PROJECT DIRECTORY

OWNER REPRESENTATIVE
IVAN LESPIER, CONSTRUCTION MANAGER

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francisco@cabralengineering.com
PHONE: (321) 246-4041

GENERAL CONTRACTOR
TBD
COMPANY NAME
STREET ADDRESS
CITY, STATE ZIP
EMAIL: ***@***.com
PHONE: (XXX) XXX-XXXX
FAX: (XXX) XXX-XXXX

GENERAL NOTES

1. THIS PROJECT SHALL INCORPORATE ALL ASPECTS OF THE AMERICAN INSTITUTE OF ARCHITECTS A201 'GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION'. CONTRACTORS SHALL BECOME FAMILIAR WITH OF THIS DOCUMENT AND APPLY TO CONSTRUCTION ACTIVITIES.
2. THESE DRAWINGS ARE INTENDED TO INDICATE COMPLETED SYSTEMS AND CONSTRUCTION. THE CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE THAT ALL SYSTEMS ARE BUDGETED AND INSTALLED CORRECTLY. THE OWNER SHOULD BE NOTIFIED OF ANY INCOMPLETE ASPECTS OF THIS PROJECT PRIOR TO CONTRACT.
3. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER PRODUCING QUALITY END PRODUCTS TYPICAL OF SIMILAR CONSTRUCTION USING SIMILAR MATERIALS IN SIMILAR CONDITIONS. MANUFACTURER OR SUPPLIER GUIDELINES SHALL BE OBSERVED IN THE ABSENCE OF CONTRARY INFORMATION FOR THE INSTALLATION, ASSEMBLY, OR PROVISION OF MATERIALS OR EQUIPMENT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS, WORKMAN, AND ANY ACTIVITY ON THE SITE SUBJECT TO LOSS OR DAMAGE FOR ANY REASONS UPON EXECUTION OF THE CONTRACT. IMMEDIATE REPARATIONS WILL BE REQUIRED SO AS NOT TO DELAY ANY PROJECT SCHEDULES.
5. THE SITE SHALL BE MAINTAINED IN A CLEAN AND SAFE CONDITION FREE OF DEBRIS AND RUBBISH THROUGH DAILY CLEANING AND DEPOSITS OF WASTE INTO CONTRACTOR PROVIDED CONTAINER.
6. CONTRACTOR SHALL CONFORM TO ALL GOVERNMENTAL SAFETY STANDARDS AND WORKING CONDITIONS AT ALL TIMES.
7. ARCHITECT SHALL NOT BEAR THE COSTS FOR GOVERNMENTAL ASSESSED TAXES, FEES, PERMITS, INSPECTIONS, OR OTHER COSTS.
8. CONTRACTORS SHALL COORDINATE WORK BETWEEN SUBCONTRACTORS AND IDENTIFY ALL ITEMS AND WORK WHICH ARE TO BE PROVIDED UNDER THE CONTRACT. THE CONTRACTORS SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR COMPLETE CONSTRUCTIONS ACCORDING TO THE INTENT OF THESE DOCUMENTS.
9. ALL DISCREPANCIES IN THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER OR ARCHITECT IN WRITING PRIOR TO COMMENCEMENT OF WORK.
10. ALL WORK WILL BE PERFORMED IN STRICT COMPLIANCE WITH CODES, ORDINANCES, AND LAWS OF THE VARIOUS GOVERNMENTAL JURISDICTIONS RELATED TO THIS PROPERTY. IF THE CONTRACTOR OR SUBCONTRACTORS OBSERVES THAT PORTIONS OF THESE DOCUMENTS ARE NOT COMPLIANT, THE ARCHITECT MUST BE NOTIFIED PRIOR TO EXECUTION OF A CONSTRUCTION CONTRACT.
11. DO NO RELY ON SCALE OF DRAWINGS - VERIFY UNCLEAR DIMENSIONS WITH ARCHITECT.
12. ALL DIMENSIONS ARE TAKEN FROM FINISH FACE UNLESS NOTED OTHERWISE.
13. ALL DOORS ARE CENTERED OR 4" AWAY FROM HINGE SIDE WALL UNLESS NOTED OTHERWISE.
14. ALL MATERIALS, COMPONENTS, FINISHES, AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS OR STANDARD INDUSTRY PRACTICES.
15. CONTRACTOR SHALL VERIFY ALL LOCATIONS FOR TOILETS, VENTS, DUCTS, SLEEVES, CHASES, AND PENETRATIONS OF ROOF.

LAKE COUNTY

ASTOR LIBRARY TEMPORARY FACILITIES
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DRAWING SYMBOLS

- COLUMN BUBBLE
- REVISIONS
- DOOR TAG (ROOM #, DOOR #)
- WINDOW TAG
- SECTION SYMBOLS (SECTION #, SHEET #)
- INTERIOR ELEVATION SYMBOLS (ELEVATION #, SHEET #)

MATERIAL SYMBOLS

- BRICK
- CONCRETE BLOCK
- CONCRETE
- SAND/PLASTER
- BATT INSULATION
- STRUCTURAL STEEL
- GRANULAR FILL
- EARTH
- RIGID INSULATION
- FINISHED WOOD
- FRAMING WOOD
- ACOUSTICAL TILE / PANEL

ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT

ABBREVIATIONS

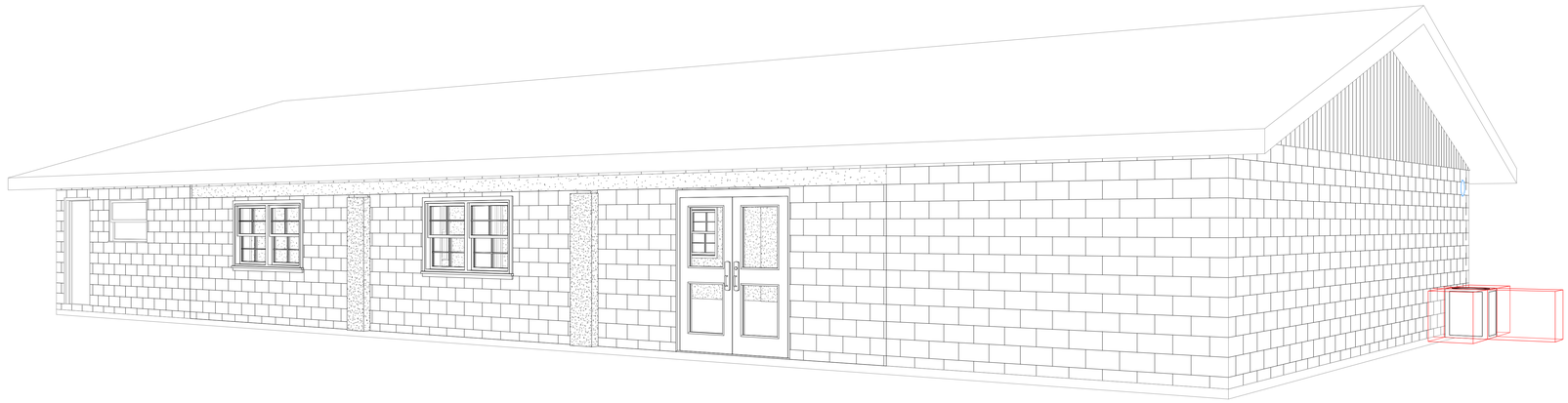
ACT - ACOUSTIC CEILING TILE	NIC - NOT IN CONTRACT
AFF - ABOVE FINISH FLOOR	NTS - NOT TO SCALE
CG - CORNER GUARD	OC - ON CENTER
CMU - CONCRETE MASONRY UNIT	UNO - UNLESS NOTED OTHERWISE
CJ - CONTROL JOINT	SF - SQUARE FEET
CT - CERAMIC TILE	TYP - TYPICAL
DS - DOWN SPOUT	TOF - TOP OF FOOTING/FDTN
FF - FINISHED FLOOR ELEVATION	TOS - TOP OF STEEL
FD - FLOOR DRAIN	TOC - TOP OF CURB
FE - FIRE EXTINGUISHER	TOM - TOP OF MASONRY
GALV - GALVANIZED	VIF - VERIFY IN FIELD
GYP BD - GYPSUM BOARD	VCT - VINYL COMPOSITION TILE
MO - MASONRY OPENING	WH - WALL HYDRANT
UNO - UNLESS NOTED OTHERWISE	WWF - WELDED WIRE FABRIC

ALL ABBREVIATIONS MAY NOT BE USED ON THIS PROJECT

DRAWING INDEX

SITE LOCATION MAP

SCALE: 1" = 100'-0"



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NO.	DESCRIPTION	DATE

STATE OF FLORIDA — JOHN P. ADAMS — AR90202 — REGISTERED ARCHITECT — 09/22/2022

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
Jennifer Zaffuto, AIA, LEED, NCARB

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SEPTEMBER 22, 2022

CS.1

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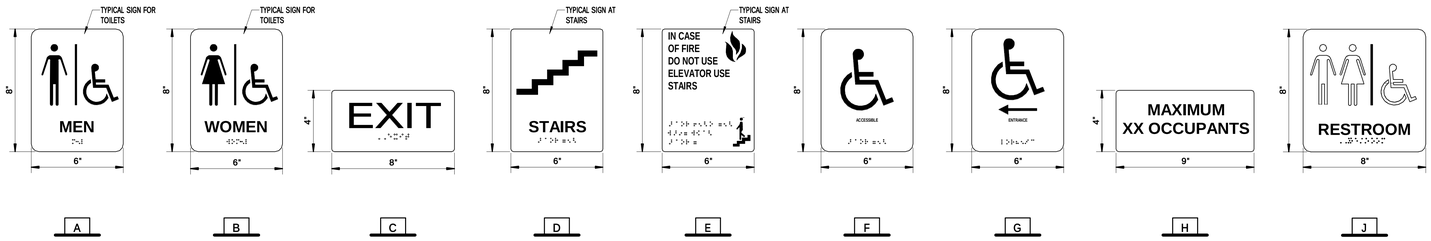
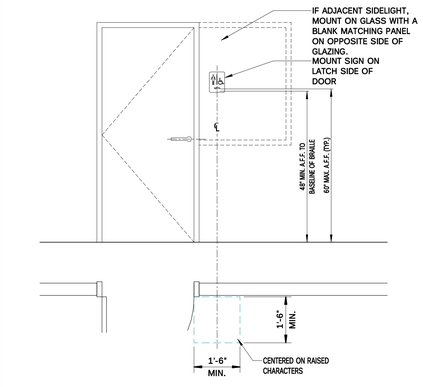
SIGNAGE DETAILS

SCALE: 3" = 1'-0"



SIGN MOUNTING LOCATION

SCALE: 1/2" = 1'-0"



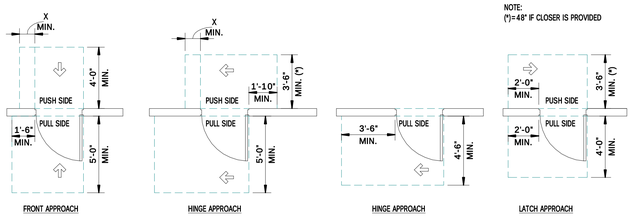
ADA-DOOR CLEARANCE

SCALE: 1/4" = 1'-0"

NOTE:
X=12" IF BOTH CLOSER AND LATCH ARE PROVIDED

NOTE:
X=12" IF BOTH CLOSER AND LATCH ARE PROVIDED
(*)=48" MIN. IF BOTH CLOSER AND LATCH ARE PROVIDED

NOTE:
(*)=48" IF CLOSER IS PROVIDED

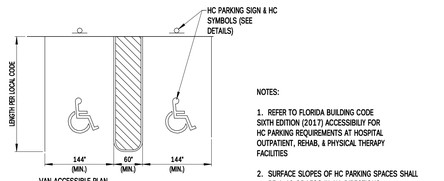


MANEUVERING CLEARANCE AT MANUAL SWINGING DOOR

SCALE: 1/4" = 1'-0"

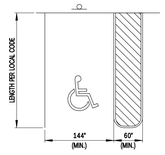
H.C. PARKING

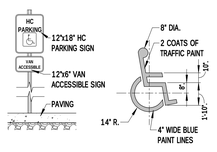
SCALE: 3/32" = 1'-0"



NOTES:

1. REFER TO FLORIDA BUILDING CODE SIXTH EDITION (2017) ACCESSIBILY FOR HC PARKING REQUIREMENTS AT HOSPITAL OUTPATIENT, REHAB, & PHYSICAL THERAPY FACILITIES
2. SURFACE SLOPES OF HC PARKING SPACES SHALL BE 1:48 OR LESS IN ALL DIRECTIONS



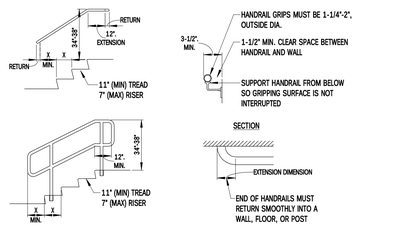


TYP. ACCESSIBILITY SIGN DETAIL
SCALE: NTS

HANDICAP PARKING SYMBOL
SCALE: NTS

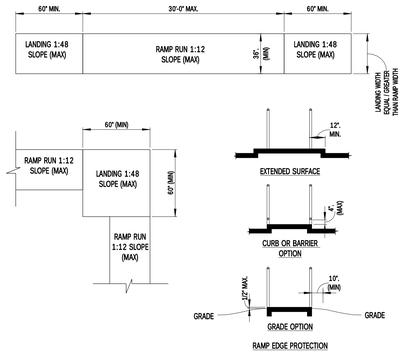
STAIR DETAILS

SCALE: 3/32" = 1'-0"



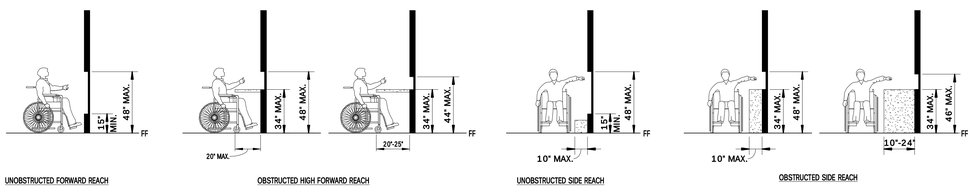
RAMPS AND STAIRS

SCALE: 3/32" = 1'-0"



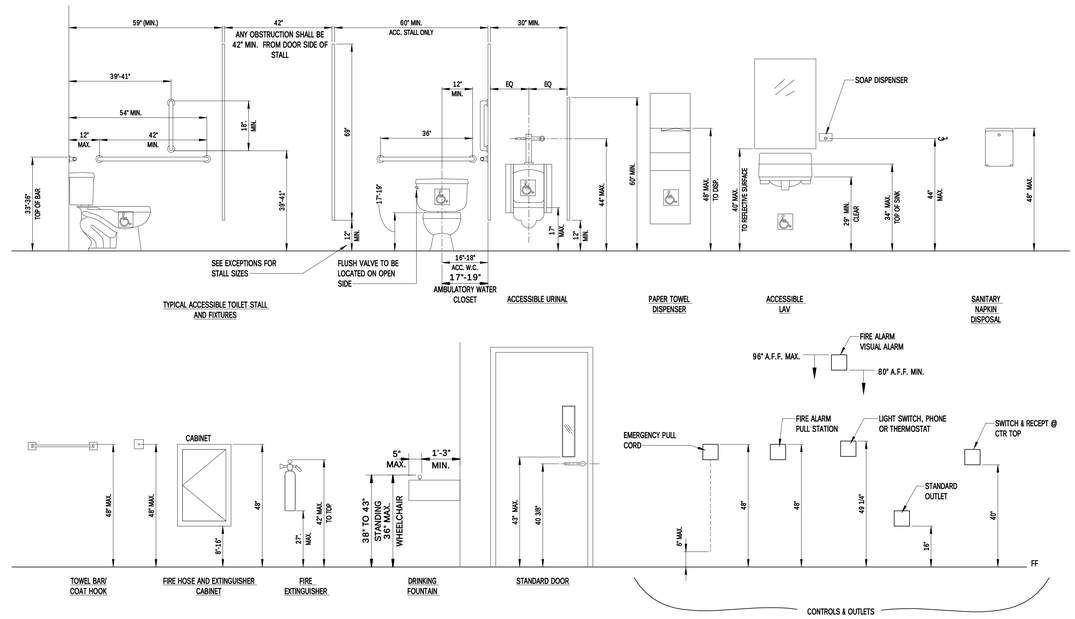
TYPICAL REACH RANGES

SCALE: 1/4" = 1'-0"



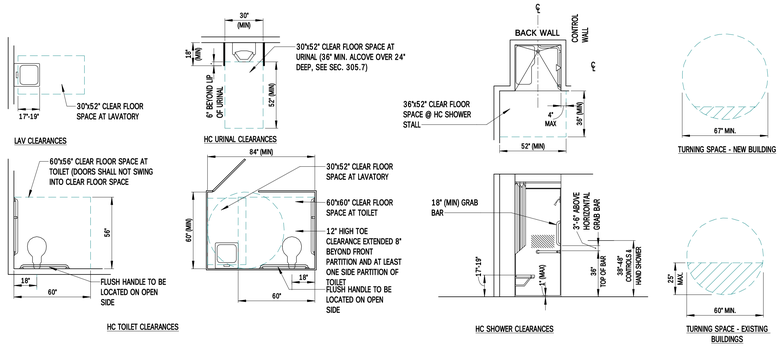
TYPICAL MOUNTING HEIGHTS

SCALE: 1/2" = 1'-0"



TYPICAL CLEAR SPACE

SCALE: 1/4" = 1'-0"



ACCESSIBILITY NOTES

1. THESE DIMENSIONS ARE REQUIREMENTS FOR MANEUVERING AREA AND FOR THE LOCATION OF FIXTURES, DEVICES, AND TOILET ACCESSORIES. CONFLICTS WITH THE DRAWING DETAILS OR DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
2. NOT ALL OF THESE DIMENSIONS OR DETAILS MAY BE APPLICABLE TO THIS PROJECT. THIS INFORMATION IS PROVIDED FOR REFERENCE PURPOSES.
3. IF NOT DETERMINED OTHERWISE, STANDARD ADA 'REACH RANGE' IS 15"-48".
4. ALL PIPING FOR ACCESSIBLE LAVS, INCLUDING DRAIN PIPING UNDER COUNTER TO BE INSULATED.
5. ACCESSIBLE SIGNAGE SHALL HAVE 18" WIDE x 18" DEEP CLEAR FLOOR SPACE (SEE ANSI A117.1-2009 FOR ALTERNATE SIGN LOCATION).
6. ♿ DENOTES FIXTURES TO MEET THE ACCESSIBILITY REQUIREMENTS OF PERSONS WITH DISABILITIES.
7. HORIZONTAL GRAB BARS SHALL BE PROVIDED ACROSS THE CONTROL WALL & ON THE BACK WALL TO A POINT 18" FROM CONTROL WALL OF SHOWER.
8. VERTICAL GRAB BAR, 18" (MIN) IN LENGTH, SHALL BE PROVIDED ON THE CONTROL END WALL 3" TO 6" ABV THE HORIZONTAL GRAB BAR & 4" (MAX) INWARD FROM FRONT EDGE OF SHOWER
9. RAMP & LANDING CROSS SLOPES 1:48 MAX.
10. HANDRAILS REQ. AT RAMPS W/ 6" OR MORE RISE.
11. EDGE PROJECT AT RAMPS SHALL BE REQUIRED WHERE DROP-OFF ALONG EDGE IS GREATER THAN 1/2" WITHIN 10" OF RAMP EDGE.
12. 42" HIGH GUARDRAILS SHALL BE PROVIDED WHERE EDGE DROP-OFF GREATER THAN 30 INCHES.
13. CONTRACTOR TO SUPPLY AND INSTALL SIGNS AS SHOWN ON THIS SHEET, AS NOTED ELSEWHERE ON DRAWINGS, AND AS REQUIRED BY ANY OTHER CODE OR AGENCY HAVING JURISDICTION.

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STATE OF FLORIDA
JOHN P. ADAMS
AR95202
09/22/2022
REGISTERED ARCHITECT

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
Jennifer Zaffuto, AIA, LEED, NCARB

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KTH ARCHITECTS

KTH # 22066A

DATE
DESCRIPTION
NO.

