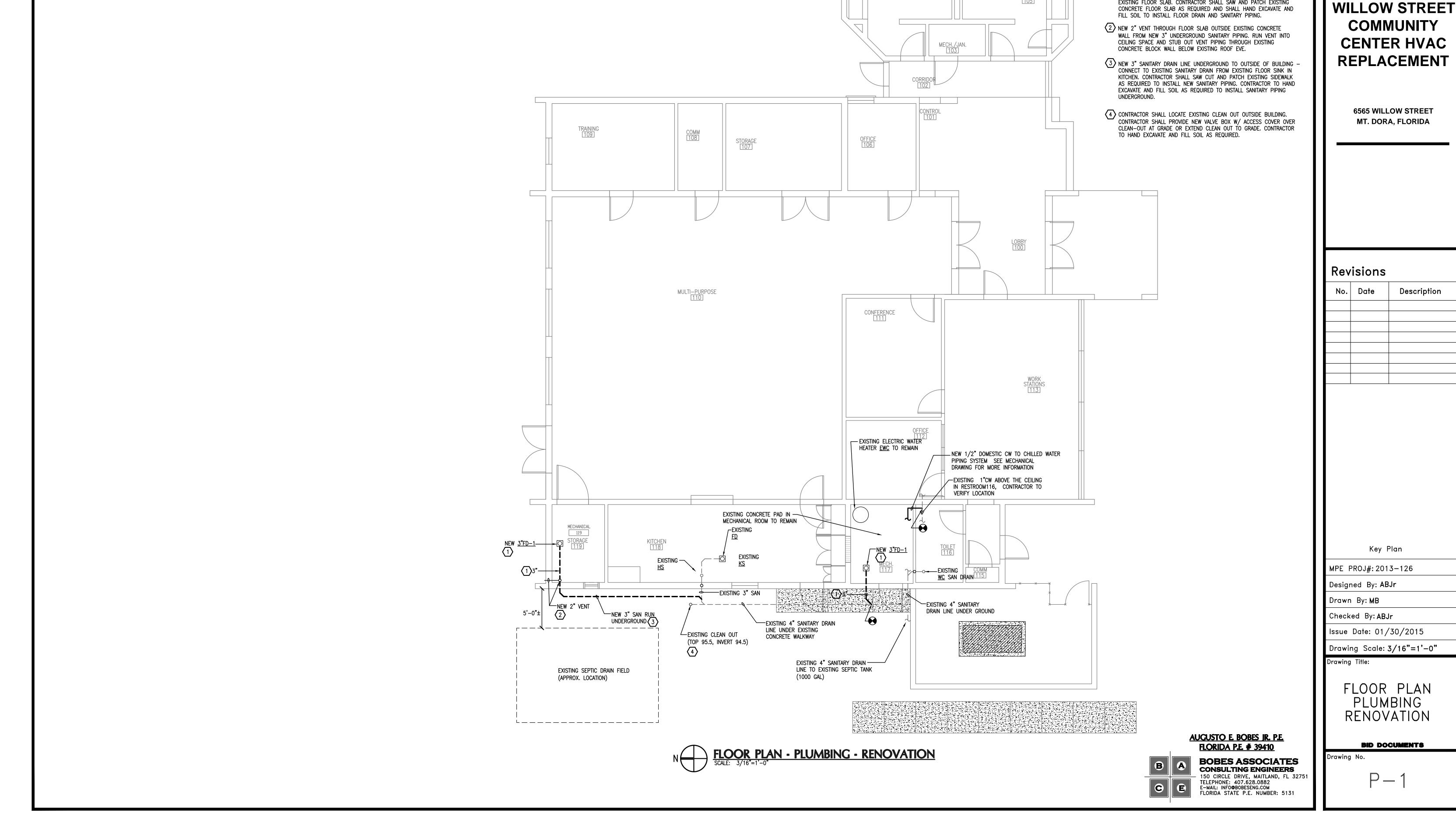
Drawing No.

M-6

BA

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GENERAL NOTES

1. CONTRACTOR SHALL PROTECT EXISTING DRAIN FIELD AND ASSOCIATED SANITARY DRAIN ACCESSORIES OUTSIDE THE BUILDING THROUGH OUT CONSTRUCTION.

HVAC KEY NOTES

PROVIDE NEW 3" FLOOR DRAIN AND 3" SANITARY PIPING UNDER EXISTING FLOOR SLAB. CONTRACTOR SHALL SAW AND PATCH EXISTING CONCRETE FLOOR SLAB AS REQUIRED AND SHALL HAND EXCAVATE AND FILL SOIL TO INSTALL FLOOR DRAIN AND SANITARY PIPING.