LAKE COUNTY
ASTOR LIBRARY TEMPORARY FACILITIES
CODE DATA DETAILS
54905 ALCO RD, ASTOR, FL 32102

SEPTEMBER 22, 2022

PERMIT SET

C.2

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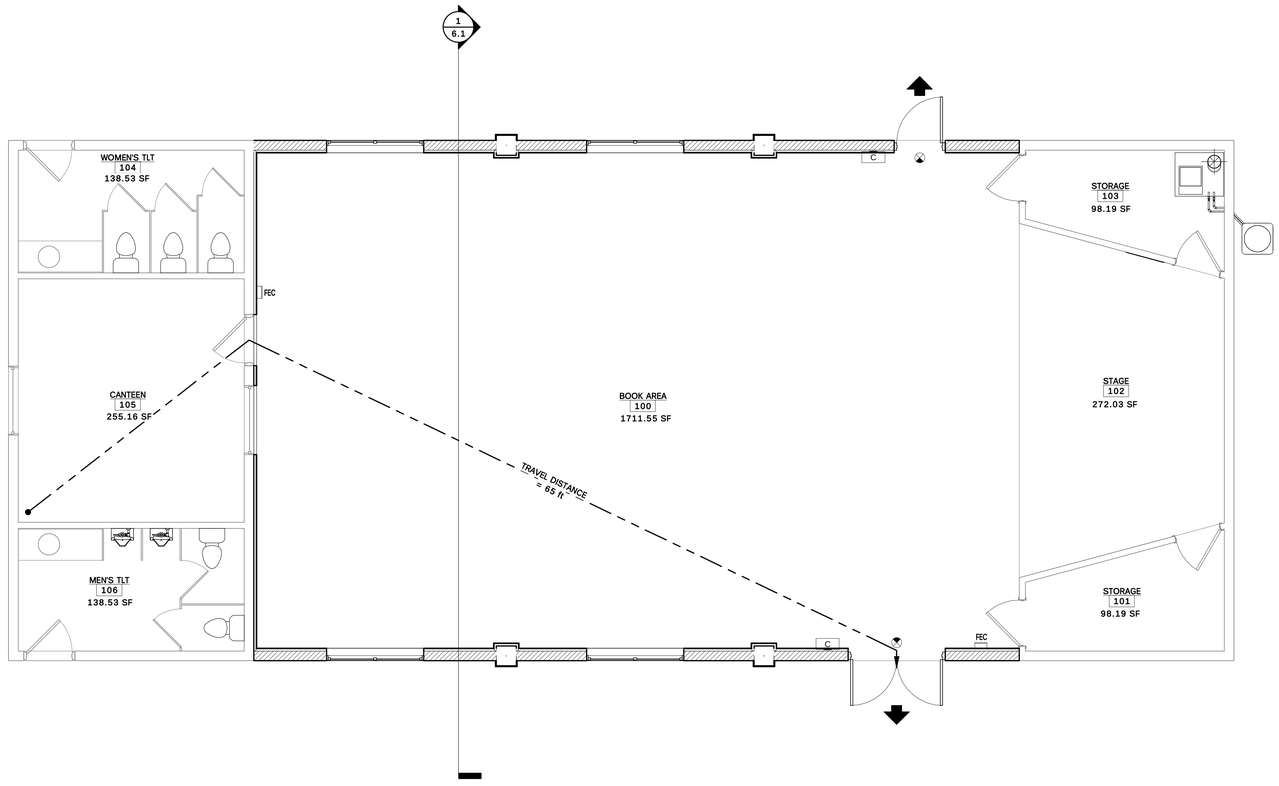

LIFE SAFETY FLOOR PLAN

SCALE: 1/4" = 1'-0"

PROJECT NORTH

CODE REQUIREMENTS

APPLICABLE CODES:

FLORIDA BUILDING CODE 7TH EDITION (2020) EXISTING BUILDING CODE
FLORIDA BUILDING CODE 7TH EDITION (2020) ACCESSIBILITY
FLORIDA BUILDING CODE 7TH EDITION (2020) BUILDING
FLORIDA BUILDING CODE 7TH EDITION (2020) ENERGY CONSERVATION
FLORIDA BUILDING CODE 7TH EDITION (2020) MECHANICAL
FLORIDA BUILDING CODE 7TH EDITION (2020) PLUMBING

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BUILDING CODE REQUIREMENTS:

FLORIDA EXISTING BUILDING CODE REVIEW:

SECTION 604.1 - APPLICATION: LEVEL 3 ALTERATIONS SHALL COMPLY WITH THE PROVIDIONS OF CHAPTER 7 AND 8 FOR LEVEL 1 AND 2 ALTERATIONS, RESPECTIVELY, AS WELL AS THE PROVISIONS OF CHAPTER 9.

SECTION 701.1 - LEVEL 1 ALTERATIONS AS DESCRIBED IN SECTION 602 SHALL COMPLY WITH THE REQUIREMENTS OF THIS CHAPTER.

SECTION 801.3 - COMPLIANCE: ALL NEW CONSTRUCTION ELEMENTS, COMPONENTS, SYSTEMS, AND SPACES SHALL COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, BUILDING.

SECTION 804 - FIRE PROTECTION. SECTION 804.1 SCOPE: THE REQUIREMENTS OF THIS SECTION SHALL BE LIMITED TO WORK AREAS IN WHICH LEVEL 2 ALTERATIONS ARE BEING PERFORMED, AND WHERE SPECIFIED THEY SHALL APPLY THROUGHOUT THE FLOOR ON WHICH THE WORK AREAS ARE LOCATED OR OTHERWISE BEYOND THE WORK AREA.

BUILDING TYPE IIB AND A SPRINKLER SYSTEM IS NOT REQUIRED

SECTION 805 - MEANS OF EGRESS. SECTION 805.2 GENERAL: THE MEANS OF EGRESS SHALL COMPLY WITH THE REQUIREMENTS OF THIS SECTION, EXCEPTION 2. MEANS OF EGRESS CONFORMING TO THE REQUIREMENTS OF THE BUILDING CODE UNDER WHICH THE BUILDING WAS CONSTRUCTED SHALL BE CONSIDERED COMPLIANT MEANS OF EGRESS IF, IN THE OPINION OF THE CODE OFFICIAL, THEY DO NOT CONSTITUTE A DISTINCT HAZARD TO LIFE.

THE MEANS OF EGRESS IS IN CONFORMANCE WITH EXISTING MEANS OF EGRESS.

SECTION 808.1 - NEW INSTALLATIONS: ALL NEWLY INSTALLED ELECTRICAL EQUIPMENT AND WIRING RELATING TO WORK DONE IN ANY WORK AREA SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 70 EXCEPT AS PROVIDED FOR IN SECTION 808.3.

SECTION 809.1 - RECONFIGURED OR CONVERTED SPACES: ALL RECONFIGURED SPACES INTENDED FOR OCCUPANCY AND ALL SPACES CONVERTED TO HABITABLE OR OCCUPIABLE SPACE IN ANY WORK AREA SHALL BE PROVIDED WITH NATURAL OR MECHANICAL VENTILATION IN ACCORDANCE WITH FLORIDA BUILDING CODE, MECHANICAL.

SECTION 810.1 - MINIMUM FIXTURES: WHERE THE OCCUPANT LOAD OF A STORY IS INCREASED BY MORE THAN 20 PERCENT, PLUMBING FIXTURES FOR THE STORY SHALL BE PROVIDED IN QUANTITIES SPECIFIED IN THE FLORIDA BUILDING CODE, PLUMBING BASED ON THE INCREASED OCCUPANT LOAD.

SUFFICIENT FIXTURES PROVIDED

SECTION 906.1 - GENERAL: A BUILDING, FACILITY, OR ELEMENT THAT IS ALTERED SHALL COMPLY WITH THE PROVISIONS OF THE FLORIDA BUILDING CODE, ACCESSIBILITY.

ALL AREAS BEING ALTERED WILL COMPLY WITH THE PROVISIONS OF THE FLORIDA BUILDING CODE, ACCESSIBILITY

FLORIDA BUILDING CODE REVIEW – NEW CONSTRUCTION ELEMENTS:

SECTION 303.4 - ASSEMBLY GROUP A-3

TABLE 506.2 - CONSTRUCTION TYPE IIIB, AND IS UNDER 9,500 SF

NO SPRINKLER SYSTEM REQUIRED

TABLE 601 - TYPE IIIB CONSTRUCTION

TABLE 1004.5 - LIBRARY – READING ROOMS = 50 NET
BOOK AREA AT 1711.55 SF = 35 OCCUPANTS
STORAGE AT 98.19 SF = 2 OCCUPANTS
STORAGE AT 98.19 SF = 2 OCCUPANTS
CANTEEN AT 255.16 SF = 6 OCCUPANTS

TOILET ROOMS = 50 NET
WOMEN'S TLT AT 138.53 SF = 3 OCCUPANTS
MEN'S TLT AT 138.53 SF = 3 OCCUPANTS

STAGES AND PLATFORMS = 15 NET
STAGE AT 272.03 SF = 19 OCCUPANTS

T O T A L = 2,712.18 SF AND 70 OCCUPANTS

SECTION 1005.3.2.1 - OTHER EGRESS COMPONENTS WITH EXCEPTION: 0.15 INCH PER OCCUPANT – 70 OCCUPANTS MAX X 0.15 IN = 10.5 IN REQUIRED WITH 36 MIN. PROVIDED AT EACH DOOR OPENING.

TABLE 1017.2 - EXIT ACCESS TRAVEL DISTANCE WITHOUT SPRINKLER SYSTEM = 200 FEET.

FBC – PLUMBING: PLUMBING FIXTURE CALCULATIONS

TABLE 403.1 WATER CLOSETS (WC): 0.737 REQUIRED – 5 EXISTING = 5 WC PROVIDED
LAVATORIES (LAV): 0.35 REQUIRED – 2 EXISTING = 2 LAV PROVIDED
DRINKING FOUNTAIN (EWC): 0 REQ'D – 0 PROVIDED
SERVICE SINK: 1 REQ'D – 1 EXIST MOP SINK/SERVICE SINK PROVIDED

CODE DATA LEGEND

EGRESS TRAVEL PATH — TRAVEL DISTANCE ___ FT.

FIRE EXTINGUISHER — FEC

NON-RATED SMOKE TIGHT PARTITION

1-HR. FIRE BARRIER

EXIT SIGN

EXIT SIGN DIRECTION

EXISTING EXIT SIGN — EX

EXIT DIRECTION

EXIT DISCHARGE

ACCESSIBLE SIGN TYPE — A — SEE SHEET CD-1 FOR SIGNAGE DETAILS

PERMIT SET

NO.	DESCRIPTION	DATE

STATE OF FLORIDA
JOHN P. ADAMS
AR96202
09/22/2022
REGISTERED ARCHITECT

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
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KTH # 22066A

LAKE COUNTY
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CODE DATA FLOOR PLAN
54905 ALCO RD, ASTOR, FL 32102

SEPTEMBER 22, 2022

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TURNER
ENGINEERING & CONSULTING, INC.

2428 Old Natchez Trace Trail
Camden, TN 38320
Ph. 941-380-1574
FBPE C.O.A. #29779

Evaluation Report 812D
August 04, 2020

Product Description: Series 8100 PVC Single Hung, Large Missile Impact, 51 7/8" x 61 3/4" unit size, +/-70 PSF, no anchors in sill

Manufacturer: Custom Window Systems, Inc. 1900 SW 44th Ave, Ocala, FL 34474

Statement of Compliance: This report evaluates the above-listed product per the requirements of FAC Product Approval Rule Chapter 61G20-3.005 (4). This product complies with the requirements of the 7th Edition (2020) Florida Building Code including the High Velocity Hurricane Zone. The product testing standards performed are outlined below.

Technical Documentation:

1) This report, prepared by Lucas A. Turner, PE, at 2428 Old Natchez Tre Trl, Camden, TN
2) Approval drawing CWS-812D, signed and sealed by Lucas A. Turner, P.E.
3) Test Report NCTL-210-3815-1A, -2, and -2A, by National Certified Testing Laboratories, Orlando, FL, signed and sealed by Gerard J. Ferrara, with testing performed: TAS 201/202/203-94, ASTM E 1886-02/04/05, 1996-02/04/06/09, and AAMA/WDMA/CSA 101/I.S.2/A440-08
4) Supplemental Calculations to support CWS-812D, signed and sealed by Lucas A. Turner, P.E.

Installation: Units must be installed according to approval document CWS-812D.

Limitations of Use: This product:

- May be used in O/X configuration in sizes and with max. glass DLO heights as shown in CWS-812D
- Is impact resistant and does not require the use of shutters
- May be used in the High Velocity Hurricane Zone
- Requires 7/8" Insulating Glass consisting of 1/8 Annealed or Tempered outboard lite (Tempered required above 30 ft in HVHZ) – Air – 5/16 Laminated (1/8Ann-.090PVB-1/8Ann) inboard lite
- Requires Kuraray Butaeite PVB Interlayer per Miami-Dade NOA 19-0305.02†
- Requires Quanex or Veka white rigid PVC framing per Miami-Dade NOA 17-0206.10† or 17-0228.04†

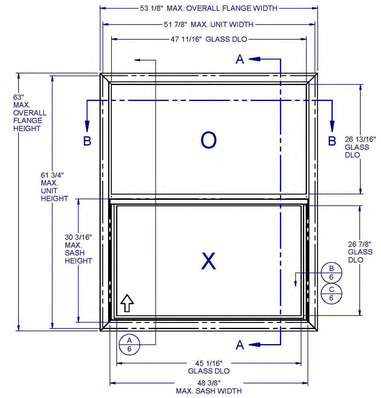
† I have evaluated the interlayer and framing materials in these Kuraray, Quanex, and Veka NOAs and find that they comply with the requirements of the 7th Ed. (2020) Florida Building Code for use in this product.

Certification of Independence: I do not have, nor do I intend to acquire, nor will I acquire, a financial interest in Custom Window Systems or in any company manufacturing or distributing products for which this report is being issued. I do not have, nor do I intend to acquire, nor will I acquire, a financial interest in any other entity involved in the testing or approval process of this product.

LUCAS A. TURNER LICENSE No. 58201 STATE OF FLORIDA PROFESSIONAL ENGINEER

08/04/2020
Lucas A. Turner, P.E.
FL PE #58201

SINGLE HUNG - LARGE MISSILE IMPACT



GENERAL NOTES:

1. THE PRODUCT SHOWN HEREIN IS DESIGNED AND MANUFACTURED TO COMPLY WITH THE FLORIDA BUILDING CODE (FBC), CURRENT EDITION INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ) AND IS RATED FOR WIND ZONE 4 MISSILE LEVEL D IMPACT USE AS DEFINED IN ASTM E 1996 PER THE FBC.
2. GLAZING OPTIONS: (SEE SHEET 2)
3. CONFIGURATIONS: "O/X".
4. DESIGN PRESSURE RATING:
   -NEGATIVE DESIGN LOADS BASED ON, TESTED PRESSURE AND GLASS TABLES ASTM E-1300-04e01/09.
   -POSITIVE DESIGN LOADS BASED ON, TESTED PRESSURE, WATER INFILTRATION TEST PRESSURE AND GLASS TABLES ASTM E-1300-04e01/09.
5. ANCHORAGE: THE 33 1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. SEE SHEET 6 FOR ANCHOR DETAILS. WIND LOAD DURATION FACTOR Cd=1.6 WAS USED FOR WOOD ANCHOR CALCULATIONS.
6. PRODUCT APPROVED FOR IMPACT RESISTANCE. SHUTTERS ARE NOT REQUIRED.
7. ALL FRAMES AND VENTS FULLY WELDED. SMALL JOINT SEAM SEALANT USED AT FIXED MEETING RAIL AND JAMB.
8. SERIES / MODEL DESIGNATION SH-8100.
9. THE DESIGNATION X AND O STAND FOR THE FOLLOWING:
   X = OPERABLE SASH, O = FIXED SASH
10. SECTION CALLOUTS APPLY TO ALL ELEVATIONS IN A SIMILAR LOCATION.
11. EXTERNAL WEEP SLOT = 1/4" x 1-1/4" LOCATED 4" FROM BOTH ENDS.

TABLE OF CONTENTS

MAX. UNIT SIZE	DESIGN PRESSURE RATING	IMPACT RATING
51-7/8" x 61-3/4"	+/- 70 PSF	LARGE MISSILE IMPACT

Custom WINDOW SYSTEMS
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8100 PVC SINGLE HUNG IMPACT

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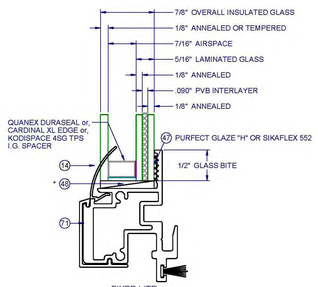
JOHN P. ADAMS AR95202 REGISTERED ARCHITECT
09/22/2022

8/05/2020

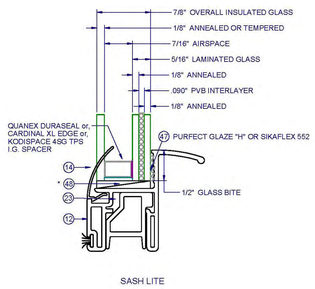
LUCAS A. TURNER, P.E.
FL PE # 58201
2428 Old Natchez Trc Trl
Camden, TN 38320
PH: 941-380-1574

SHEET DESCRIPTION: GENERAL NOTES AND ELEVATIONS

DRAWN BY:	DATE:
BAT	06/18/12
DWG #:	REV.:
CWS-812	D
SCALE:	SHEET
1:15	1 OF 6



FIXED LITE



SASH LITE

* SETTING BLOCKS PER FBC 2411.3.3.1

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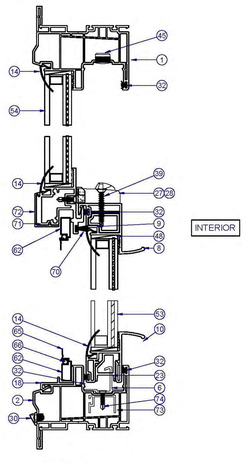
PH: 941-380-1574

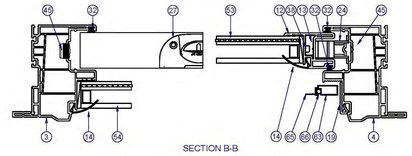
SHEET DESCRIPTION: GLAZING DETAILS

DRAWN BY:	DATE:
BAT	06/18/12
DWG #:	REV.:
CWS-812	D
SCALE:	SHEET
1:1	2 OF 6

INTERIOR



SECTION A-A



SECTION B-B

NOTE: LEFT SIDE SHOWS FIXED SECTION VIEW, RIGHT SIDE SHOWS SASH SECTION VIEW.