Revisions

No. Date Description

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COMMUNITY

6565 WILLOW STREET

MT. DORA, FLORIDA

130 Candace Drive

BY THE ENGINEER.

Maitland, FI 32751-3331

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ENGINEERING

Key Plan

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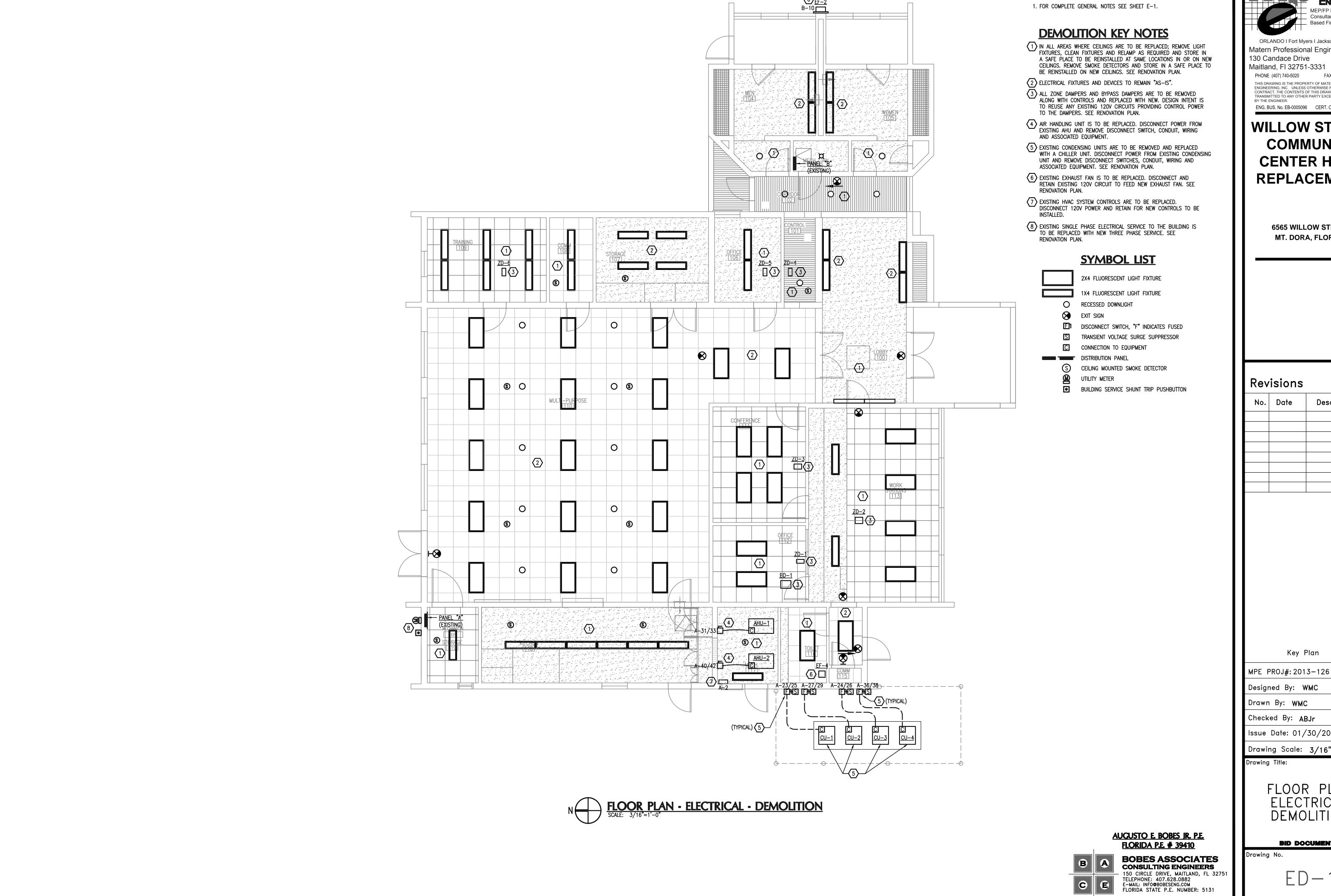
Drawing Title:

FLOOR PLAN PLUMBING RENOVATION

BID DOCUMENTS

Drawing No.