NOTE: ITEMS NOT SHOWN FOR CLARITY:
20, 25-26, 36-37, 44, 51-52, 55-56, 64, 67-68

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SHEET DESCRIPTION: SECTION VIEWS

DRAWN BY:	DATE:
BAT	06/18/12
DWG #:	REV.:
CWS-812	D
SCALE:	SHEET
1:2	3 OF 6

NO.	DESCRIPTION	DATE

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Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
Jennifer Zaffuto, AIA, LEED, NCARB

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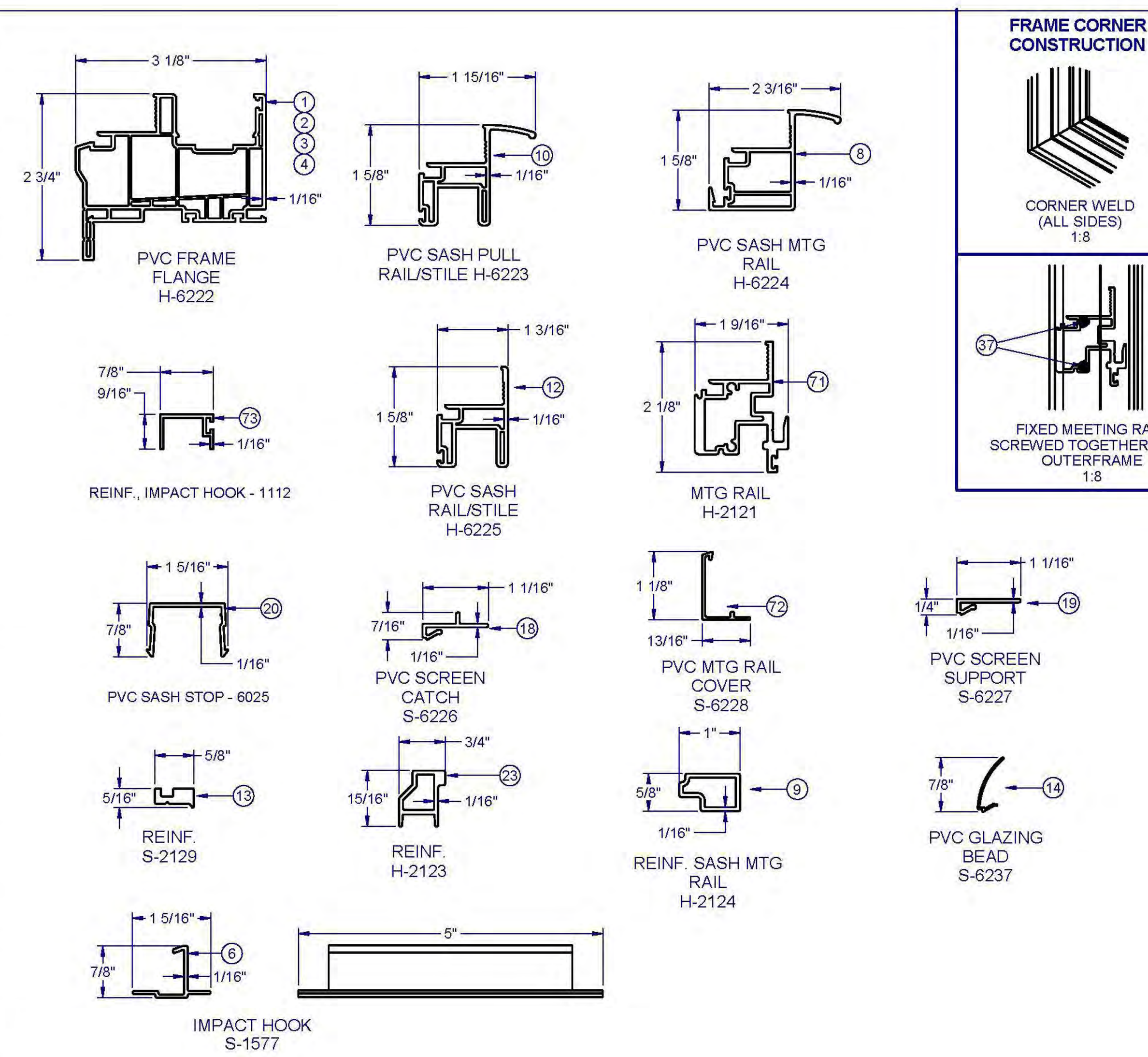
PARTS LIST			
ITEM	PART #	DESCRIPTION	MATERIAL
1	H-6222	Main Fr., SH, w/Flg., PVC, Head	Vinyl
2	H-6222	Main Fr., SH, w/Flg., PVC, Sill	Vinyl
3	H-6222	Main Fr., SH, w/Flg., PVC, L. Jb.	Vinyl
4	H-6222	Main Fr., SH, w/Flg., PVC, R. Jb.	Vinyl
6	S-1577	Impact Hook	Alum
8	H-6224	Sash Meet. Rail, PVC	Vinyl
9	H-2124	Reinf. Sash Meet. Rail	Alum
10	H-6223	Sash Bottom Rail, PVC	Vinyl
12	H-6225	Sash Side/Top/Bot. Rail	Vinyl
13	S-2129	Reinf. S.B.R./S.S.R	
14	S-6237	Glz. Bd., 7/8"	Vinyl
18	S-6226	Scrn. Adapt., w/Nib, PVC, Horiz.	Vinyl
19	S-6227	Scrn. Adapt., PVC, Vert.	Vinyl
20	S-6025	Sash Stop / Filler, PVC, Vert.	Vinyl
23	H-2123	Reinforcement, SBR	Alum
24		Balance	
25	P-3059	Sash Cam, PVC	Plastic
26	P-3046	Take Out Clip	SS
27	P-3783	Lock, Impact, PVC	
28	P-4069	Keeper, Impact, PVC	Zamac
30	P-3215	Weep Cover w/ Flap	Plastic
32	P-3429	Wstp., 0.270 x .187 back FinSeal, Gray	
37	P-4638	#8 x 2-1/2 PH Mod. Truss, Type A, TEK 2	Steel
38	P-3768	#8 x 0.625 Ph PH SMS	Steel
39	P-4051W	#8 x 1.250 Ph FH TEK, Wht.	Steel
40	P-4264W	#8 x 3/4 FH PH w/#6 Head, TEK, Wht.	Steel
44	P-3342	Seam Sealer, SM-5504	
45	P-5588	Cap Plug, 1/2" Hole	Nylon
47	P-3438	Sikaflex 552 or Purfect Glaze "H"	
48	P-5615	Set. Blk., 85 Dur., 1/8" x 1" x 2" Lg.	Rubber
51	P-3881	Temporary Lbl. (NFRC/DP)	
52	P-3613	CWS Lbl. (logo)	
53	Sash	SEE SHEET 2	
54	Fixed	SEE SHEET 2	
56	P-3281	Spacer	
62	P-3218	Screen Frame, Horiz.	Alum
63	P-3218	Screen Frame, Vert.	Alum
64	P-3321	Screen Frame Corner Key	Plastic
65	P-3581	Screen Cloth, 18 x 16 Fiberglass	Fiberglass
66	P-3228	Screen Spline, .155 Dia., Blk.	Vinyl
67	P-3029	Screen Pull Tab	Alum
68	P-3033	Screen Spring, SS	SS
70	P-4959	Wstp., 0.270 x .187 back FinSeal, Gray	
71	H-2121	Alum. Fixed Rail	Alum
72	S-6228	Cover, Fixed Rail	Vinyl
73	S-1112	Reinforcement, Impact Hook	Alum
74	P-3541	#8 x 1/2", Pan Head, TEK	Steel

LINE ITEMS NOT USED:
5, 7, 11, 15-17, 21-22, 29, 31, 33-36, 41-43, 46, 49-50, 55, 57-61, 69



NOTE: ALL ALUMINUM EXTRUSIONS ARE 6063-T6 UNLESS OTHERWISE NOTED.

FRAME CORNER CONSTRUCTION

CORNER WELD (ALL SIDES) 1:8

FIXED MEETING RAIL SCREWED TOGETHER WITH OUTERFRAME 1:8

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8100 PVC SINGLE HUNG IMPACT

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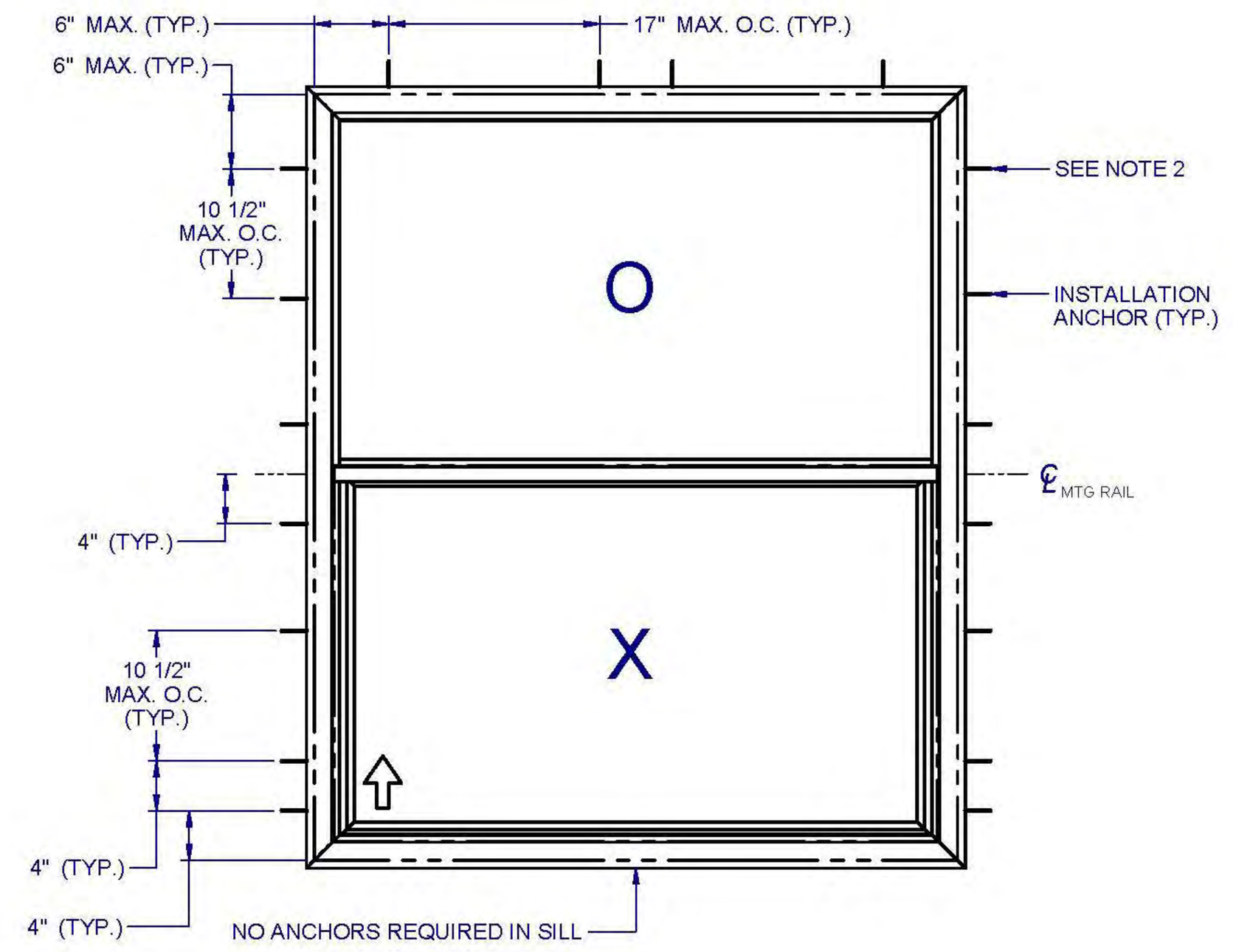
8/05/2020

LUCAS A. TURNER, P.E.
FL PE # 58201
2428 Old Natchez Trc Trl
Camden, TN 38320
PH. 941-380-1574

SHEET DESCRIPTION: BOM AND EXTRUSIONS	
DRAWN BY: BAT	DATE: 06/18/12
DWG #: CWS-812	REV.: D
SCALE: 1:2	SHEET 4 OF 6



ANCHOR LAYOUT - (FLANGE)

NOTES:

1. INSTALL ONE ANCHOR AT EACH INSTALLATION LOCATION. NO ANCHORS REQUIRED IN SILL.
2. SHIM AS REQ AT EACH INSTALLATION ANCHOR USING LOAD BEARING SHIMS. MAX. ALLOWABLE SHIM STACK TO BE 1/4". USE SHIMS WHERE SPACE GREATER THAN 1/16" IS PRESENT. LOAD BEARING SHIMS SHALL BE CONSTRUCTED OF HIGH DENSITY PLASTIC OR BETTER. WOOD SHIMS ARE NOT ALLOWED.
3. ANCHOR TYPE, SIZE, SPACING AND EMBEDMENT SHALL BE AS SPECIFIED IN THESE DRAWINGS, SEE TABLE 1, SHEET 6.
4. ALL INSTALLATION ANCHORS MUST BE MADE OF OR PROTECTED WITH A CORROSION RESISTANT MATERIAL OR COATING. DISSIMILAR METALS OR MATERIALS IN CONTACT WITH PRESSURE TREATED WOOD MUST BE PROTECTED TO PREVENT REACTION.
5. INSTALLATION ANCHORS SHALL BE IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM SPECIFIED IN TABLE 1, SHEET 6.
6. ANCHOR EMBEDMENT TO SUBSTRATE SHALL BE BEYOND WALL DRESSING OR STUCCO. FOR CONCRETE/CMU OPENINGS, EMBEDMENT SHALL BE BEYOND WOOD BUCKS, IF USED, INTO SUBSTRATE. INSTALLATIONS TO SOLID CONCRETE OR GROUT-FILLED CMU MAY INCLUDE BUT DO NOT REQUIRE 1X WOOD BUCKS BETWEEN THE PRODUCT AND THE SUBSTRATE. INSTALLATIONS TO HOLLOW CMU REQUIRE THE USE OF 1X BUCKS BETWEEN THE PRODUCT AND SUBSTRATE.
7. A MINIMUM CENTER-TO-CENTER SPACING SHALL BE MAINTAINED BETWEEN ALL FASTENERS: 3" FOR MASONRY, 1" FOR WOOD AND METAL.
8. WOOD OR MASONRY OPENINGS, BUCKS AND BUCK FASTENERS SHALL BE PROPERLY DESIGNED BY THE ARCHITECT OR ENGINEER OF RECORD AND INSTALLED TO TRANSFER WIND LOADS TO THE STRUCTURE. SUBSTRATES SHALL MEET THE MINIMUM STRENGTH REQUIREMENTS AS SHOWN IN TABLE1, SHEET 6. CONCRETE AND MASONRY SUBSTRATES MAY NOT BE CRACKED.
9. SEALING AND FLASHING STRATEGIES FOR OVERALL WATER RESISTANCE OF INSTALLATION SHALL BE DONE BY OTHERS FOLLOWING THE CURRENT VERSION OF THE REFERENCE DOCUMENTS: FMA/AAMA 100(FIN WINDOWS), FMA/AAMA 200(FLANGE WINDOWS), FMA/WDMA 250(BOX WINDOWS), FMA/AAMA/WDMA 300(EXTERIOR DOORS)

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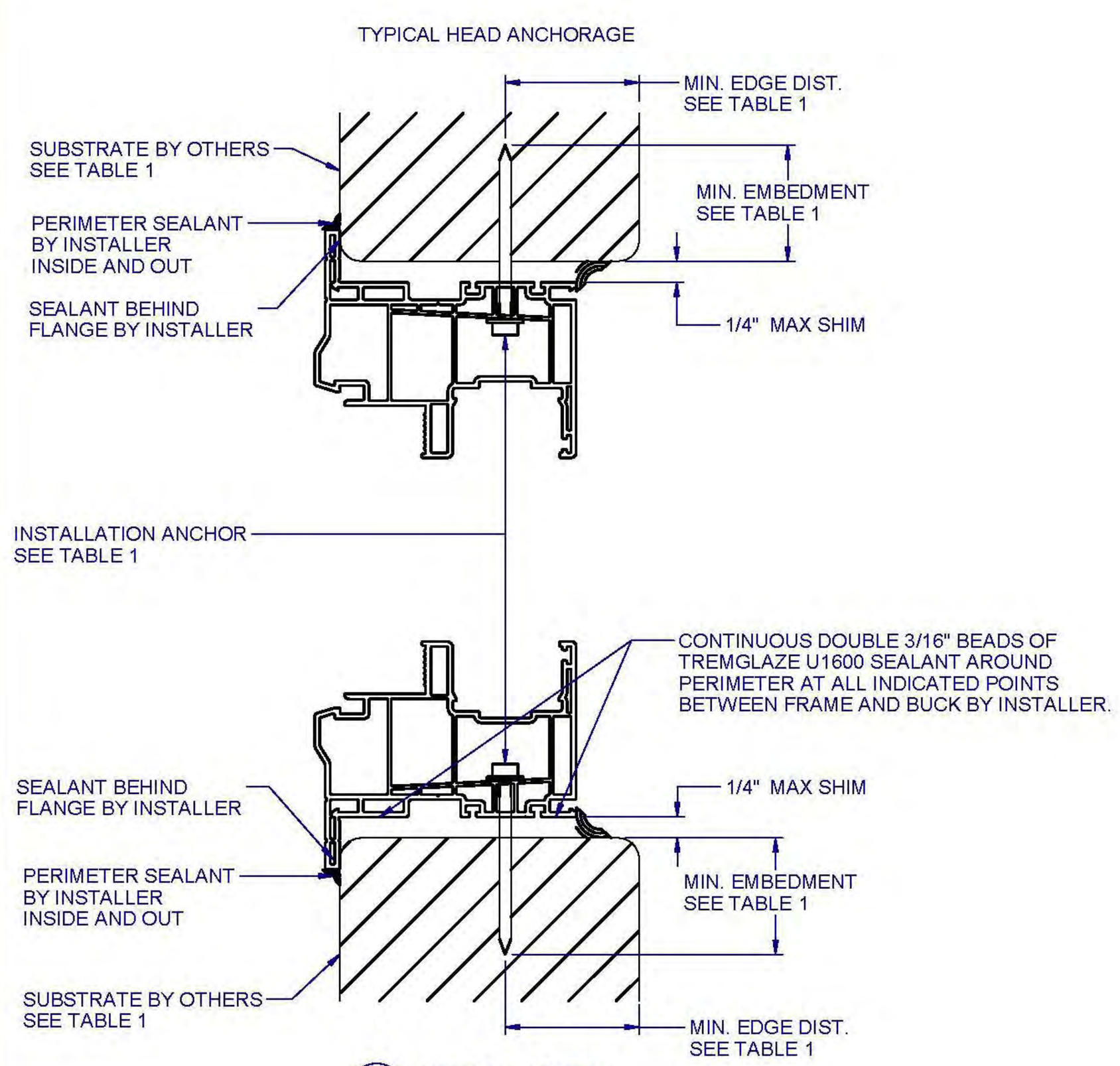
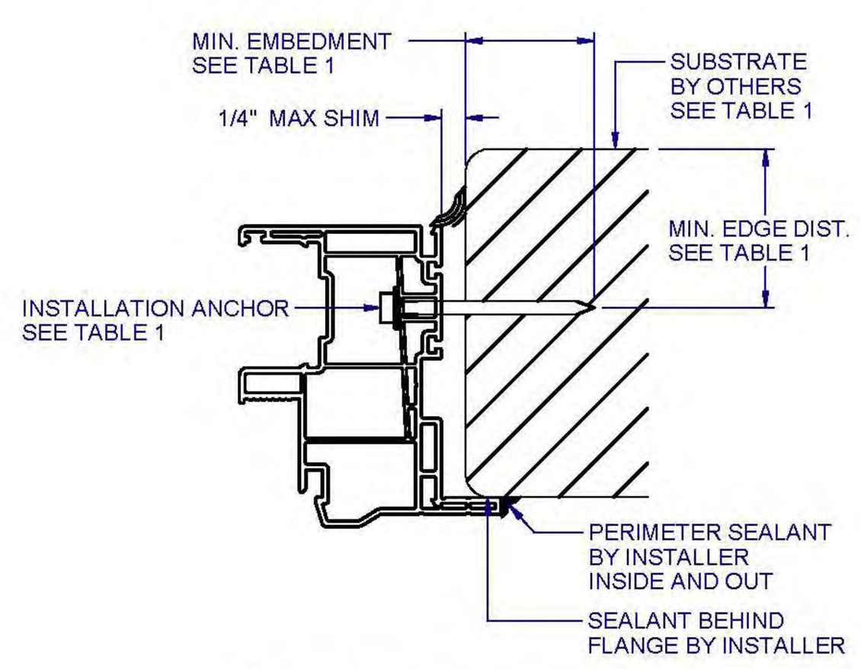
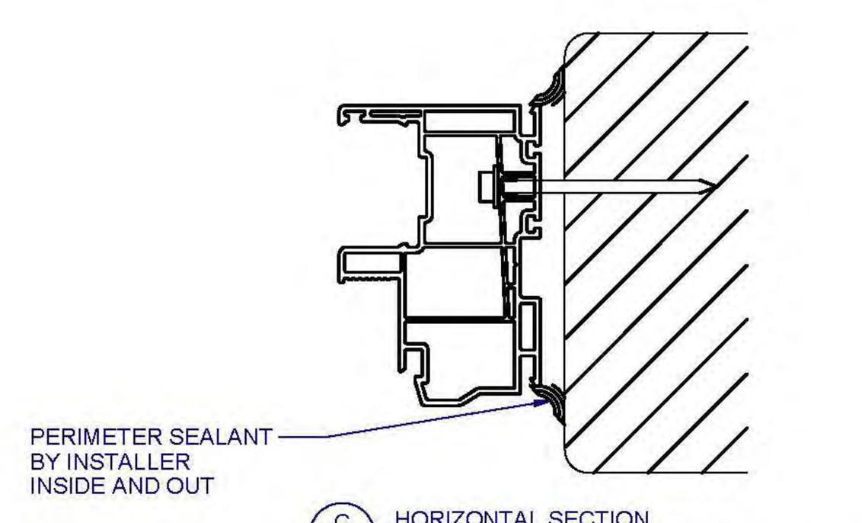
SHEET DESCRIPTION: ANCHOR SCHEDULE AND NOTES	
DRAWN BY: BAT	DATE: 06/18/12
DWG #: CWS-812	REV.: D
SCALE: 1:15	SHEET 5 OF 6



A/6 VERTICAL SECTION
TYPICAL SILL ANCHORAGE



B/6 HORIZONTAL SECTION
TYPICAL JAMB ANCHORAGE



C/6 HORIZONTAL SECTION
BOX FRAME INSTALLATION
HEAD AND SILL SIMILAR FOR BOX INSTALLATION

TABLE 1: APPROVED INSTALLATION FASTENERS			
SUBSTRATE TYPE	ANCHOR TYPE	MIN. EMBEDMENT	MIN. EDGE DIST.
CONCRETE (2.0 KSI MIN.)	3/16" ITW TAPCON	1-1/2"	1-1/8"
HOLLOW OR GROUT-FILLED CMU (117 PCF MIN.)	3/16" ITW TAPCON	1"	2"
CONCRETE (2.85 KSI MIN.)	3/16" ELCO ULTRACON	1"	1"
GROUT-FILLED CMU (ASTM C-90)	3/16" ELCO ULTRACON	1-1/4"	2-1/2"
2X MIN. SOUTHERN PINE (G=0.55)	3/16" ITW TAPCON OR ELCO ULTRACON	1-3/8"	7/8"
2X MIN. SOUTHERN PINE (G=0.55)	#10 WOOD SCREW	1-3/8"	7/8"
16 GAUGE (0.060") MIN. STEEL STUD (33 KSI YIELD MIN)	#10-16 HILTI KWIK-FLEX OR ITW TEKS SELF-DRILLING SCREW	FULL THREAD THRU 0.060"	7/16"
1/8" ALUM. (6063-T5 MIN.) OR 1/8" STEEL (33 KSI MIN.)	#10 GRADE 5 SELF-TAPPING / DRILLING SCREW	FULL THREAD THRU 0.125"	7/16"

FLANGE REMOVAL NOTE: PARTIALLY OR FULLY REMOVING THE FLANGE, UP TO AND INCLUDING A BOX-FRAME APPLICATION IS ACCEPTABLE PROVIDED:

- MIN. 1/4" FILLET OF CONSTRUCTION-GRADE ADHESIVE CAULK IS APPLIED INSIDE AND OUT, FULL PERIMETER, BY INSTALLER.
- PRODUCT ANCHORAGE IS IN ACCORDANCE WITH REQUIREMENTS AS SHOWN FOR FLANGE WINDOWS.