P __



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GENERAL NOTES

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WILLOW STREET COMMUNITY **CENTER HVAC REPLACEMENT**

6565 WILLOW STREET MT. DORA, FLORIDA

No.	Date	Description
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-		

Key Plan

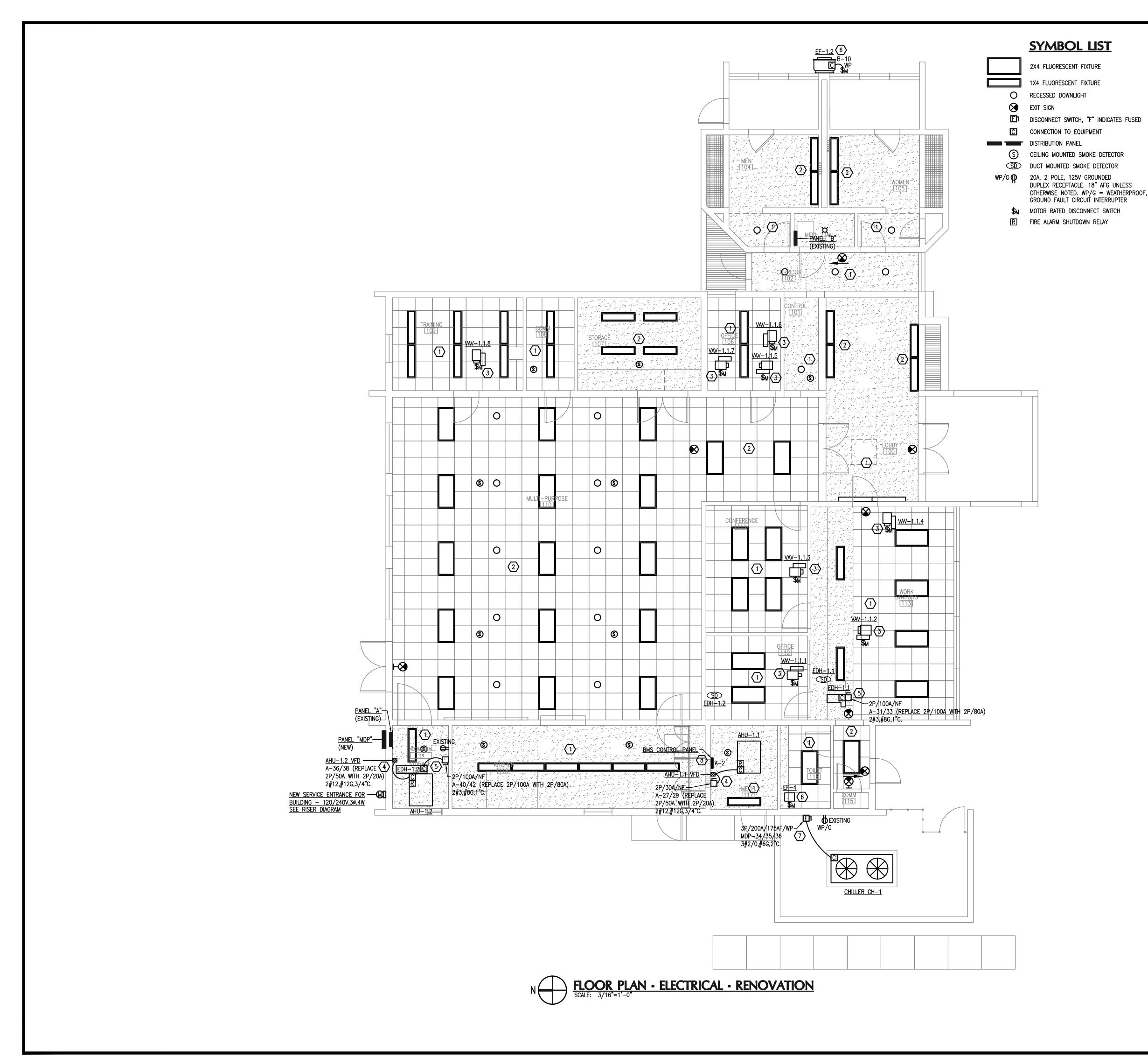
Issue Date: 01/30/2015

Drawing Scale: 3/16"=1'-0"