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SHEET DESCRIPTION: INSTALLATION DETAILS	
DRAWN BY: BAT	DATE: 06/18/12
DWG #: CWS-812	REV.: D
SCALE: 1:2	SHEET 6 OF 6

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NO.	DESCRIPTION	DATE

STATE OF FLORIDA JOHN P. ADAMS AR95252 09/22/2022 REGISTERED ARCHITECT

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
Jennifer Zaffuto, AIA, LEED, NCARB
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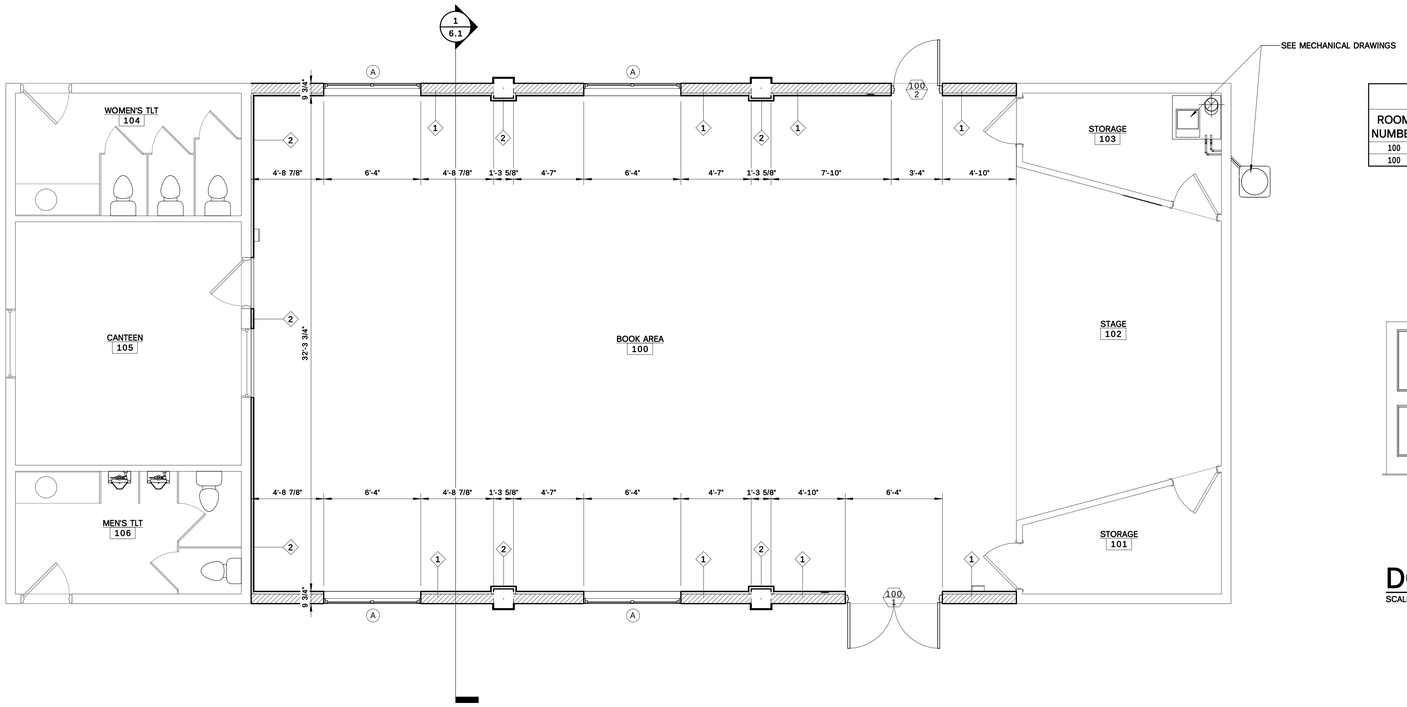


FLOOR PLAN

SCALE: 1/4" = 1'-0"

PROJECT NORTH

ROOM FINISH SCHEDULE

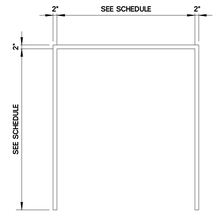
ROOM NUMBER	ROOM NAME	FLOOR	BASE	NORTH		EAST		SOUTH		WEST		CEILING			FINISH CLASS	COMMENTS
				MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	HEIGHT		
100	BOOK AREA	LVT	4" VINYL	GYP. BD	PAINT	EXISTING	PAINT	GYP. BD	PAINT	GYP. BD	PAINT	ACST	-	SEE RCP		ORANGE PEEL TEXTURE ON NEW DRYWALL
102	STAGE	LVT	4" VINYL	EXISTING	PAINT	EXISTING	PAINT	EXISTING	PAINT	-	-	ACST	-	SEE RCP		
104	WOMENS TLT	EXISTING	EXISTING	EXISTING	PAINT	EXISTING	PAINT	EXISTING	PAINT	EXISTING	PAINT	EXISTING	-	-		
106	MENS TLT	EXISTING	EXISTING	EXISTING	PAINT	EXISTING	PAINT	EXISTING	PAINT	EXISTING	PAINT	EXISTING	-	-		

DOOR SCHEDULE

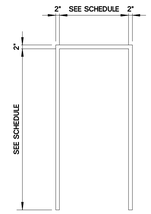
ROOM NUMBER	DOOR NUMBER	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR WIDE	DOOR HIGH	DOOR THICK	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	JAMB TYPE	LABEL	HARDWARE SET #	COMMENTS
100	1	D1	ALUMINUM	PREFINISHED	6'-0"	6'-8"	1 3/4"	F1	ALUMINUM	PREFINISHED	J1		1	
100	2	D2	HOLLOW METAL	PAINTED	3'-0"	6'-8"	1 3/4"	F2	HOLLOW METAL	PAINTED	J1		2	

D1

D2



F1



F2

DOOR TYPES

SCALE: 3/8" = 1'-0"

FRAME TYPES

SCALE: 3/8" = 1'-0"

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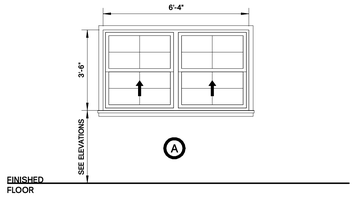
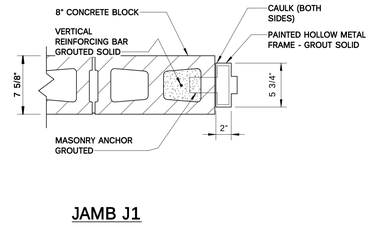


WINDOW TYPES

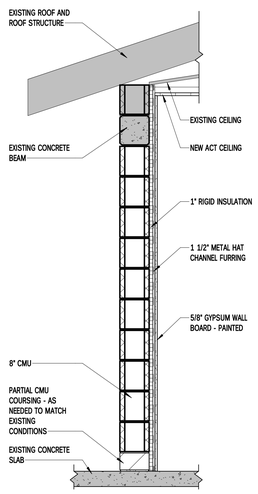
SCALE: 3/8" = 1'-0"



JAMB J1

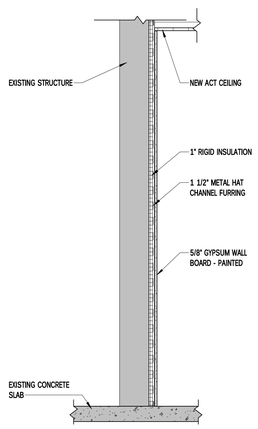
JAMB TYPES

SCALE: 1 1/2" = 1'-0"



1 WALL TYPES

TYPICAL EXTERIOR CMU INFIL TO MATCH EXISTING. FINISHED WITH 1 1/2" METAL FURRING AND 5/8" GYPSUM BOARD ON INTERIOR. GREY AREAS REPRESENT EXISTING CONDITIONS.



2 WALL TYPES

1 1/2" METAL HAT CHANNEL FURRING FINISHED WITH 5/8" GYPSUM BOARD, INSTALLED WHERE NOTED ON EXISTING STRUCTURE. GREY AREAS REPRESENT EXISTING CONDITIONS.

WALL TYPES

SCALE: 3/4" = 1'-0"

DOOR HARDWARE SCHEDULE

HARDWARE SET #1

1 SET	HARDWARE BY DOOR MANUFACTURER
1 SET	PUSH/PULL PLATES
2	CLOSERS
1	DEADBOLT
1	CYLINDER
1	DOOR THRESHOLD

HARDWARE SET #2

1	CONTINUOUS HINGE	CFM 83 HDI	PE
1	EXIT DEVICE	6100 X PB628F 36"	630 YA
1	CLOSER	2721 SN-134	689 YA
1	GASKETING	5050 B-17 17"	NA
1	DOOR BOTTOM	315 CN 35 3/4"	PE
1	DOOR THRESHOLD		

DATE | DESCRIPTION | NO.

STATE OF FLORIDA — JOHN P. ADAMS — AR95202 — REGISTERED ARCHITECT — 09/22/2022

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
Jennifer Zaffuto, AIA, LEED, NCARB

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LAKE COUNTY
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PERMIT SET

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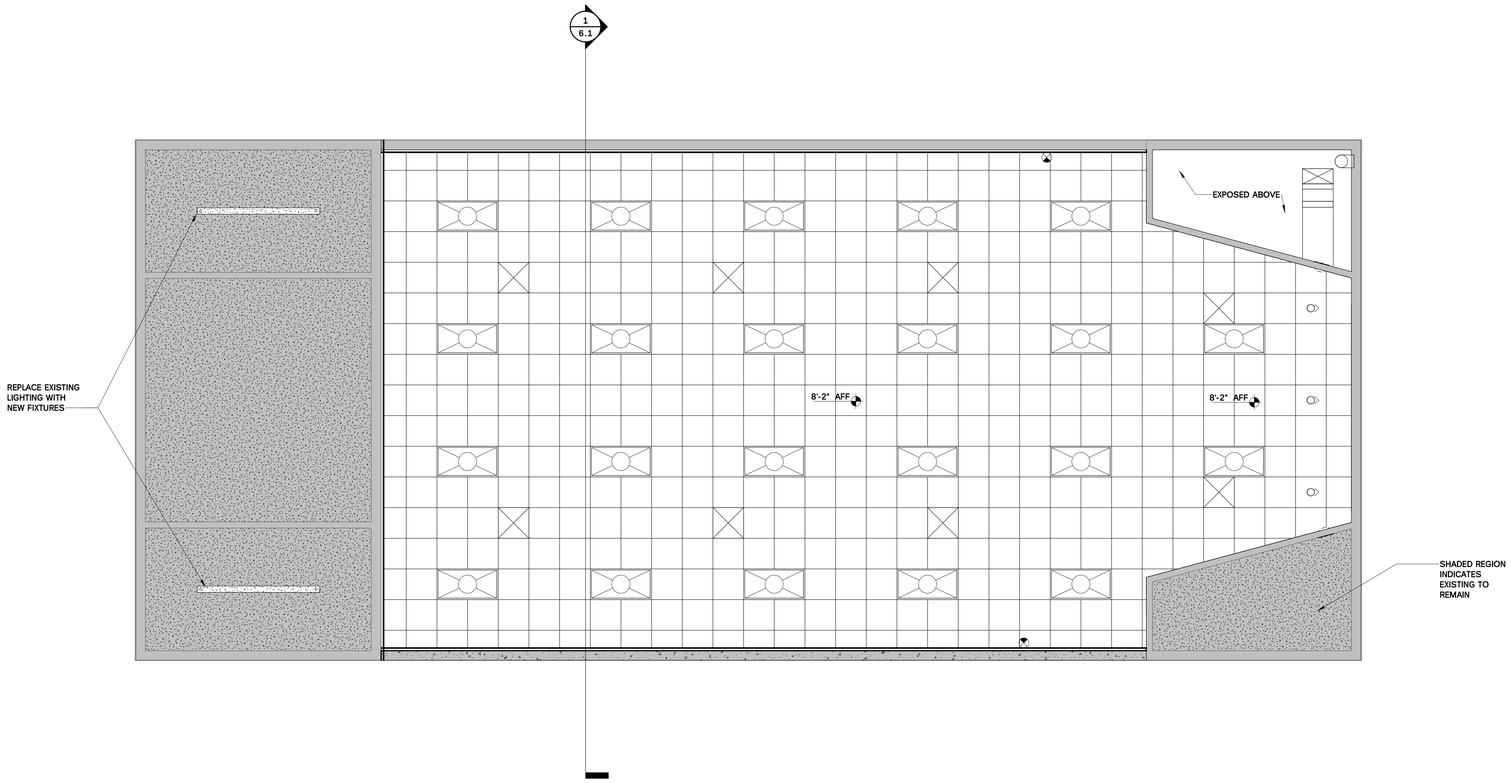

REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

LEGEND

- 24'x24' RECESSED TROFFER
- LINEAR PENDANT FIXTURE
- DOWNLIGHT - WALL WASHER

(COORDINATE LIGHT FIXTURES WITH ELECTRICAL LIGHTING PLANS, DETAILS, AND SPECIFICATIONS. SIZES MAY VARY)

- HVAC SUPPLY DIFFUSER
- HVAC RETURN DIFFUSER

(COORDINATE HVAC DIFFUSERS WITH MECHANICAL DRAWINGS PLANS, DETAILS, AND SPECIFICATIONS. SIZES MAY VARY)

- 2X2 ACT TILE

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY JOHN P. ADAMS ON 09/22/2022 USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

NO.	DESCRIPTION	DATE

STATE OF FLORIDA
JOHN P. ADAMS
AR95252
09/22/2022
REGISTERED ARCHITECT

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
Jennifer Zaffuto, AIA, LEED, NCARB

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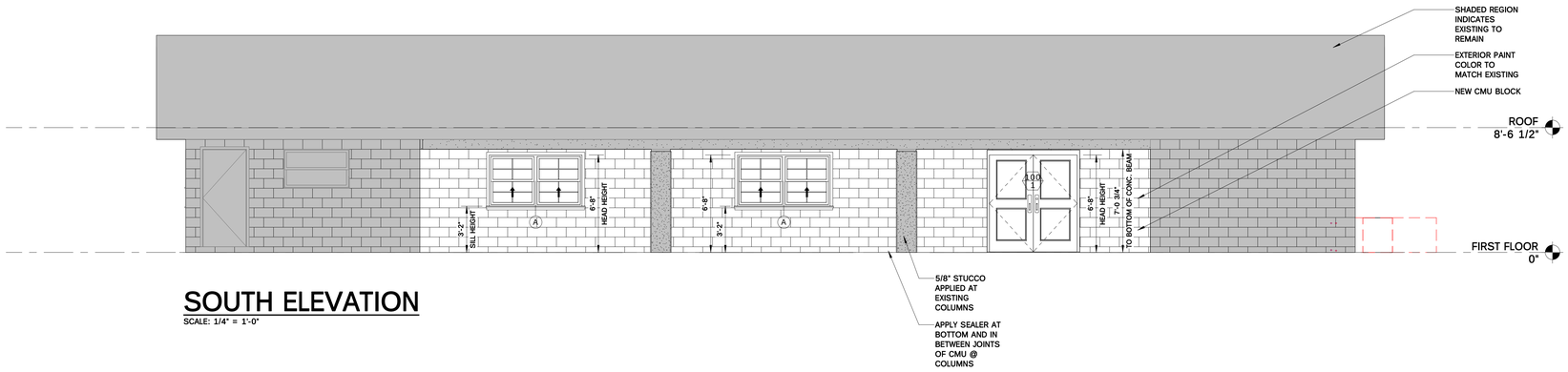
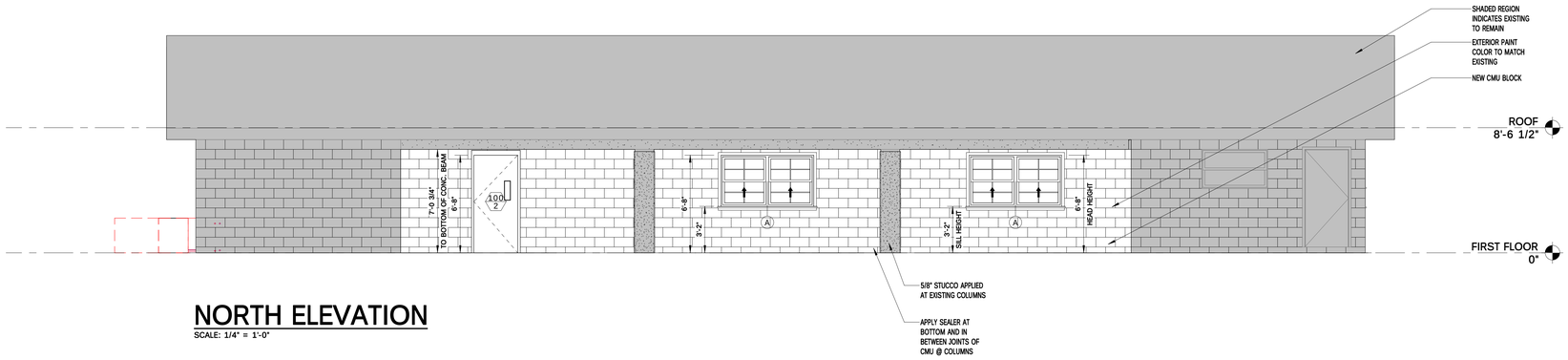


SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



NORTH ELEVATION

SCALE: 1/4" = 1'-0"

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STATE OF FLORIDA
JOHN P. ADAMS
AR95202
09/22/2022
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EXTERIOR ELEVATIONS