FLOOR PLAN ELECTRICAL DEMOLITION

BID DOCUMENTS

ED-1



GENERAL NOTES

- 1. PROVIDE PROPER NUMBER OF WIRES IN EACH CONDUIT AS REQUIRED BY INDICATED CIRCUITRY AND SWITCHING.
- 2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND 2008 NATIONAL ELECTRICAL CODE
- 3. COORDINATE ALL WORK DONE UNDER THIS DIVISION WITH WORK TO BE PERFORMED UNDER DIVISION 15.
- 4. COORDINATE WITH OTHER TRADES FOR EXACT LOCATIONS OF ALL MOTORS AND OTHER EQUIPMENT TO BE INSTALLED AND/OR WIRED UNDER THIS DIVISION BUT FURNISHED UNDER ANOTHER DIVISION.
- 5. TYPE AC CABLE AND ELECTRICAL NON-METALLIC TUBING SHALL NOT BE PERMITTED. TYPE MC CABLE IS PERMITTED AS LONG AS IT IS
- ACCEPTABLE TO THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ). 6. ALL CONDUITS ABOVE SLAB, WHETHER EXPOSED OR CONCEALED,
- SHALL BE EMT, IMC, OR RIGID GALVANIZED STEEL. 7. ALL BOXES, PLASTER RINGS, EXTENSION RINGS AND BOX COVERS
- SHALL BE METAL. 8. ALL CONDUITS SHALL BE PARALLEL AND PERPENDICULAR TO
- STRUCTURAL MEMBERS. 9. ALL BENDS SHALL BE MADE IN CONDUIT USING PROPER EQUIPMENT
- AND MEET NATIONAL ELECTRICAL CODE (NEC) REQUIREMENTS. 10. ALL WIRE, INCLUDING BUT NOT LIMITED TO FEEDERS AND BRANCH
- CIRCUIT WIRING, SHALL BE COPPER #12 AWG THWN MINIMUM. 11. ALL DEVICES SHALL BE COMMERCIAL OR SPECIFICATION GRADE.
- 12. ALL ELECTRICAL EQUIPMENT SHALL BE UL LISTED.
- 13. A GREEN INSULATED COPPER GROUND CONDUCTOR SHALL BE
- INSTALLED IN ALL RACEWAYS, SIZED PER REQUIREMENTS OF N.E.C..
- 14. GROUNDING SYSTEM SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250 AND APPLICABLE REQUIREMENTS OF IEEE STANDARDS 142 AND 241.
- 15. THE NATURE OF THIS CONTRACT INVOLVES THE REMODELING OF EXISTING FACILITIES. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXACT LOCATION, QUANTITY, ACCESSIBILITY, ETC. OF EXISTING EQUIPMENT AND CONDITIONS PRIOR TO BIDDING THIS WORK. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DO NOT SHOW ALL EXISTING CONDITIONS AND/OR EVERY ACCESSORY TO BE REMOVED AND/OR REPLACED. DRAWINGS ARE NOT TO BE SCALED, AND SITE CONDITIONS SHALL GOVERN EXACT LOCATION OF ALL ELECTRICAL EQUIPMENT, DEVICES, WIRING, CONDUIT, ETC..
- 16. CONDUCTORS ARE SIZED FOR VOLTAGE DROP PER N.E.C. ARTICLE 210.19(A)(1) FPN No. 4 AND F.B.C. 505.7.3.1&2. ELECTRICAL CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS IN ACCORDANCE WITH N.E.C. ARTICLE 210.19 (A)(1) FPN No. 4 AND F.B.C. 505.7.3.1&2 ON ANY CIRCUITS THAT ARE INSTALLED THAT DIFFER FROM THE DESIGN SHOWN IN THESE PLANS. FEEDER CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 2% AND BRANCH CIRCUIT CONDUCTORS 3% AT DESIGN LOAD.
- 17. LIGHT FIXTURES SUPPORTED BY CEILING GRID SHALL BE SUPPORTED AS PER FIELD TECHNICAL INFORMATION NO.40. LIGHT FIXTURES WEIGHING LESS THAN 10 POUNDS SHALL HAVE ONE 12 GAGE HANGER WIRE CONNECTED FROM THE FIXTURE TO THE STRUCTURE ABOVE. LIGHT FIXTURES WEIGHING MORE THAN 10 POUNDS SHALL HAVE TWO 12 GAGE WIRES ATTACHED AT OPPOSING CORNERS OF EACH LIGHT FIXTURE.
- 18. MAINTAIN EXISTING FIRE ALARM SYSTEM OPERATIONAL. DISABLE EXISTING FIRE ALARM SYSTEM ONLY TO MAKE SWITCH OVERS AND CONNECTIONS. NOTIFY OWNER AND LOCAL FIRE SERVICE AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING THE FIRE ALARM SYSTEM. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. MINIMIZE OUTAGE DURATION. BUILDING EGRESS SHALL NOT BE OBSTRUCTED DURING BUILDING OCCUPANCY.

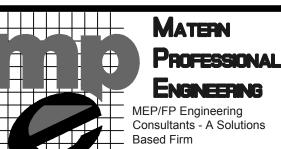
RENOVATION KEY NOTES

- 1) IN ALL AREAS WHERE CEILINGS HAVE BEEN REPLACED; REINSTALL EXISTING LIGHTING FIXTURES AT PREVIOUS LOCATIONS AND RECONNECT TO EXISTING LIGHTING CIRCUITS. REINSTALL EXISTING SMOKE DETECTORS AND RECONNECT TO EXISTING FIRE ALARM SYSTEM WIRING. DO NOT MOUNT DETECTORS CLOSER THAN 3 FEET TO ANY SUPPLY REGISTER OF THE HVAC SYSTEM.
- (2) EXISTING ELECTRICAL FIXTURES AND DEVICES TO REMAIN AS IS. CONTRACTOR SHALL PROTECT EXISTING FIXTURES AND DEVICES THROUGHOUT CONSTRUCTION.
- (3) ALL VAV BOXES ARE NEW. REUSE ANY EXISTING 120V CIRCUIT(S) THAT FED OLD ZONE DAMPERS TO PROVIDE CONTROL POWER TO THE NEW VAV BOXES. IF NECESSARY, PROVIDE 120V CONTROL POWER FROM A SPARE 1P/20A CIRCUIT BREAKER IN PANEL "B" OR INSTALL A NEW BREAKER AT ANY AVAILABLE SPACE.
- 4 PROVIDE POWER FOR NEW AHU AS SHOWN ON PLAN AND PER INFORMATION ON NAMEPLATE OF AHU AND INSTALL NEW CONDUIT AND FEEDER TO A NEW DISCONNECT SWITCH TO BE MOUNTED NEAR AHU. MAKE ALL CONNECTIONS TO AHU ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
 - PANEL AND CIRCUIT NUMBER WERE OBTAINED FROM FIELD INVESTIGATION AND MUST BE VERIFIED FOR ACCURACY BY CONTRACTOR AND ADJUSTED FOR ACTUAL FIELD CONDITION IF NECESSARY. PROVIDE NEW TYPED PANEL DIRECTORY INDICATING ALL LOADS.
- 5 PROVIDE POWER FOR NEW ELECTRIC DUCT HEATER AS SHOWN ON PLAN AND PER INFORMATION ON NAMEPLATE OF HEATER AND INSTALL NEW CONDUIT AND FEEDER TO A NEW DISCONNECT SWITCH TO BE MOUNTED NEAR THE HEATER. MAKE ALL CONNECTIONS TO HEATER ACCORDING TO MANUFACTURER'S INSTRUCTIONS. PANEL AND CIRCUIT NUMBER WERE OBTAINED FROM FIELD INVESTIGATION AND MUST BE VERIFIED FOR ACCURACY BY CONTRACTOR AND ADJUSTED FOR ACTUAL FIELD CONDITION IF NECESSARY. PROVIDE NEW TYPED PANEL DIRECTORY INDICATING ALL LOADS.
- 6 CONNECT NEW EXHAUST FAN TO EXISTING CIRCUIT THAT FED OLD EXHAUST FAN.
- 7 PROVIDE POWER TO NEW CHILLER FROM NEW 120/240V,3ø,4W PANEL "MDP" AND MAKE ALL CONNECTIONS PER CHILLER MANUFACTURER'S INSTRUCTIONS.
- (8) CONNECT NEW BMS CONTROL PANEL TO EXISTING CIRCUIT THAT FED OLD CONTROL PANEL. COORDINATE WITH MECHANICAL CONTRACTOR.

AUGUSTO E BOBES JR. P.E. **FLORIDA P.E. # 39410**



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Maitland, FI 32751-3331

BY THE ENGINEER.

WILLOW STREET **COMMUNITY CENTER HVAC** REPLACEMENT

6565 WILLOW STREET MT. DORA, FLORIDA

Revisions

No.	Date	Description

Key Plan

MPE PROJ#: 2013-126

Drawn By: WMC

Checked By: ABJr

Designed By: WMC

| Issue Date: 01/30/2015

Drawing Scale: 3/16"=1'-0"

Drawing Title:

FLOOR PLAN **ELECTRICAL** RENOVATION

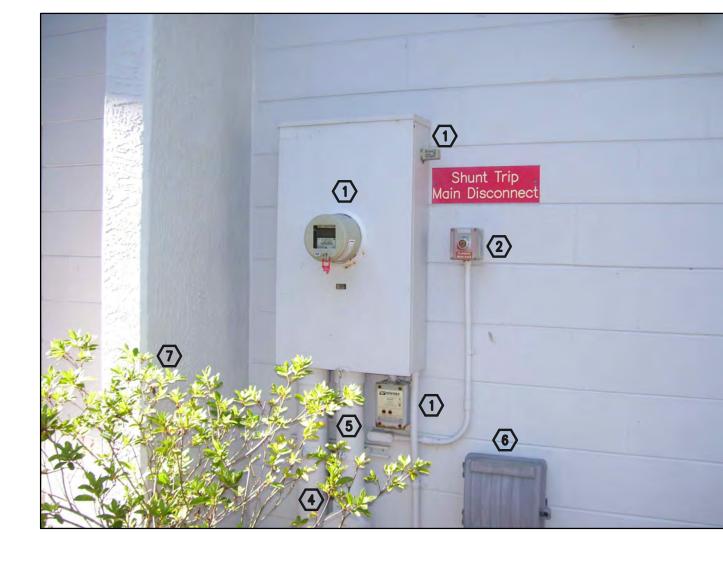
BID DOCUMENTS

Drawing No.