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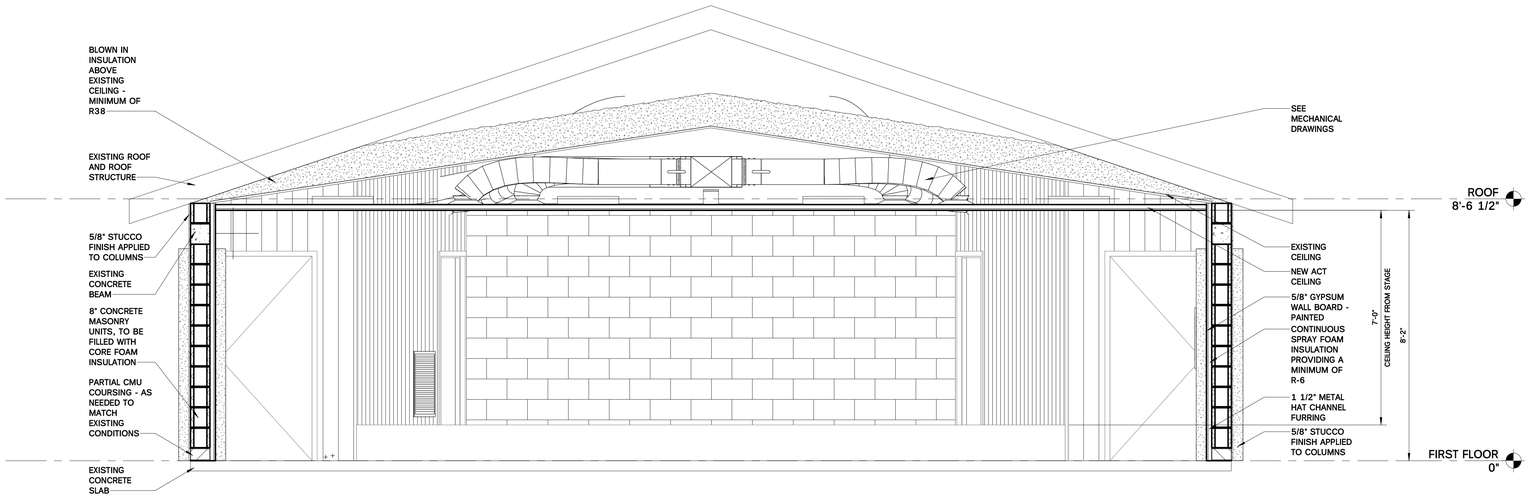

BUILDING SECTION

SCALE: 1/2" = 1'-0"

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NO.	DESCRIPTION	DATE

STATE OF FLORIDA
JOHN P. ADAMS
AR92252
09/22/2022
REGISTERED ARCHITECT

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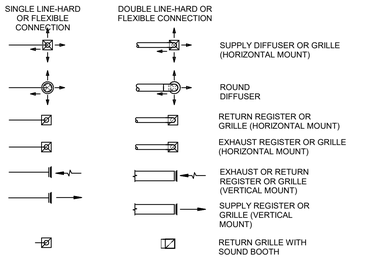
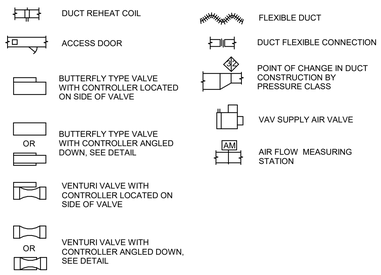
MECHANICAL, SYMBOLS AND ABBREVIATIONS

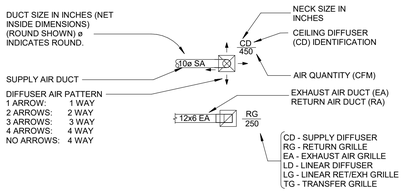
DUCTWORK AT DIFFUSERS & GRILLES



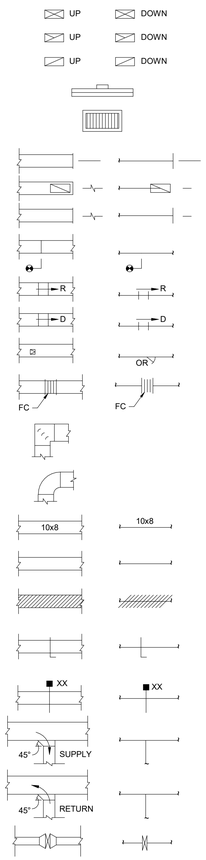
DUCTWORK SPECIALTIES



DIFFUSER NOTATION



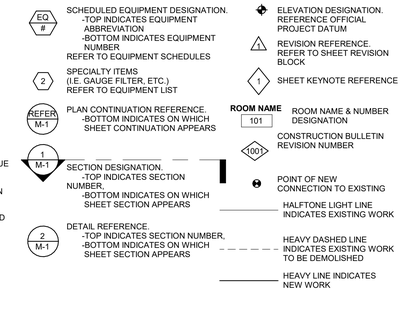
DUCTWORK SYMBOLS



ABBREVIATIONS

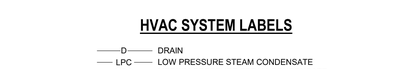
ACC	AIR COOLED CHILLER
ACCU	AIR-COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFM	AIR FLOW MEASURING
AHU	AIR-HANDLING UNIT
AMP	AMPERAGE
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
B	BOILER
BD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CC	COOLING COIL
CD	CONTROL DAMPER
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CO	CLEAN OUT
CO2	CARBON DIOXODE
COMP	COMPRESSOR UNIT
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CU	CONDENSING UNIT
CV	CONSTANT VOLUME
CW	COLD WATER (POTABLE)
DB	DECIBELS
Db	DRY-BULB TEMPERATURE
DEG	DEGREE
DP	DEW POINT TEMPERATURE
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EGS	EMERGENCY GAS SHUTOFF
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETD	EXISTING TO DEMO
EWT	ENTERING WATER TEMPERATURE
ETR	EXISTING TO REMAIN
F	FAHRENHEIT
FCO	FLUSH CLEAN OUT
F/S	COMBINATION FIRE SMOKE DAMPER
FCU	FAN COIL UNIT
FD	FLOOR DRAIN OR FIRE DAMPER
FM	FLOW METER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FSTAT	FREEZESTAT
HB	HOSE BIBB
HC	HEATING COIL
HP	HORSEPOWER
HSTAT	HUMIDISTAT
HW	HOT WATER
HWC	HOT WATER COIL
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
I/O	INPUT/OUTPUT
IN	INCHES
IN HG	INCHES OF MERCURY
IN WG	INCH WATER GAUGE
IPLV	INTEGRATED PART LOAD VALUE
kW	KILOWATT
kWh	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LB/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1,000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MH	MANHOLE
MIN	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
N/A	NOT APPLICABLE
NC	NOISE CRITERIA OR NORMALLY CLOSED
NG	NATURAL GAS
NGFM	NATURAL GAS FLOWMETER
NO	NORMALLY OPEN
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
P	PUMP
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PF	PRE-FILTER
PHC	PREHEAT COIL
PPM	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
REA	RELIEF AIR
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RC	REHEAT COIL
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SAT	SUPPLY AIR TERMINAL
SD	SMOKE DETECTOR OR SMOKE DAMPER
SF	SUPPLY FAN
SP	STATIC PRESSURE
SQ.FT	SQUARE FOOT (FEET)
SS	STAINLESS STEEL
TAB	TESTING, ADJUSTING, BALANCE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THRU ROOF
W	WATTS
Wb	WET-BULB (TEMPERATURE)
WCO	WALL CLEAN OUT
WF	WATER FILTER
WPD	WATER PRESSURE DROP
YCO	YARD CLEAN OUT

DRAWING SYMBOLS



DRAINS AND CLEANOUTS

HVAC SYSTEM LABELS



FIELD MOUNTED CONTROLS

DESIGN CRITERIA

OUTDOOR DESIGN CONDITIONS:

A. SUMMER:
- DRY-BULB TEMPERATURE = 93.9°F
  (BASED ON 0.4% DRY-BULB TEMPERATURE FOR ORLANDO INTERNATIONAL AIRPORT, FL AS PUBLISHED BY 2017 ASHRAE HANDBOOK OF FUNDAMENTALS)
- WET-BULB TEMPERATURE = 79.6°F
  (BASED ON 0.4% EVAPORATION WET-BULB TEMPERATURE FOR ORLANDO INTERNATIONAL AIRPORT, FL AS PUBLISHED BY 2017 ASHRAE HANDBOOK OF FUNDAMENTALS)

B. WINTER:
- DRY-BULB TEMPERATURE = 37.4°F
  (BASED ON 99.6% DRY-BULB CONDITIONS FOR ORLANDO INTERNATIONAL AIRPORT, FL AS PUBLISHED BY 2017 ASHRAE HANDBOOK OF FUNDAMENTALS)

AIR CONDITIONING CONDENSING UNIT

MARK (CU #)	SERVES	NOMINAL TOTAL CAP. (BTUs)	SENSIBLE CAPACITY (BTUs)	INDOOR UNITS CONNECTED	REFRIGERANT TYPE	EFFCIENCY (SEER)	COMPRESSOR QTY	COMPRESSOR TYPE	ELECTRICAL LRA	MCA	MOP	VOLT	PH	NOTES BASIS OF DESIGN: LENNOX
CU-1	LIBRARY	60,000	45,600	AHU-1	R-410A	13.8	1	SCROLL	N/A	31.3	50.0	240	1	ML17XC1-060-230

NOTES:
1. OUTSIDE DESIGN CONDITIONS - SUMMER: 92°F DB, 79° WB. WINTER: 35°F DB.
2. REFRIGERANT LINES AND REQUIRED INSULATION SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE A 5 MINUTE (ADJ.) TIME DELAY TO PREVENT COMPRESSOR FROM SHORT CYCLING. PROVIDE UNIT WITH HOT GAS BYPASS LINE.
4. INSTALL UNIT PER MANUFACTURER RECOMMENDATIONS.

LOUVER SCHEDULE

TAG	QTY	MODEL	BASIS OF DESIGN	WIDTH (in)	HEIGHT (in)	AIR FLOW (cfm)	FLOW DIR.	FREE AREA (sq ft)	FREE AREA %	FREE AREA VEL (fpm)	PRESSURE DROP (w.g.)
IL - 1	1	EME3625DFLHP	RUSKIN	14.0	12.0	350	INTAKE	0.34	29.0	1039.0	0.16

NOTES:
1.) AMCA 540 and AMCA 550 approved 3" deep, vertical blade wind driven rain louver.

FBC 2020 OUTSIDE AIR CALCULATIONS

SYSTEM	ROOM NAME	ROOM NUMBER	OCCUPANCY CLASSIFICATION		AREA (SQ.FT.)	OCCUPANT LOAD	VALUES Rp	Pz	Ra	Az	ESTIMATED OUTSIDE AIR Vbz=Rp*Pz+Ra*Az
AHU-1	BOOK AREA	100	PUBLIC	LIBRARIES	1630	17	5	17	0.12	1630	280.6
AHU-1	STORAGE	101	PUBLIC	STORAGE ROOMS	81	1	0	1	0.12	81	9.72
AHU-1	STAGE	102	PUBLIC	LIBRARIES	261	3	5	3	0.12	261	46.32
AHU-1	STORAGE	103	PUBLIC	STORAGE ROOMS	81	1	0	1	0.12	81	9.72
										TOTAL OUTSIDE AIR REQUIRED FOR AHUs =	346.36
										TOTAL OUTSIDE AIR PROVIDED FOR AHUs =	350.00

AIR DISTRIBUTION DEVICE SCHEDULE

SYMBOL	TYPE	AIRFLOW (CFM)	SIZE (IN x IN)	DUCT CONNECTION SIZE	COLOR	REMARKS
SUPPLY CD CFM	SUPPLY CEILING GRILLE 24x24 MODULAR SIZE	0 - 50	12 x 12	SEE PLAN FOR DUCT CONNECTION	WHITE	SUPPLY DIFFUSERS SHALL BE EQUAL TO PRICE AMD WITH18x18 DIMENSION "A" SIZE FOR UNIFORM APPEARANCE MAX.NECK VELOCITY 700 FPM MAX. NC = 30 MAX. PRESSURE DROP 0.10" CEILING LAY-IN OR SURFACE MOUNT USED FOR GENERAL PURPOSE
		51 - 240	24 x 24			
		241 - 325	24 x 24			
		330 - 480	24 x 24			
		485 - 740	24 x 24			
RETURN RG CFM	RETURN GRILLE	0 - 2,000	30 x 24	SEE PLAN FOR DUCT CONNECTION	WHITE	RETURN/EXHAUST GRILLES SHALL BE EQUAL TO PRICE 635 L-STYLE WITH 45 DEGREE DEFLECTION MAX. NECK VELOCITY 450 FPM MAX. NC = 20 MAX. PRESSURE DROP 0.10" CEILING LAY-IN OR SURFACE MOUNT USED FOR GENERAL PURPOSE

NOTES:
1. TRANSITION DUCTWORK AS REQUIRED TO GRILLE CONNECTION SIZE INDICATED.
2. DIFFUSERS/GRILLES/REGISTERS SHALL BE ALUMINUM.
3. PROVIDE INTEGRAL VOLUME DAMPER.
4. PROVIDE FLEXIBLE DUCT CONNECTIONS TO ALL AIR DISTRIBUTION DEVICES IN LAY-IN CEILINGS. EXPOSED AIR DISTRIBUTION DEVICES SHALL HAVE HARD DUCT CONNECTIONS.

AIR HANDLING UNIT SYSTEM (DUCTED)

MARK (AHU #)	SERVES	CFM	ESP (IN W.G.)	OA CFM	NOMINAL COOL CAP. (TONs)	NOMINAL TOTAL CAP. (BTUs)	SENSIBLE CAPACITY (BTUs)	FILTER EFFICIENCY (MERV)	EAT DB	EAT WB	LAT DB	LAT WB	AUXILIARY HEAT (kW)	ELECTRICAL HP	VOLT	PH	MCA	MOP	UNIT WEIGHT (LBS)	NOTES BASIS OF DESIGN: LENNOX
AHU-1	LIBRARY	2,030	0.65	350	5.0	60,000	45,600	8	77.0	65.0	55.1	54.7	7.5	1.0	240	1	48.0	50.0	190	CBA25UHV-060

NOTES:
1. REFRIGERANT LINES AND REQUIRED INSULATION SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. THERMOSTAT SHALL BE PROGRAMMABLE. SEVEN (7) DAY PROGRAMMABLE THERMOSTAT.
3. UNIT SHALL BE PROVIDED WITH DISCONNECT OR COORDINATE DISCONNECT WITH ELECTRICAL. EACH AHU SHALL BE PROVIDED WITH FACTORY INSTALLED CIRCUIT BREAKER.
4. UNIT SHALL BE SINGLE POINT CONNECTION. DISCONNECT SHALL INCLUDE SINGLE POINT HEATER POWER AND INDOOR UNIT.
5. PROVIDE HEATING/COOLING PROGRAMMABLE HUMIDISTAT AND 24 VOLT CONTROL WIRING. HUMIDISTAT SHALL HAVE THE SAME NUMBER OF STAGES OF HEATING AND COOLING AS ASSOCIATED AHU UNIT. HUMIDISTAT SHALL HAVE DUAL SETPOINT (HEATING AND COOLING).

Daniel Cesar, State of Florida, Professional Engineer, License No. 68670.

This item has been electronically signed and sealed by Daniel Cesar, PE. On 09/22/2022 using a Digital Signature.

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DATE | DESCRIPTION | NO.

DANIEL CESAR LICENSE No. 68670 STATE OF FLORIDA PROFESSIONAL ENGINEER
DANIEL CESAR PE No. 68670

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
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MECHANICAL SPECIFICATIONS

APPLICABLE CODES/STANDARDS:

1. FLORIDA BUILDING CODE 7TH EDITION (2020) - BUILDING, MECHANICAL, PLUMBING AND ENERGY CONSERVATION
2. FLORIDA BUILDING CODE: ACCESSIBILITY, 7TH EDITION (2020)
3. NFPA-1 UNIFORM FIRE CODE (2015)
4. NFPA-70 NATIONAL ELECTRICAL CODE (2017)
5. NFPA-72 NATIONAL FIRE ALARM CODE (2016)
6. NFPA-99 HEALTH CARE FACILITIES CODE (2015)
7. NFPA-101 LIFE SAFETY CODE (2018)
8. LATEST EDITION OF ALL OTHER NFPA ARTICLES NOT LISTED, AS ADOPTED BY THE STATE FIRE MARSHAL
9. UNDERWRITERS LABORATORIES, INC. PUBLICATIONS
10. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
11. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
12. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
13. NATIONAL ELECTRICAL SAFETY CODE
14. REQUIREMENTS OF LOCAL POWER CORPORATION
15. AMERICAN SOCIETY FOR TESTING AND MATERIAL (ASTM)
16. ASTM LATEST STANDARDS.

BASIS OF DESIGN:

1. THE MECHANICAL CONTRACT DOCUMENTS HAVE BEEN PREPARED USING THE ASHRAE 99.6% DESIGN CRITERIA WITH THE FOLLOWING DESIGN CONDITIONS:

	INDOOR
SUMMER	75 DEG F DB / 50% RH
WINTER	72 DEG F DB

2. THE FOLLOWING BUILDING MATERIALS/INSULATION R-VALUES WERE USED IN THE HVAC CALCULATIONS. VERIFY MATERIALS WITH ARCHITECTURAL DRAWINGS AND IF THE ACTUAL MATERIALS TO BE USED IN THE CONSTRUCTION PHASE DIFFER FROM THESE SPECIFICATIONS (LOWER VALUES), CONTACT THE ENGINEER IN WRITING PRIOR TO CONSTRUCTION TO VERIFY THE ABILITY OF THE HVAC SYSTEMS TO EFFECTIVELY CONDITION THE SPACE:

WALLS:	BLOCK WALLS WITH NO INSULATION.
ROOF:	FLAT BUILDING ROOF WITH R-19 BATT INSULATION
FLOOR:	CONCRETE FLOOR SLAB ON GRADE, NO INSULATION
GLASS:	DOUBLE PANE TINTED GLASS WITH NO INTERNAL SHADES

GENERAL:

1. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, ACCESS PANELS, CONTROL SYSTEMS, DEVICES, PERMITS AND SERVICES NECESSARY FOR FURNISHING AN INSTALLATION OF A COMPLETE SERVICEABLE MECHANICAL SYSTEM AS OUTLINED IN THE CONTRACT DRAWINGS AND SPECIFICATIONS. THE EQUIPMENT, DEVICES AND ACCESSORIES SHALL BE INSTALLED AND ADJUSTED FOR PROPER AND CONTINUOUS OPERATION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FITTINGS AS REQUIRED BY ALL APPLICABLE CODES AND GOVERNING AUTHORITIES.
3. ALL MECHANICAL SYSTEMS ARE TO BE INSTALLED IN ACCORDANCE WITH FLORIDA BUILDING CODE ALL APPLICABLE SECTIONS OF THE NFPA STANDARDS, ANSI STANDARDS, U.L. STANDARDS, LOCAL CODES, LOCAL ORDINANCES, AMENDMENTS AND MANUFACTURER RECOMMENDATIONS.
4. ALL MATERIALS SHALL BE NEW (UNLESS OTHERWISE INDICATED) ANY DAMAGE EQUIPMENT SHALL BE REPLACED AT NOT COST TO THE OWNER. DURING CONSTRUCTION, EQUIPMENT SHALL BE STORED IN THE MANUFACTURER'S ORIGINAL PACKAGING IN A SAFE AND DRY PLACE UNTIL READY FOR USE.
5. ALL WORK SHALL BE COORDINATED ALL OTHER TRADES PRIOR TO BEGINNING ANY WORK OR ORDERING ANY MATERIALS. COORDINATE ALL WORK FOR SIZES, LOCATIONS, CLEARANCES, ACCESS AND ELECTRICAL CONNECTIONS WITH ALL THE TRADES. CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY CONFLICTS, CODE OR SAFETY ISSUES THAT MAY EXIST PRIOR TO ANY FABRICATION OR ORDERING OF EQUIPMENT. RESOLUTION OF SUCH CONFLICTS THAT WERE NOT REPORTED PRIOR TO STARTING CONSTRUCTION SHALL REMAIN RESPONSIBILITY OF THE CONTRACTOR AND CHANGE ORDER PROPOSALS FOR SUCH WORK WILL NOT BE ACCEPTED.
6. THESE DRAWINGS AND SPECIFICATIONS REPRESENT THE DESIGN INTENT BASED ON INFORMATION AVAILABLE AT THE TIME OF DESIGN. ANY SUBSTANTIAL MODIFICATIONS OR ALTERATIONS MADE DURING THE CONSTRUCTION PHASE SHALL BE REPORTED TO THE ENGINEER PRIOR TO START WORK. MODIFICATIONS MADE WITHOUT THE ENGINEER'S WRITTEN APPROVAL SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.
7. CONTRACTOR TO FIELD ROUTE DUCTS AS REQUIRED. FOR CLARITY, ALL DUCT RISERS AND DROPS ARE NOT SHOWN. CONTRACTOR TO PROVIDE AT NO ADDITIONAL COST TO THE OWNER ALL DUCT OFFSETS, BENDS AND TRANSITIONS REQUIRED FOR COMPLETE FUNCTIONAL SYSTEM AND TO ACCOMMODATE FIELD CONDITIONS.
8. WALL, ROOF AND CEILING OPENINGS INDICATED ON DRAWINGS ARE NOMINAL DIMENSIONS ONLY, ADJUST OPENING AS REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FIRE RATING AND WEATHERPROOFING INTEGRITY OF ALL DUCTWORK AND PIPING AND PENETRATIONS. ALL PIPING AND/OR EQUIPMENT PENETRATIONS SHALL BE SLEEVED AND FIRE RATED AS REQUIRED TO MAINTAIN WALLS OR FLOOR INTEGRITY.
9. HANG PIPING AND EQUIPMENT (WHERE INDICATED ON DRAWINGS) FROM STRUCTURE AS NECESSARY. COORDINATE WITH STRUCTURAL/ARCHITECT FOR WEIGHTS AND PROPER ATTACHMENTS. PROVIDE SUPPORTING AS REQUIRED FOR INSTALLATION OF EQUIPMENT.
10. MECHANICAL PLANS ARE IN GENERAL DIAGRAMMATIC IN NATURE SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, PLUMBING, ELECTRICAL AND STRUCTURAL PLANS. INFORMATION GIVEN HEREIN AND ON DRAWINGS IS AS EXACT AS COULD BE SECURED BUT IS NOT GUARANTEED. DO NOT SCALE DRAWINGS FOR EXACT DIMENSIONS.
11. PROVIDE ADEQUATE SIDE CLEARANCE PER NEC. AT MINIMUM OF 3' CLEARANCE IN FRONT OF ANY 120-240 VOLTS RATED PANELS AND DISCONNECTS AND 4' CLEARANCE IN FRONT OF ANY 480 VOLTS RATED PANELS OR DISCONNECTS.
12. PROVIDE A MINIMUM OF 10' CLEARANCE BETWEEN OUTSIDE AIR INTAKES AND ANY EXHAUST OPENING, FAN OR VENT. COORDINATE NEW EXHAUST/INTAKE OPENINGS OR VENTS FOR PLUMBING EQUIPMENT WITH EXISTING INTAKES AND VENTS.
13. NO WORK SHALL BE COVERED OR CONCEALED UNTIL PROPERLY INSPECTED AND TESTED.
14. THE CONTRACTOR SHALL CONTINUALLY RECORD ALL DEVIATIONS TO THE CONTRACT DOCUMENTS MADE DURING CONSTRUCTION AND PROVIDE A COMPLETE SET OF THESE RECORD DRAWINGS TO THE OWNER WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION. IF REQUIRED BY THE AUTHORITY HAVING JURISDICTION, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SECURE THE SERVICES OF A LICENSED PROFESSIONAL ENGINEER TO PROVIDE SIGNED AND SEALED RECORD DRAWINGS.
15. ALL MECHANICAL SERVICES TERMINATE 5'-0" FROM THE BUILDING EXTERIOR WALLS, UNLESS SHOWN OTHERWISE ON DRAWINGS. REFER TO CIVIL DRAWINGS FOR ALL METERING AND SITE UTILITY CONNECTIONS. CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO SITE UTILITIES.
16. ALL DUCTWORK AND/OR PIPING SHALL BE CONCEALED IN WALLS, CHASES OR CEILINGS UNLESS NOTED OTHERWISE ON DRAWINGS. PAINT ALL EXPOSED DUCTWORK BLACK UNLESS NOTED OTHERWISE.
17. PROVIDE ACCESS PANELS TO ALL VALVES AND DEVICES WITHIN CHASES OR ABOVE NON-ACCESSIBLE CEILINGS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
18. COORDINATE ALL ELECTRICAL EQUIPMENT CONNECTIONS WITH DIVISION 26 PRIOR TO ORDERING ANY EQUIPMENT. CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY CONFLICTS OR SAFETY ISSUES THAT MAY EXIST PRIOR TO ORDERING OF EQUIPMENT.
19. DO NOT RUN ANY PIPING ABOVE ELECTRICAL PANELS, THROUGH ELECTRICAL ROOMS OR ANY OTHER WATER SENSITIVE AREAS UNLESS NOTED OTHERWISE ON THE PLANS.
20. INSULATE ALL PIPING FROM CONCRETE. INSULATION SHALL HAVE A FIRE/SMOKE RATING LESS THAN 25/50.
21. DO NOT PENETRATE WALL FOOTINGS WITH PIPING. COORDINATE TO DROP FOOTINGS AS REQUIRED TO CLEAR PLUMBING SERVICES WHERE ABSOLUTELY NECESSARY. ALL PIPING PENETRATING A BEARING WALL OR FOOTING MUST BE SLEEVED AND LOCATION APPROVED BY STRUCTURAL ENGINEER.
22. PERFORM ALL WORK NECESSARY TO PREPARE THE STRUCTURE FOR THE INSTALLATION OF THE WORK. ALL HOLES, OPENINGS AND DAMAGED MATERIALS OCCURRED DURING THE CONSTRUCTION PERIOD SHALL BE REPAIRED. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED TO BE WATER AND AIR TIGHT.

SUBSTITUTIONS:

1. EQUIPMENT INDICATED AS BASIS OF DESIGN (BOD) ON THE DRAWINGS AND WITHIN THESE SPECIFICATIONS SHALL BE CONSIDERED AS "STANDARD OF QUALITY". NO SUBSTITUTIONS SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.
2. DEVIATIONS FROM SPECIFIED EQUIPMENT AFFECTING ELECTRICAL REQUIREMENTS SHALL BE COORDINATED BETWEEN VENDOR AND CONTRACTOR PRIOR TO SUBMITTING BIDS. ANY DEVIATION THAT WAS NOT COORDINATED SHALL NOT CAUSE ANY CHANGES OF BID AT A LATER TIME.
3. SUBSTITUTIONS ARE ACCEPTABLE PROVIDED THAT THE SUBSTITUTED EQUIPMENT HAS EQUIVALENT CAPACITY AS THAT SCHEDULED AND IS PROVIDED BY AN ACCEPTABLE MANUFACTURER AS LISTED FOR THAT EQUIPMENT TYPE. CONTRACTOR SHALL SUBMIT PRODUCT DATA FOR ALL SUBSTITUTIONS TO THE ENGINEER FOR APPROVAL PRIOR SUBSTITUTING OR ORDERING. SUBMITTALS SHALL INCLUDE DIMENSIONS, WEIGHT, CLEARANCES, FAN/PUMP CURVES, ELECTRICAL CHARACTERISTICS, SOUND LEVEL DATA, AND INSTALLATION DETAILS. SUBSTITUTION ARE WILL ONLY BE ACCEPTABLE AFTER WRITTEN APPROVAL FROM THE ENGINEER. CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR ANY AND ALL CHANGES TO ENGINEERING PLANS REQUIRED BY AUTHORITY HAVING JURISDICTION FOR ALL THE SUBSTITUTIONS.

EQUIPMENT GENERAL:

1. ALL EQUIPMENT SHALL BE UL LISTED, NO EXCEPTIONS.
2. EACH TYPE OF EQUIPMENT SHALL BE BY ONE MANUFACTURER AND SHALL HAVE CAPACITIES AND CHARACTERISTICS AS LISTED IN THE EQUIPMENT SCHEDULES.
3. UNLESS OTHERWISE NOTED, ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATING MOUNTINGS TO PREVENT TRANSMISSION OF VIBRATION TO AND WITHIN THE BUILDING STRUCTURE.
4. LOCATE ALL MECHANICAL EQUIPMENT SUCH THAT THE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE INCLUDING CLEARANCE BETWEEN UNIT), AND THE FBC REQUIRED CLEARANCE TO COMBUSTIBLES IS MAINTAINED.
5. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IF FIELD CONDITIONS PROHIBIT INSTALLATION OF EQUIPMENT IN LOCATIONS SHOWN, SUBMIT A WRITTEN REQUEST FOR INFORMATION (RFI) TO THE ENGINEER IMMEDIATELY BEFORE PROCEEDING.
6. WHENEVER POSSIBLE, DO NOT LOCATE ROOFTOP EQUIPMENT SUCH THAT THE SERVICE PANEL IS WITHIN 10'-0" OF AN OPEN ROOF EDGE WHICH REQUIRES GUARDS.

SHOP DRAWINGS AND SUBMITTALS:

1. SUBMIT SHOP DRAWINGS AND MANUFACTURER'S DATA FOR ALL NEW EQUIPMENT TO ENGINEER FOR APPROVAL PRIOR TO PURCHASING AND/OR FABRICATION. SHOP DRAWINGS FOR EQUIPMENT REQUIRING ELECTRIC POWER AND/OR CONTROL WIRING SHALL INCLUDE COMPLETE WIRING DIAGRAMS.
2. CONTRACTOR SHALL SUBMIT COMPLETE DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. SHOP DRAWINGS SHALL INCLUDE COORDINATION WITH OTHER DISCIPLINES AND EXACT OPENINGS REQUIRED IN EXTERIOR WALLS AND ALL DEVICES WITH THEIR RESPECTIVE SERVICE CLEARANCES.
3. SPECIFICALLY MARK GENERAL CATALOG SHEETS AND DRAWINGS TO INDICATE SPECIFIC ITEMS SUBMITTED AND ITS CORRELATION TO SPECIFIC DESIGNATION FOR PRODUCT IN DRAWINGS.
4. SPECIFICALLY INDICATE PROPER IDENTIFICATION OF EQUIPMENT BY NAME AND/OR NUMBER, AS INDICATED IN SPECIFICATION AND SHOWN ON DRAWINGS.
5. WHEN MANUFACTURER'S REFERENCE NUMBERS ARE DIFFERENT FROM THOSE SPECIFIED, PROVIDE CORRECT CROSS-REFERENCE NUMBERS FOR EACH ITEM. CLEARLY MARK AND NOTE SUBMITTALS ACCORDINGLY.
6. SUBMITTALS THAT ARE NOT COMPLETE, NOT PERMANENT OR NOT PROPERLY CHECKED BY CONTRACTOR WILL BE RETURN WITHOUT REVIEW. IF PROJECT SITE CONTAINS MULTIPLE BUILDINGS, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS INDIVIDUALLY PER DISCIPLINE.
7. DUCTWORK SHOP DRAWINGS WILL ONLY BE REVIEWED FOR COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS. DRAWINGS WILL NOT BE CHECKED FOR COORDINATION WITH OTHER TRADES OR BUILDINGS STRUCTURE. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO COORDINATE AND VERIFY ROUTING AND EXACT LOCATION OF SYSTEM COMPONENTS.

SYSTEM IDENTIFICATION:

1. PROVIDE IDENTIFICATION LABELS ON OR NEAR EACH PIECE OF EQUIPMENT AND EACH OPERATION DEVICE AND DISCONNECT. LABELS SHALL BE CONSTRUCTED OF ENGRAVED PLASTIC LAMINATE SIGN OR PLASTIC EQUIPMENT MARKER PERMANENTLY SECURED TO EQUIPMENT. LETTERING SHALL BE MINIMUM 1/2-INCH HIGH FOR EQUIPMENT NAME AND 5/8-INCH HIGH FOR EQUIPMENT INFORMATION.
2. VALVES SHALL BE TAGGED USING PLASTIC LAMINATE TAGS SECURED WITH BRASS CHAINS INDICATING THE VALVE SIZE, SERVICE AND FUNCTION.

DUCTWORK AND DUCTWORK ACCESSORIES:

1. FLEXIBLE DUCT SHALL COMPLY WIT UL-181 CLASS 1. FLEXIBLE DUCTWORK SHALL HAVE AN INNER FIBERGLASS WOVEN LINER, ENCAPSULATING HELIX COIL, A FIBERGLASS INSULATING BLANKET (R-VALUE OF AT LEAST 6.0) AND OUTER VAPOR BARRIER OF FIBERGLASS REINFORCED METALIZED FILM LAMINATE. FLEXIBLE DUCTS SHALL BE THERMAFLEX MK-C OR APPROVED EQUAL. NO FLEX DUCT SHALL EXCEED 15' -0" IN LENGTH.
2. ALL INSULATION SHALL HAVE A FIRE/SMOKE RATING LESS THAN 25/50.
3. ALL STEEL DUCTWORK SHALL BE JOINED WITH A NON-HARDENING, NON-MIGRATING MASTIC APPROPRIATE FOR THE ENVIRONMENTAL CONDITIONS OF THE SPACE FOR WHICH IT IS INSTALLED. FLEXIBLE DUCTWORK SHALL MEET THE FLORIDA ENERGY EFFICIENCY CODE. SEAL ALL SHEET METAL JOINTS WITH A SEALANT COMPOUNDED SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK. SEALANT SHALL BE EQUAL TO RCD#8 MASTIC. JOINTS FOR DUCTWRAP AND DUCTBOARD SHALL BE WITH GLASS FIBER FABRIC WITH A VAPOR BARRIER COATING OF 30 MILL DRY FILM THICKNESS. VAPOR BARRIER COATING SHALL BE EQUAL TO RCD#9.
4. ALL DUCTS SIZES ARE CLEAR INSIDE DIMENSIONS. COORDINATE DUCTWORK ROUTING, DIMENSION AND ELEVATION WITH ALL TRADES. MAKE ALLOWANCES FOR BEAMS, PIPING AND OTHER OBSTRUCTIONS. TRANSFORM, DIVIDE OR OFFSET DUCTS AS REQUIRED, IN SUCH A MANNER AS TO MAINTAIN SAME CROSS SECTIONAL AREA. DUCT SIZE SUBSTITUTIONS ARE ACCEPTABLE ONLY IF THE CLEAR AREA SUBSTITUTED IS NOT LESS THAN THAT SHOWN AND THE DUCT ASPECT RATIO IS LESS THAN 3 TO 1.
5. PROVIDE 45-DEGREE ENTRY ON ALL RECTANGULAR BRANCH CONNECTIONS. PROVIDE CONICAL TAPS WITH DAMPERS ON ALL ROUND BRANCH CONNECTIONS.
6. PROVIDE LONG RADIUS ELBOWS, 3-PIECE ELBOWS, OR TURNING VANES AT ALL 90-DEGREE TURNS. SQUARE ELBOWS ARE NOT ACCEPTABLE.
7. TEST ALL DUCTWORK FOR LEAKS PRIOR TO INSULATING OR CONCEALING IT. THE MAXIMUM ALLOWABLE LEAKAGE RATE SHALL BE IN ACCORDANCE WITH SMACNA.
8. PROVIDE VOLUME DAMPERS AT ALL BRANCH TAKE-OFFS OR AS INDICATED ON PLANS. DAMPER SHALL BE PROVIDED WITH LOCKING QUADRANTS ON EXPOSED OR ACCESSIBLE. PROVIDE VOLUME DAMPERS SIMILAR TO YOUNG REGULATORS FOR AIR DEVICES LOCATED IN HARD CEILINGS OR COORDINATE CEILING ACCESS PANELS WITH ARCHITECT/OWNER.
9. PROVIDE NORMALLY CLOSED OUTSIDE AIR DAMPERS TO AUTOMATICALLY OPEN ONLY WHEN THE HEATING OR COOLING SYSTEMS (HEATER OR COMPRESSOR) IS OPERATING IN THE OCCUPIED MODE. DAMPERS SHALL BE ACCESSIBLE AND NEAR THE BUILDING ENTRY POINT.
10. PROVIDE GRAVITY BACKDRAFT DAMPERS IN ALL EXHAUST DUCTS NEAR THE BUILDING EXIT POINT. DAMPERS SHALL BE INSTALLED WHERE THEY ARE ACCESSIBLE.
11. PROVIDE FLEXIBLE CONNECTORS AT ALL DUCT CONNECTIONS TO FANS OR AIR HANDLING UNITS, UNLESS SPECIFICALLY NOTED OTHERWISE.
12. PROVIDE SUPPLY AIR DUCT SMOKE DETECTORS FOR ALL AIR HANDLING SYSTEMS GREATER THAN 2,000 CFM. UPON ACTIVATION, SMOKE DETECTORS SHALL AUTOMATICALLY SHUTDOWN THE AIR HANDLING SYSTEM AND GENERATE A SIGNAL TO THE BUILDING FIRE ALARM (IF PROVIDED). PROVIDE A REMOTE KEY SWITCH WITH PILOT LIGHT IN CEILING BELOW UNIT FOR DETECTOR RESET.
13. ELBOWS OR CHANGES IN DUCT DIRECTION GREATER THAN 45 DEGREES SHALL BE FITTED WITH AIR TURNS CONSISTING OF CURVED AIRFOIL BLADES OR VANES WHICH ALLOW THE AIR TO MAKE ABRUPT TURNS WITHOUT TURBULENCE. TURNING VANES ARE NOT ALLOW IN RETURN AND/OR EXHAUST SYSTEMS.
14. PROVIDE FIRE, SMOKE OR COMBINATION FIRE/SMOKE DAMPERS IN ALL PENETRATIONS OF RATED SURFACES AS REQUIRED BY CODE. DAMPERS SHALL BE INSTALLED ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE U.L. LISTING REQUIREMENTS. INTERLOCK MECHANICAL SYSTEMS WITH THE FIRE ALARM SYSTEM.
15. ASSEMBLE, INSTALL AND SEAL ALL DUCTWORK IN ACCORDANCE WITH THE LATEST SMACNA "HVAC DUCT CONSTRUCTION STANDARD" AND "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS". CONSTRUCT DUCTWORK TO MINIMUM 2" DUCT CLASS, SEAL CLASS "A" UNLESS NOTED OTHERWISE. ANY WORK WHICH DOES NOT CONFORM TO THESE STANDARDS MAY BE REJECTED AT ANY TIME.
   ALL DUCTWORK SHALL BE AS FOLLOWS OR APPROVED EQUAL:
   a. SUPPLY, OUTSIDE AIR, MAKE-UP AIR AND RETURN AIR DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET STEEL UNLESS NOTED OTHERWISE. ALL SUPPLY, OUTSIDE AIR AND RETURN DUCTS SHALL BE PROVIDED WITH 1-1/2" INSULATION THICKNESS AND R-VALUE OF AT LEAST 6.0. FLEXIBLE GLASS FIBER EQUAL TO OWENS CORNING "ALL SERVICE DUCT WRAP" OR JOHNS MANVILLE MICROLITE. 1-1/2" THICK, MINIMUM DENSITY OF 0.75 LB/FT3 WITH THERMAL CONDUCTIVITY OF NOT MORE THAN 0.27 AT 75°F MEAN TEMPERATURE, AND SUITABLE FOR TEMPERATURES TO 250°F.
   b. WHERE ALLOWED BY THE AUTHORITY HAVING JURISDICTION, LOW PRESSURE SUPPLY AND RETURN AIR DUCTWORK CAN BE CONSTRUCTED OF 1.5" THICK R-6 FOIL FACED ANTI-MICROBIAL FIBERGLASS DUCT BOARD TAPED AND SEALED BY KNAUF, JOHNS MANVILLE, OWENS CORNING, OR EQUIVALENT.
   c. ALL EXHAUST AIR DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED STEEL OR STAINLESS STEEL, 2-INCH PRESSURE CLASS, SMACNA SEAL CLASS "A". WET EXHAUST DUCTS SHALL BE ALUMINUM OR STAINLESS STEEL.
   d. ALL HOOD EXHAUST DUCTWORK SYSTEM BE CONSTRUCTED OF 304 STAINLESS STEEL WELDED CONSTRUCTIONS, 3-INCH PRESSURE CLASS, SMACNA SEAL CLASS "A". FIRST QUALITY, COLD ROLLED ANNEALED, PICKLED , ASTM A240 AND A480, FINISH No. 2B FOR CONCEALED DUCTS AND FINISH No. 4 FOR ALL EXPOSED DUCTS.
   e. MAKE-UP AIR DUCTS SHALL BE GALVANIZED SHEET METAL WITH 1-1/2" INSULATION THICKNESS AND R-VALUE OF AT LEAST 6.0.
   f. PROVIDE ALL EXTERIOR INSULATED DUCTWORK WITH A MINIMUM 8 MIL THICK ALUMINUM OR PVC JACKET.
   g. PROVIDE INSULATION AND JACKET FOR ALL SUPPLY, OUTSIDE AIR AND RETURN DUCTWORK: JACKET EQUAL TO OWENS-CORNING "FRK" OR JOHNS MANVILLE "FSK". GLASS FIBER REINFORCED FOIL KRAFT LAMINATE WITH PERMEANCE NOT EXCEEDING 0.02 PERM AND BEACH PUNCTURE RESISTANCE 25 UNITS MINIMUM.
   h. PROVIDE INSULATION AND JACKET AS INDICATED BELOW FOR SUPPLY AND RETURN DUCTWORK. FLEXIBLE GLASS FIBER EQUAL TO OWENS CORNING "ALL SERVICE DUCT WRAP" OR JOHNS MANVILLE MICROLITE. 1-1/2" THICK, MINIMUM DENSITY OF 0.75 LB/FT3 WITH THERMAL CONDUCTIVITY OF NOT MORE THAN 0.27 AT 75°F MEAN TEMPERATURE, AND SUITABLE FOR TEMPERATURES TO 250°F.
   JACKET EQUAL TO OWENS-CORNING "FRK" OR JOHNS MANVILLE "FSK". GLASS FIBER REINFORCED FOIL KRAFT LAMINATE WITH PERMEANCE NOT EXCEEDING 0.02 PERM AND BEACH PUNCTURE RESISTANCE 25 UNITS MINIMUM.