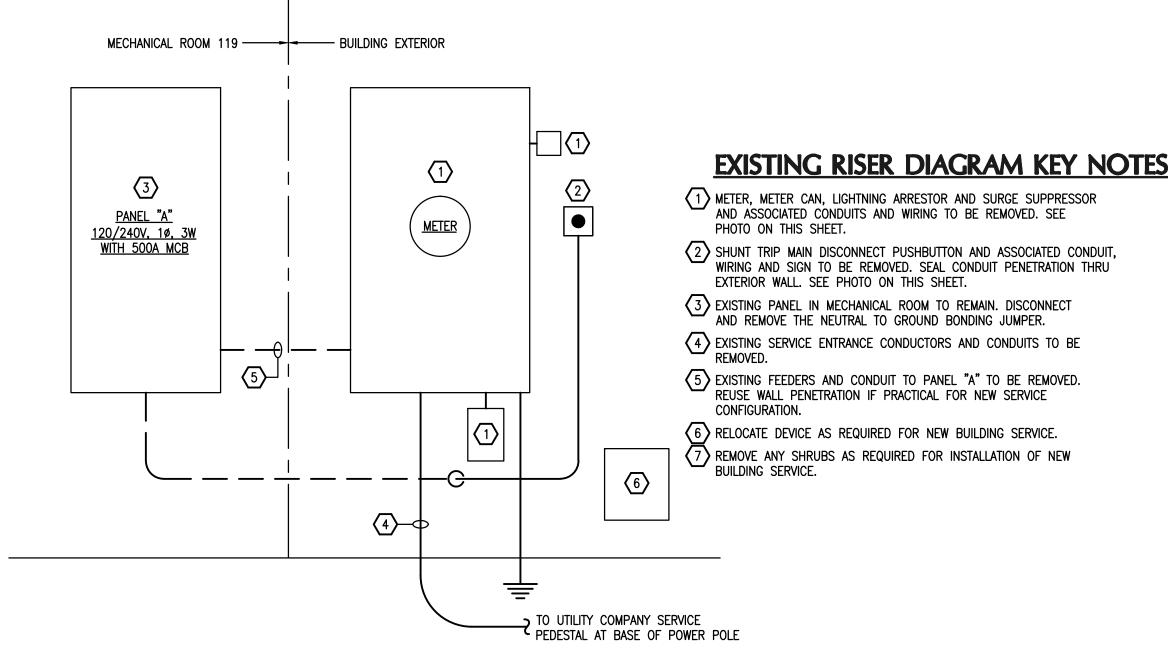
- —

PANEL IS EXISTING TO BE REUSED. ALL LOADS ARE EXISTING UNLESS OTHERWISE NOTED.

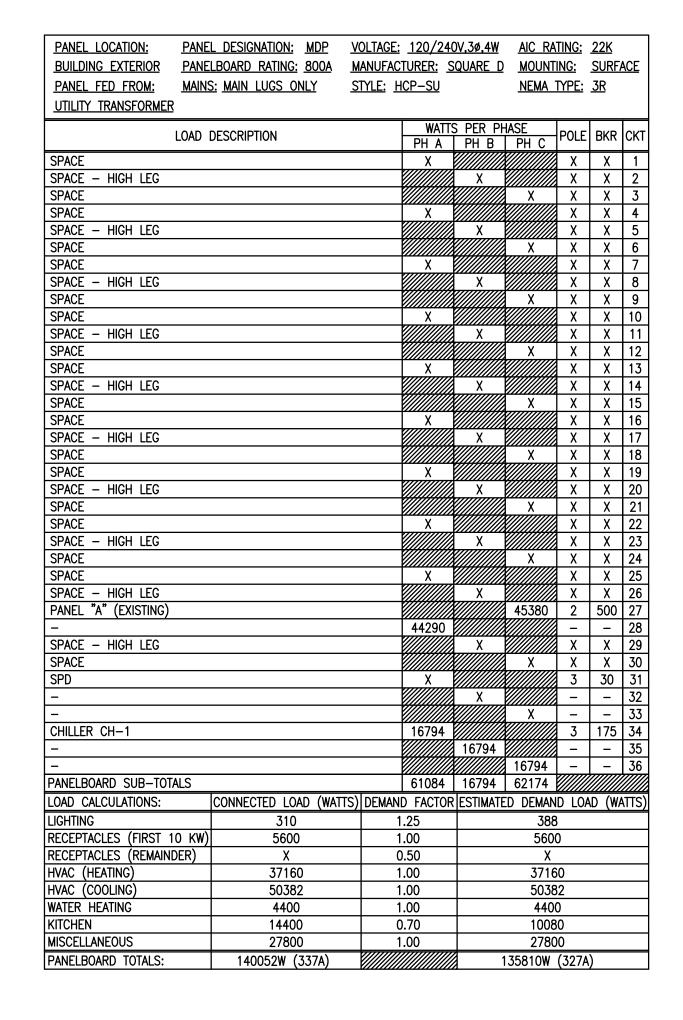
				NEL DESIGNATION: A			<u>VOLTAGE: 120/240V</u> A <u>MANUFACTURER: G.E</u>					
MAINS: 500A M.C.B. STYLE: AQF						<u>E</u>		NEMA TYPE: 1				
LOAD DESCRIPTION	WATTS/PHASE PH A PH B	BKR	POLE	СКТ	СКТ	POLE	BKR	PH A				DESCRIPTION
RECEP. KITCHEN	200	20	1	1	2	1	20			KITCHEN	I LIGHTS	
RECEP. KITCHEN	200	20	1	3	4	1	20			RECEP.	KITCHEN	- ICE MACHINE
RECEP. KITCHEN	200	20	1	5	6	1	20	1000		RECEP.	KITCHEN	 REFRIGERATOR
RECEP. KITCHEN	200	20	1	7	8	1	20		500	RECEP.	KITCHEN	- STORAGE
RECEP. OUTSIDE	200	20	1	9	10	1	20	400		RECEP.	MULTIPU	RPOSE
SPARE	///////////X	20	1	11	12	1	20		400	RECEP.	MECHAN	CAL, TOILET
SPARE	X ///////	20	1	13	14	1	20	X		SPARE	(NEW)	
DISHWASHER	1200	20	1	15	16	1	20		900	RECEP.	OFFICE	
DISPOSAL	1200	20	1	17	18	1	20	1000		RECEP.	CONFER	ENCE
RANGE - EF & SF FAN	1400	20	1	19	20	1	20		700	RECEP.	MULTIPU	RPOSE
SPARE	X ////////	20	1	21	22	1	20	700		RECEP.	TRAINING	ROOM
SPARE (NEW)	/////////X	50	2	23	24	2	50		Х	SPARE	(NEW)	
-	X ////////	-	_	25	26	_	_	Х		-	•	
AHU-1.1 (NEW)	1440	20	2	27	28	2	30			WATER	HEATER	
-	1440	-	_	29	30	_	_	2200		<u> </u>		
EDH-1.1 (NEW)	7500	80	2	31	32	2	90		5000	KITCHEN	N RANGE	
-	7500	-	_	33	34	_	_	5000		 		
SPARE	/////////X	20	1	35	36	2	20			AHU-1.	2 (NEW)	
SPARE	X ////////	20	1	37	38	_	_	1440		-		
SPARE	//////////X	20	1	39	40	2	80			EDH-1.	2 (NEW)	
SPARE	X ///////	20	1	41	42	_	-	7500		<u> </u>		
PANEL "B" SUB-FEED BREAKER	13800	150	2									
_	14000	-	-							X///////		
PANELBOARD SUB-TOTALS	24740 25740							19550	19640		PANELBO	ARD SUB-TOTALS
LOAD CALCULATIONS: CO	ONNECTED LOAD (WATTS)	DEM	AND F	ACTO)R	EST	IMATE	DEMAN	D LOAD (WATTS)		NOTES:
LIGHTING	310		1.25				388					
RECEPTACLES (FIRST 10 KW)	5600		1.00			5600						
RECEPTACLES (REMAINDER)	X		0.50				X			7		
HVAC (WORST CASE)	37160		1.00				37160				7	
WATER HEATING	4400		1.00				4400				7	
KITCHEN	14400		0.70				10080				7	
MISCELLANEOUS	S 27800			1.00			27800				7	
							85428W (356A)			1		