DUCTWORK SUPPORTS AND HANGERS:

1. DUCTWORK SHALL NOT BE SUPPORTED BY ANYTHING OTHER THAN THE BUILDING STRUCTURE. NOTHING SHALL BE SUPPORTED BY THE DUCTWORK EITHER.
2. PROVIDE ALL NECESSARY HANGER RODS, CLAMPS AND ATTACHMENTS TO PROPERLY INSTALL AND SUPPORT DUCTWORK, MECHANICAL PIPING AND EQUIPMENT FROM THE BUILDING STRUCTURE.
3. DUCTWORK AND MECHANICAL EQUIPMENT SHALL BE PROVIDED UNISTRUT AND SUSPENSION RODS AS REQUIRED.
4. ALL SUPPORTS EXPOSED TO OUTDOORS SHALL BE PRIMED AND PAINTED TO PREVENT RUSTING. FINISH COLOR AS SELECTED BY OWNER.
5. WIRE STRAPS OR PERFORATED METAL STRAPPING IS NOT ACCEPTABLE FOR SUPPORTS FOR DUCTWORK.
6. PROVIDE MANUFACTURED PIPE HANGERS, RODS, AND INSERTS OR CLAMPS FOR THE PROPER SUPPORT OF ALL PIPING. BAND IRON, TIE WIRE, OR WIRE STRAPPING ARE NOT ACCEPTABLE. ALL PIPES SHALL BE SUPPORTED AT REGULAR INTERVALS. PIPE SWAY AND/OR VIBRATION WILL NOT BE ACCEPTABLE. DO NOT HANG PIPING FROM ANYTHING OTHER THAN THE BUILDING STRUCTURE.

AIR HANDLING UNITS (SPLIT SYSTEM)

1. ACCEPTABLE MANUFACTURERS ARE: LG OR APPROVED EQUAL.
2. SYSTEM SHALL BE VARIABLE REFRIGERANT FLOW (VRF).
3. SYSTEM SHALL BE SPLIT AIR-TO-AIR SYSTEM, ELECTRIC AIR CONDITIONING UNITS AND HEAT PUMPS AS SCHEDULED ON DRAWINGS. UNITS WITH INTEGRAL ELECTRIC RESISTANCE HEATERS SHALL HAVE A SINGLE POINT ELECTRIC CONNECTION.
4. UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDED AND COATED WITH BAKED ENAMEL. CABINET INSULATION SHALL COMPLY WITH FLORIDA ENERGY CODE.
5. INDOOR AIR FANS SHALL BE FORWARD CURVED, CENTRIFUGAL FAN, CLASS 1.
6. SYSTEM SHALL HAVE PROTECTION FOR HIGH AND LOW PRESSURE, COMPRESSOR MOTOR OVERLOAD AND A TIMING DEVICE WHICH WILL PREVENT THE COMPRESSOR FROM BEING SUBJECTED TO A STARTING MORE THAN ONCE EVERY FIVE MINUTES.
7. AIR HANDLING UNITS SHALL BEAR THE UL AND ARI LABELS AND SHALL BE FRONT OR BOTTOM RETURN, UPFLOW, DIRECT DRIVEN, AND PROVIDED WITH ELECTRIC HEAT CAPACITY AS LISTED IN THE SCHEDULE, SINGLE POINT POWER CONNECTION, INTEGRAL CIRCUIT BREAKER, AND THERMOSTAT WITH HEAT STAGING CONTROLS.
8. PRIMARY DRAIN LINE SHALL BE RUN TO DRAIN OR DRYWELL.
9. SECONDARY DRAIN SHALL BE PROVIDED WITH FLOAT SWITCH. FLOAT SWITCH SHALL SHUT DOWN UNIT ANYTIME PRIMARY DRAIN GET CLOGGED. CONTRACTOR SHALL VERIFY SWITCHES ARE FUNCTIONING AND REPAIR IF NECESSARY.
10. AIR HANDLING UNITS SHALL NOT BE STARTED UNTIL ALL ROUGH CONSTRUCTION IS COMPLETE OR AS OTHERWISE DIRECTED BY THE MANUFACTURER. CHANGE ALL AIR HANDLING UNIT FILTERS AT THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES.

CONDENSING UNITS (SPLIT SYSTEM)

1. ACCEPTABLE MANUFACTURERS ARE: LG OR APPROVED EQUAL.
2. SYSTEM SHALL BE VARIABLE REFRIGERANT FLOW (VRF).
3. CONDENSING UNITS SHALL HAVE THE FOLLOWING CHARACTERISTICS:
   A. COMPRESSORS: HERMETICALLY SEALED DIRECT COOL TYPE WITH STARTER, CRANKCASE HEATER, LOW AND
   B. HIGH PRESSURE SAFETY SWITCHES, ANTI-SHORT CYCLE TIMER, TIME DELAY RELAY. LOW AMBIENT PRESSURE CONTROLLER, LIQUID LINE SOLENOID VALVE AND SIGHT GLASS, WINTER START KIT, EVAPORATOR COIL FREEZE STAT, REFRIGERANT SERVICE VALVES WITH GAGE PORTS, AND FIELD INSTALLED FILTER DRYER. PROVIDE A FIVE (5) YEAR WARRANTY ON ALL COMPRESSORS.
   C. OUTDOOR FANS: DIRECT DRIVE, CORROSION RESISTANT, PROPELLER TYPE WITH PROTECTED AND VIBRATION ISOLATED MOTOR.
   D. CASING AND FAN GUARD SHALL BE CORROSION RESISTANT.
4. CONDENSING UNITS SHALL BE SCREENED FROM VIEW FROM ANY PUBLIC OR PRIVATE RIGHT AWAY, COMMON AREAS, LAKES AND ABUTTING PROPERTIES. SCREENING SHALL UTILIZE OPAQUE FENCING, SCREEN WALL AND/OR SHRUBS AND OTHER VEGETATION. COORDINATE SCREENING WITH ARCHITECT OR LANDSCAPING DESIGNER.
5. PROVIDE CONCRETE PADS FOR GRADE MOUNTED CONDENSING UNITS. PADS SHALL BE MINIMUM OF 5-INCH THICK, 3,000 PSI CONCRETE, AND SHALL BE 4-INCH LARGER ON EACH SIDE THAN THE FOOTPRINT OF THE CONDENSING UNIT. VERIFY UNIT DIMENSIONS WITH APPROVED SHOP DRAWINGS PRIOR TO FABRICATION OF PADS.
6. SYSTEM SHALL HAVE PROTECTION FOR HIGH AND LOW PRESSURE, COMPRESSOR MOTOR OVERLOAD AND A TIMING DEVICE WHICH WILL PREVENT THE COMPRESSOR FROM BEING SUBJECTED TO A STARTING MORE THAN ONCE EVERY FIVE MINUTES.

REFRIGERANT PIPING:

1. UNLESS OTHERWISE INDICATED, CONSTRUCT PIPING FOR HIGHEST PRESSURES AND TEMPERATURES IN RESPECTIVE SYSTEM IN ACCORDANCE WITH THE LATEST REVISION OF THE APPLICABLE SECTIONS OF ASME CODE FOR PRESSURE PIPING, ASME B31 INCLUDING B31.5 REFRIGERATION PIPING.
2. ASTM B88 TYPE L HARD DRAWN COPPER TUBE, CLEANED AND CAPPED IN ACCORDANCE WITH ASTM B280, AND MARKED "ACR" WITH ANSI B16.22 WROUGHT COPPER OR FORGED BRASS SOLDER-TYPE FITTINGS.
3. SOLDER JOINTS SHALL BE ASTM GRADE 4 OR 5 AND HAVE MELTING POINT OF APPROXIMATELY 1250°F. SOLDER IMPURITIES SHALL NOT EXCEED 0.15%. TUBING SHALL BE NEW AND DELIVERED TO JOB SITE WITH ORIGINAL MILL END CAPS IN PLACE. CLEAN AND POLISH JOINTS BEFORE SOLDERING. AVOID PROLONGED HEATING AND BURNING DURING SOLDERING. PURGE PIPES WITH NITROGEN DURING SOLDERING. PROVIDE MANUAL SHUT-OFF AND CHECK VALVES AS REQUIRED.
4. LEAK TEST BY CHARGING SYSTEM TO PRESSURE OF 10 PSIG WITH THE SAME TYPE OF REFRIGERANT THAT WILL BE USED IN THE SYSTEM.
5. CHARGE REFRIGERANT INTO SYSTEM THROUGH SPORLAN CATCHALL FILTER-DRIER. FINALLY INCREASE PRESSURE TO 300 PSIG WITH OIL PUMPED DRY NITROGEN. RAP JOINTS WITH RUBBER OR RAWHIDE MALLET AND CHECK FOR LEAKS WITH ELECTRIC LEAK DETECTOR HAVING CERTIFIED SENSITIVITY OF AT LEAST ONE OUNCE PER YEAR. SEAL ANY LEAKS THAT MAY BE FOUND AND RETEST.
6. AFTER COMPLETION OF LEAK TEST, EVACUATE SYSTEM WITH VACUUM PUMP TO 2.5 MM HG ABSOLUTE AS MEASURED ON ACCURATE GAUGE.
7. SYSTEM AMBIENT TEMPERATURE SHALL BE ABOVE 60°F DURING EVACUATION, CHARGE REFRIGERANT INTO SYSTEM TO 0 PSIG, THEN REPEAT EVACUATION TO 8.45 KPA(500 MICRONS). ALLOW SYSTEM TO STAND EVACUATED FOR AT LEAST 12 HOURS. IF NO NOTICEABLE RISE IN PRESSURE OCCURS, SYSTEM MAY BE CHARGED.
8. CHARGE SYSTEM WITH NEW REFRIGERANT THROUGH CHARGING VALVE AND FILTER-DRIER. CONTINUE CHARGING UNTIL BUBBLES DISAPPEAR FROM LIQUID LINE SIGHT GLASS WHILE COMPRESSOR IS IN OPERATION.
9. REFRIGERATION PIPING MUST BE INSTALLED BY FIRMS WHO ARE EXPERIENCED IN INSTALLATION OF SUCH PIPING.

AIR HANDLING UNIT CONDENSATE DRAIN PIPING

1. CONDENSATE PIPE TO BE TYPE L COPPER OR SUNLIGHT RESISTANT SCHEDULE 40 PVC. ROUTE AS INDICATED ON PLANS.
2. UNITS 5 TONS AND SMALLER MAY DRAIN TO GRADE. FOR UNITS LARGER THAN 5 TONS COORDINATE WITH PLUMBER TO PROVIDE HUB DRAIN(S) IN MECHANICAL ROOM AND DRYWELL(S).
3. DRAIN LINES SHALL SLOPE A MINIMUM OF 1/8" PER FOOT TOWARDS DRAIN. TERMINATION POINT SHALL COMPLY FLORIDA BUILDING CODE - MECHANICAL.
4. PROVIDE A P-TRAP WITH CLEANOUT. REFER TO DETAILS FOR SIZING. ALL DRAIN PIPING SHALL BE MINIMUM 3/4-INCH OR AT LEAST THE SIZE OF THE COIL DRAIN CONNECTION. SLOPE ALL DRAIN PIPING A MINIMUM OF 1/8" PER FOOT TOWARDS THE DRAIN LOCATION.
5. INSULATE DRAIN LINES WITH 1" ARMAFLEX INSULATION RATED FOR PLENUM APPLICATION TO COMPLY FLORIDA BUILDING CODE - MECHANICAL.
6. UNDERGROUND DRAIN LINES SHALL BE RUN IN SLEEVE WITH BOTH END SEALED.
7. CONDENSATE DRAIN LINES SHALL BE PROVIDED WITH FLOAT SWITCH. UPON ACTIVATION OF SWITCH THE ASSOCIATED UNITS SHALL SHUTDOWN.

AIR DISTRIBUTION DEVICES:

1. ACCEPTABLE MANUFACTURERS ARE: TITUS, PRICE, METALAIRE, TUTTLE & BAILEY, AND BARBER COLEMAN.
2. PROVIDE AND INSTALL ALL AIR DEVICES IN LOCATIONS INDICATED ON DRAWINGS. VERIFY LOCATIONS AND CEILING TYPES WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING. PROVIDE INTEGRAL VOLUME DAMPER FOR ALL AIR DEVICES LOCATED IN HARD CEILINGS AND INTEGRAL RADIATION DAMPER FOR ALL DEVICES LOCATED IN RATED CEILINGS.
3. ALL AIR DEVICES SHALL BE ALUMINUM, EXCEPT THOSE INSTALLED IN RATED WALLS OR CEILINGS WHICH SHALL BE STEEL. FINISH OF ALL DEVICES SHALL BE WHITE UNLESS OTHERWISE NOTED ON PLANS. THE CONTRACTOR SHALL VERIFY FINISH COLOR AND STYLE OF ALL AIR DEVICES WITH THE ARCHITECT PRIOR TO ORDERING.
4. ALL SURFACES OF DUCTWORK VISIBLE THROUGH AIR DEVICES SHALL BE PAINTED FLAT BLACK.
5. FURNISH SUPPLY AIR GRILLES AND RETURN AIR REGISTERS WITH OPPOSED BLADE BALANCING DAMPERS AS SCHEDULED ON THE DESIGN DOCUMENTS.
6. AIR DISTRIBUTION SHALL NOT EXCEED NC-30 NOISE CRITERIA AS DEFINED IN THE LATEST ASHRAE GUIDE.

TEST AND BALANCE:

1. IF THE BUILDING'S MECHANICAL SYSTEMS ARE 15 TONS OR LESS PER SYSTEM. THE MECHANICAL CONTRACTOR MAY TEST, ADJUST, AND BALANCE THE SYSTEM.
2. IF THE BUILDING'S SYSTEMS ARE OVER 15 TONS PER SYSTEM, PROVIDE THE SERVICES OF AN INDEPENDENT TEST AND BALANCE AGENCY TO TEST, ADJUST, BALANCE, AND CERTIFY THE PERFORMANCE OF THE ENTIRE HVAC SYSTEM. TESTING AND BALANCING CONTRACTOR SHALL HOLD A CURRENT CERTIFICATE FROM A NATIONALLY RECOGNIZED TESTING AGENCY. ALL PROCEDURES SHALL BE PERFORMED IN ACCORDANCE WITH AABC OR NEBB STANDARDS. NOTE THAT FAN SELECTION POINTS REPRESENT DESIGN AIR FLOW RATES WITHOUT CONSIDERING DUCT LEAKAGE. PROVIDE ADDITIONAL DUCT SEALS AND ADJUST FANS TO COMPENSATE FOR DUCT LEAKAGE. PERFORM ALL TESTS NECESSARY TO ESTABLISH AND CONFIRM CAPACITY, QUALITY, AND COMPLETED STATUS OR WORK.
3. FOR ALL SYSTEMS SERVING ZONES GREATER THAN 5,000 SQUARE FEET, UPON COMPLETION OF ALL TESTING AND BALANCING, AND PRIOR TO FINAL ACCEPTANCE. SUBMIT THREE (3) COPIES OF THE FINAL TEST AND BALANCE REPORT TO THE ENGINEER FOR APPROVAL.
4. AIR SYSTEM BALANCING SHALL BE ACCOMPLISHED IN A MANNER TO FIRST REDUCE THROTTLING LOSSES, THEN FAN SPEED SHALL BE ADJUSTED TO MEET DESIGN FLOW CONDITIONS, EXCEPT THAT DAMPER THROTTLING MAY BE USED FOR BALANCING FAN MOTORS OF 1 HORSEPOWER OR LESS, OR IF DAMPER THROTTLING RESULTS IN NO GREATER THAN 1/3 HORSEPOWER DRAW ABOVE THAT REQUIRED IF THE FAN SPEED WERE ADJUSTED.
5. SPECIFIC TESTS INCLUDE (BUT ARE NOT LIMITED TO):
   · TEST & ADJUST SUPPLY FAN RPM TO DESIGN REQUIREMENTS.
   · TEST & RECORD MOTOR LOAD AMPERES. DO NOT EXCEED NAMEPLATE RATING
   · TEST & RECORD SYSTEM STATIC PRESSURES.
   · TEST & RECORD INDOOR COIL ENTERING & LEAVING AIR CONDITIONS.
   · TEST & RECORD INDOOR COIL LEAVING AIR CONDITIONS.
   · TEST & ADJUST EACH AIR DISTRIBUTION DEVICE TO PROVIDE AIRFLOW WITHIN 10% OF DESIGN.
   . TEST & VERIFY OPERATION OF ALL ELECTRIC HEATERS.

WARRANTIES AND MAINTENANCE:

1. CONTRACTOR SHALL WARRANTY ALL MECHANICAL SYSTEMS, EQUIPMENT, PARTS AND LABOR FOR A PERIOD OF ONE (1) YEAR. WARRANTY PERIOD SHALL NOT START UNTIL PROJECT IS COMPLETED AND CONTRACTOR HAD RECEIVED CERTIFICATED OF COMPLETION. ALL REPAIRERS MADE DURING THE WARRANTY PERIOD SHALL BE GUARANTEE FOR AN ADDITIONAL YEAR FROM THE TIME THE REPAIR IS COMPLETED.
2. DEFECTS OF ANY KIND (DUE TO FAULTY WORK OR MATERIALS) DURING THE WARRANTY PERIOD SHALL BE IMMEDIATELY REPAIRED AT CONTRACTOR OWN EXPENSE TO THE ENTIRE SATISFACTION OF THE OWNER, ARCHITECT AND ENGINEER. SUCH REPAIRS SHALL INCLUDE ALL DAMAGE TO THE FINISH OR FURNISHING OF THE BUILDING RESULTING FROM THE ORIGINAL DEFECT OR REPAIRS.
3. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO THE BUILDING, ITS COMPONENTS, OTHER EQUIPMENT OR ANY PROCESS CAUSED BY DEFECTS OR IMPROPER INSTALLATIONS OF ITS EQUIPMENT.
4. EQUIPMENT PROVIDED IN THE PROJECT SHALL BE COVERED BY THE MANUFACTURER'S WARRANTY FOR THE DURATION OF THAT WARRANTY.
5. ALL EQUIPMENT AND FIXTURES SHALL BE TESTED, ADJUSTED, LUBRICATED, CLEANED, STARTED (IF APPLICABLE) AND PROVEN TO BE IN GOOD OPERATING CONDITION BY THE CONTRACTOR PRIOR TO AT FINAL ACCEPTANCE.
6. PROVIDE COPIES OF ALL MANUFACTURER'S WARRANTIES AND CONTRACTOR WARRANTIES TO THE OWNER AT FINAL ACCEPTANCE.

OPERATING AND MAINTENANCE (O&M) MANUALS:

1. CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE MANUALS TO THE OWNER IN ACCORDANCE TO FLORIDA BUILDING CODE - ENERGY CONSERVATION ON ALL NEW EQUIPMENT.
2. ORGANIZE OPERATING AND MAINTENANCE DATA INTO MANAGEABLE SIZE.
3. ALL DATA SHALL BE BINDED PROPERLY AND INDEXED. PROVIDE HEAVY DUTY 2" BINDER - 3 RING VINYL COVERED BINDERS WITH POCKET FOLDERS. ALL BINDERS SHALL BE PROPERLY IDENTIFIED ON FRONT AND SPINE. AT MINIMUM INCLUDE THE FOLLOWING INFORMATION.