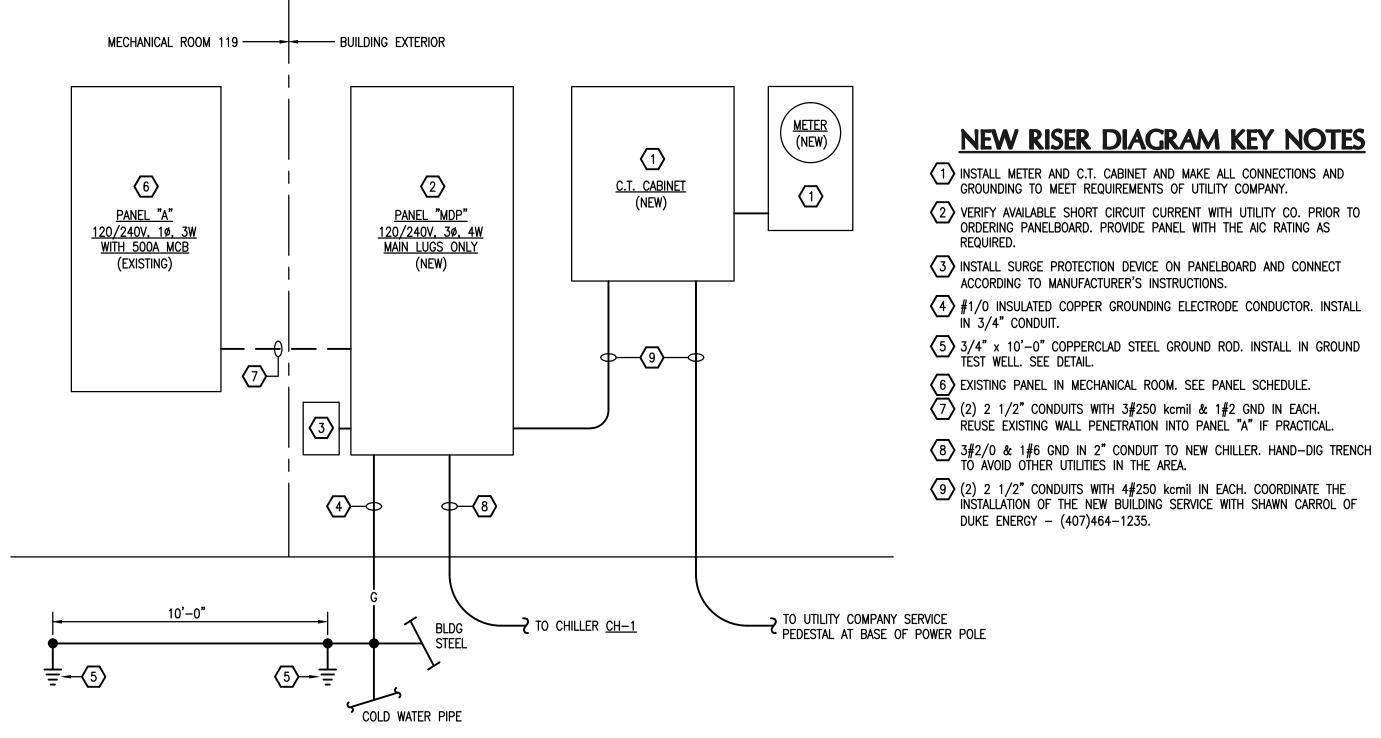


EXISTING BUILDING SERVICE

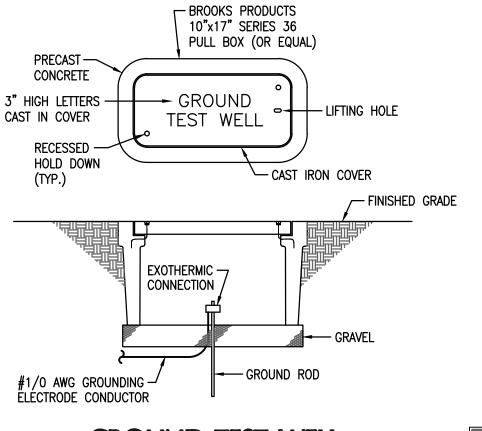


EXISTING POWER RISER DIAGRAM

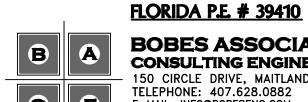




NEW POWER RISER DIAGRAM



GROUND TEST WELL



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<u>AUGUSTO E BOBES JR. P.E.</u>

SHUNT TRIP MAIN DISCONNECT PUSHBUTTON AND ASSOCIATED CONDUIT, WIRING AND SIGN TO BE REMOVED. SEAL CONDUIT PENETRATION THRU

6565 WILLOW STREET MT. DORA, FLORIDA

Revisions

No.	Date	Description

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MEP/FP Engineering

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WILLOW STREET

COMMUNITY

CENTER HVAC

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PROFESSIONAL

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Key Plan

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Designed By: WMC

Drawn By: WMC

Checked By: ABJr

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Drawing Title:

ELECTRICAL RISER DIAGRAMS

AND PANEL SCHEDULES

BID DOCUMENTS

Drawing No.