ELECTRICAL:

1. PROVIDE ALL STARTERS, CONTACTORS, RELAYS, CONTROLS, AND ACCESSORIES TO PROVIDE A COMPLETE POWER AND CONTROL WORKING SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL DISCONNECT SWITCHES, CONDUIT. AND WIRING FOR ALL EQUIPMENT. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS OF THESE DOCUMENTS AND THE NATIONAL ELECTRICAL CODE.
2. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL WIRING DIAGRAMS, BE RESPONSIBLE FOR PROPER OPERATION OF THE COMPLETE SYSTEM, AND SHALL SUPERVISE ALL WIRING OF MECHANICAL EQUIPMENT. COORDINATE THE INSTALLATION OF ALL EQUIPMENT WITH AND PROVIDE ALL WIRING DIAGRAMS TO THE ELECTRICAL CONTRACTOR PRIOR TO THE ELECTRICAL CONTRACTOR BEGINNING ANY WORK NO WIRING OF ANY KIND SHALL BE EXPOSED IN FINISHED AREAS. WIRING TO ALL MOTORS OR OTHER ELECTRICAL EQUIPMENT SHALL HAVE HEATER ELEMENTS IN EACH PHASE WITH EITHER THE STARTER OR THE CONTACTOR. ALL MOTORS SHALL BE WOUND FOR THE VOLTAGE SPECIFIED AND SHALL HAVE A NAMEPLATE STATING THAT VOLTAGE AND CORRESPONDING AMPERES. WHERE MORE THAN ONE MOTOR OR OTHER EQUIPMENT IS CONTROLLED BY THE SAME CIRCUIT, OR WHEN THE LOAD EXCEEDS THE CAPACITY OF THE CONTROL EQUIPMENT, THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONTROLS AND RELAYS.

TEMPERATURE CONTROL AND CONTROLS:

1. PROVIDE PROGRAMMABLE WALL MOUNTED THERMOSTAT FOR CONTROLLING EACH AIR CONDITIONING SYSTEM. ALL THERMOSTATS SHALL BE DIGITAL 7-DAY PROGRAMMABLE TYPE, LOW VOLTAGE.
2. CONTRACTOR SHALL PROVIDE ALL LOW VOLTAGE WIRING AND SEAL PENETRATIONS BEHIND THERMOSTATS WITH EXPANDABLE FOAM INSULATION. THERMOSTATS SHALL HAVE SETTINGS FOR "HEAT" AND "COOL" TO PROVIDE COOLING AND STAGES OF HEATING AS LISTED IN THE SCHEDULE. THERMOSTATS SHALL ALSO HAVE FAN SETTINGS OF "ON"-"OFF"-"AUTO".
3. THERMOSTATS SHALL BE INSTALLED MAXIMUM 54" AFF TO THE TOP OF THE THERMOSTAT. COORDINATE FINAL LOCATIONS AND ELEVATION WITH OTHER DISCIPLES AND OWNER. FINAL LOCATION MAY BE SUBJECT TO THE APPROVAL OF THE ARCHITECT OR HIS REPRESENTATIVE.
4. PROVIDE ALL THE COMPONENTS REQUIRED TO ACCOMPLISH THE CONTROL SEQUENCE DESCRIBED OR SPECIFIED IN THE CONSTRUCTION DOCUMENTS. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL WIRING AND REQUIRED INTERLOCKS.
5. ALL ELECTRIC HEATERS SHALL BE INTERLOCKED WITH AIR HANDLING UNITS TO PROVIDE HEATER SHUTDOWN IN THE EVENT OF FAN FAILURE. HEATER OPERATION SHALL REQUIRE AIRFLOW.
6. PROVIDE ALL 24 VOLT WIRING BETWEEN CONTROL DEVICES AS NECESSARY TO MAKE A COMPLETE AND OPERATIONAL SYSTEM. PROVIDE 120/24 VAC TRANSFORMERS AS REQUIRED. COORDINATE WITH DIVISION 26 FOR PROPER ROUTING, ROUGH-INM CONTROL AND WIRING OF 120V CABLING. 24 VOLT WIRING SHALL BE PLENUM RATED CABLE.
7. ALL EXHAUST FANS SHALL BE INTERLOCKED WITH AIR HANDLING UNITS. FANS SHALL OPERATE CONTINUOUSLY ANYTIME THE AIR HANDING UNIT SYSTEM ARE ACTIVE. FANS SHALL SHUTDOWN IN THE EVENT OF FAN FAILURE OF AIR HANDING UNIT FAILURES.

DUCT SMOKE DETECTOR:

1. DUCT MOUNTED SMOKE DETECTOR SHALL BE PHOTOELECTRIC TYPE.
2. ACTIVATION OF DUCT MOUNTED SMOKE DETECTOR SHALL AUTOMATICALLY
3. SHUT DOWN THE AIR HANDLING UNIT FAN AND ACTIVATE A SUPERVISORY ALARM SIGNAL AT THE REMOTE INDICATING TEST SWITCH.
4. SUBMIT ALL TEST REPORTS AND MANUFACTURER'S LETTER OF COMPLETION AS REQUIRED BY NFPA 72 TO THE AUTHORITY HAVING JURISDICTION.
5. DUCT DETECTORS SHALL BE OF PHOTOELECTRIC IONIZATION TYPE.
6. DETECTORS SHALL BE RATED FOR AIR VELOCITY TO BE EXPECTED.
7. DETECTOR SHALL HAVE THE ABILITY TO ALARM DUCT DETECTOR BY USING REMOTE OR LOCAL TEST SWITCH.
8. DETECTOR SHALL HAVE THE ABILITY TO CLEAN SAMPLING TUBES BY ACCESS THROUGH DUCT HOUSINGS FRONT COVER.
9. PROVIDE RELAYS ADJACENT TO MOTOR CONTROLLER, AND REMOTE KEYED TEST SWITCH AND ALARM LED INDICATOR.
   a. IN MECHANICAL ROOMS, ALARM-LED INDICATORS SHALL BE GROUPED ON A STAINLESS STEEL COVER PLATE.
   b. MOUNT ADJACENT TO MAIN MECHANICAL ROOM DOOR.
   c. EACH LED SHALL BE LABELED WITH DETECTORS LOOP AND ADDRESS.
   d. FLOOR PLAN OF THE ROOM SHOWING DETECTORS AND ADDRESSES SHALL BE LOCATED ADJACENT TO THE COVER PLATE.
   e. PROVIDE PLEXIGLAS COVER OVER PLAN.

Daniel Cesar, State of Florida, Professional Engineer, License No. 68670.

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NO.	DESCRIPTION	DATE

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Daniel Cesar — Digitally signed by Daniel Cesar Date: 2022.09.22 14:54:45 -04'00'

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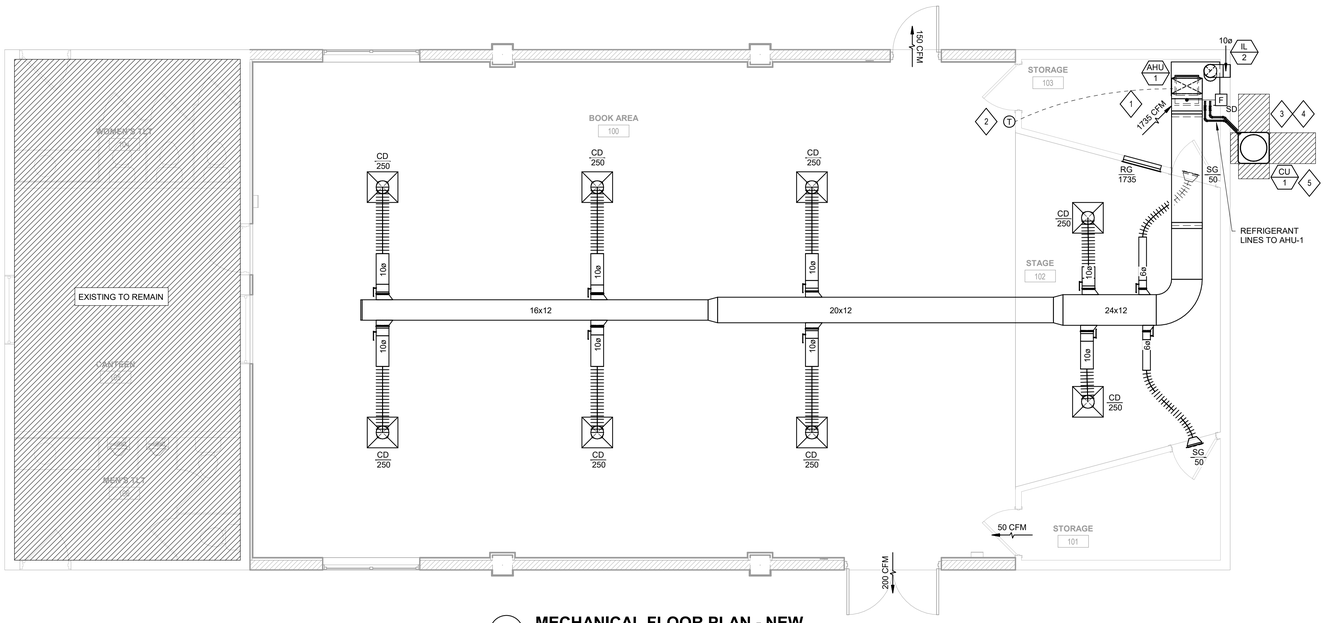
1 MECHANICAL FLOOR PLAN - DEMO

SCALE: NOT TO SCALE



2 MECHANICAL FLOOR PLAN - NEW

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. EXISTING HVAC SYSTEMS SHOWN HERE WERE TAKEN FROM DOCUMENTS FURNISHED BY OTHERS AND MAY NOT REFLECT EXACT FIELD CONDITIONS. THEREFORE, THE ENGINEER CAN NOT GUARANTEE THE ACCURACE OF SAME, NOR THAT ALL SYSTEMS AND/OR SYSTEMS COMPONENTS ARE SHOWN. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BID AND INFORM THE ENGINEER OF ANY MAJOR DISCREPANCY THAT IT WILL REQUIRE RELOCATING EXISTING PIPING, CONDUIT, EQUIPMENT, ETC. TO ALLOW INSTALLATION OF NEW WORK AND COULD POTENTIALLY AFFECT THE COST.
2. DUE TO THE CEILING SPACE LIMITATIONS, IT IS IMPERATIVE THAT ALL DUCTWORK, PIPING, LIGHTING AND EQUIPMENT INSTALLATION TO BE COORDINATED AMONG ALL TRADES PRIOR TO THE INSTALLATION OF ANY UTILITIES.
3. ROUTE ALL DUCTWORK IN ABOVE CEILING. HOLD DUCTWORK TIGHT TO STRUCTURE. FOR CLARITY, NOT ALL THE DUCTWORK RISERS AND DROPS ARE SHOWN.
4. CONTRACTOR TO COORDINATE WITH ALL TRADES TO ENSURE ADEQUATE ACCESS IS PROVIDED TO PROPERLY MAINTAIN ALL CONTROL DAMPERS, SMOKE DETECTORS AND SIMILAR ABOVE CEILING EQUIPMENT.
5. FOR CLARITY, NOT ALL THE DUCTWORK AND PIPING RISERS AND DROPS ARE SHOWN. CONTRACTOR TO PROVIDE AT NO ADDITIONAL COST TO THE OWNER ALL DUCT OFFSETS, BENDS AND TRANSITIONS REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM.
6. INSTALL DUCTWORK RUN-OUT TO ALL SUPPLY, RETURN AND EXHAUST DIFFUSERS/GRILLES WITH A MINIMUM OF 2 ELBOWS 6 FT OF FLEXIBLE DUCT.

KEYED NOTES

1. CONSTRUCT PLENUM BOX AT THE BOTTOM OF THE UNIT TO ALLOW PROPER RETURN DUCT CONNECTION INSTALLATION. BOX SHALL BE ABLE TO SUPPORT THE WEIGHT OF THE AIR HANDLING UNIT AND SHALL BE SIZED AS RECOMMENDED BY AIR HANDLING UNIT MANUFACTURER.
2. PROVIDE THERMOSTAT MOUNTED AT 48" A.F.F. CONTRACTOR TO COORDINATE FINAL LOCATION WITH OWNER PRIOR TO INSTALL.
3. ROUTE NEW COOLING COIL CONDENSATE LINE TO THE PROPOSED NEW FRENCH DRAIN. REFER TO FLOOR PLAN FOR EXACT LOCATIONS.
4. REFRIGERANT LINES (SUCTION AND LIQUID) AND CONDENSATE DRAIN LINE. ROUTE LINES FROM CONDENSING UNITS LOCATED OUTSIDE TO AIR CONDITIONING UNIT INSIDE. PIPE SIZED PER MANUFACTURER INSTRUCTIONS. INSULATE SUCTION LINES AND CONDENSATE LINES WITH MINIMUM 1" ARMAFLEX INSULATION.REFER TO DETAILS.
5. PROVIDE A HOUSE KEEPING PAD FOR CONDENSING UNITS LOCATED OUTSIDE TO AIR CONDITIONING. CLEARANCE FOR CONDENSING UNITS SHALL BE AS REQUIRED BY THE MANUFACTURER. CONDENSING UNIT SHALL BE SCREENED FROM VIEW FROM ANY PUBLIC OR PRIVATE RIGHT OF WAY, COMMON AREAS, LAKES AND ABUTTING PROPERTIES, SUCH SCREEN SHALL UTLIZE OPAQUE FENCING, SCREEN WALL AND OR SHRUBS AND OTHER VEGETATION. COORDINATE SCREENING WITH ARCHITECT AND/OR LANDSCAPING DESIGNER.

NO.	DESCRIPTION	DATE

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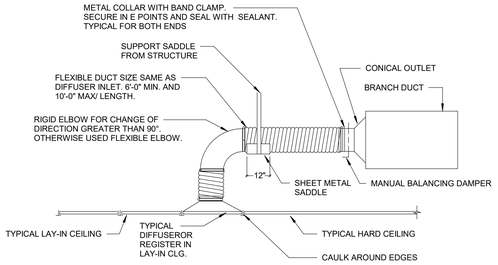
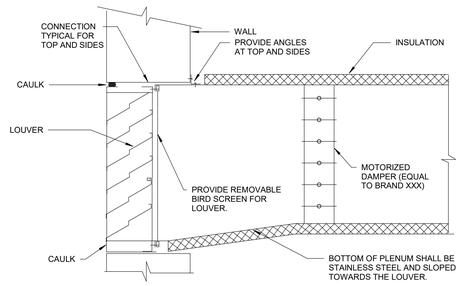


NOTES:

1. INSULATE FLEXIBLE AS REQUIRED. INSTALL FLEX DUCTWORK AS STRAIGHT AS POSSIBLE.
2. PROVIDE YOUNG REGULATOR OR APPROVED EQUAL FOR NON ACCESSIBLE CEILING. REGULATOR SHALL BE LOCKING TYPE FOR TEST AND BALANCE OF THE DIFFUSER/GRILLE.

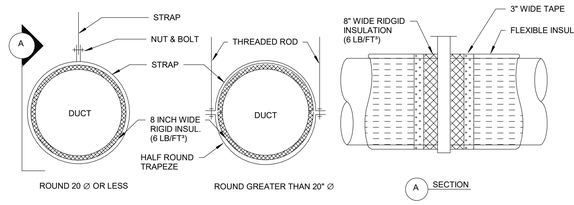
10 DUCTWORK TO DIFFUSER/GRILLE INSTALLATION DETAIL

SCALE: NOT TO SCALE



5 LOUVER DETAIL

SCALE: NOT TO SCALE

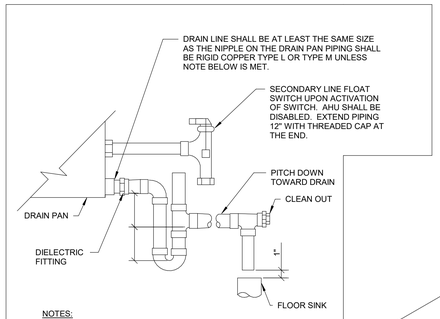


NOTES:

1. FLEXIBLE INSULATION SHALL BE OWENS CORNING ALL SERVICE DUCT WRAP.
2. RIGID INSULATION (6 LB/FT³) SHALL BE EQUAL TO OWENS CORNING TYPE 705.
3. JACKETING SHALL BE EQUAL TO OWENS CORNING FRK.
4. DUCT HANGER STAP. 1-1/2" GALVANIZED AS RECOMMENDED BY SMACNA UNLESS NOTED OTHERWISE.
5. ALL SUPPORTS SHALL BE IN ACCORDANCE WITH SMACNA RECOMMENDATIONS.

1 SUPPORT FOR ROUND DUCT WITH FLEXIBLE INSULATION

SCALE: NOT TO SCALE

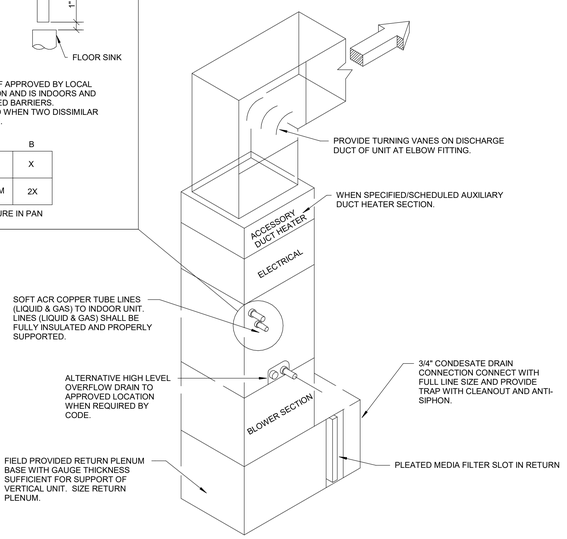


NOTES:

1. CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

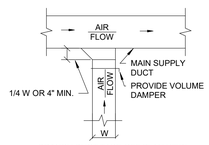
UNIT	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

WHERE X= STATIC PRESSURE IN PAN



11 VERTICAL UNIT INSTALLATION DETAIL

SCALE: NOT TO SCALE

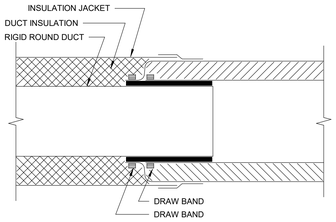


NOTES:

1. THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME AND UP TO 40%.

6 SUPPLY DUCTWORK TAKE OFFS

SCALE: NOT TO SCALE

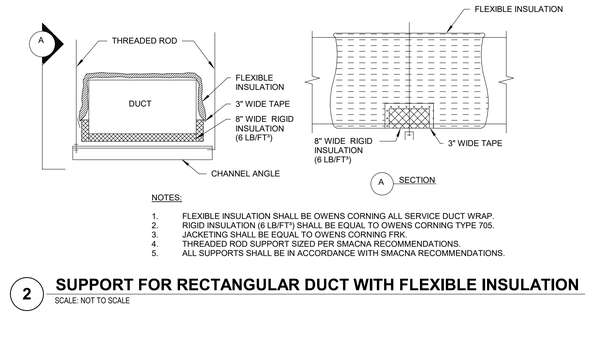


NOTES:

1. PULL FLEXIBLE DUCT INNER LINER OVER RIGID DUCT WITH MINIMUM 4" OVERLAP. SEAL FLEXIBLE DUCT INNER LINING TO RIGID DUCT WITH MASTIC ON THE INSIDE OF THE LINER.
2. SECURE LINER WITH STAINLESS STEEL DRAW BAND.
3. SECURE FLEXIBLE DUCT INSULATION AND OUTER JACKET WITH STAINLESS STEEL DRAW BAND.
4. PULL RIGID DUCT INSULATION AND BUTT JOINT TO TERMINATION OF FLEXIBLE DUCT. APPLY 3" WIDE TAPE SIMILAR TO FSK TAPE TO CREATE VAPOR BARRIER SEAM. TAPE SHALL BE COMPATIBLE WITH FLEXIBLE DUCT INSULATION JACKET AND RIGID DUCT INSULATION JACKET. APPLY MASTIC OVER TAPE FOR DURABILITY.

7 FLEXIBLE DUCT CONNECTOR TO INSULATED RIGID DUCT

SCALE: NOT TO SCALE

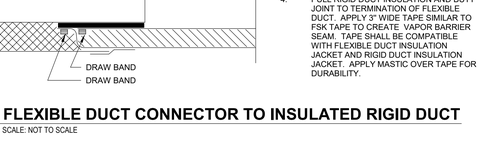


NOTES:

1. FLEXIBLE INSULATION SHALL BE OWENS CORNING ALL SERVICE DUCT WRAP.
2. RIGID INSULATION (6 LB/FT³) SHALL BE EQUAL TO OWENS CORNING TYPE 705.
3. JACKETING SHALL BE EQUAL TO OWENS CORNING FRK.
4. THREADED ROD SUPPORT SIZED PER SMACNA RECOMMENDATIONS.
5. ALL SUPPORTS SHALL BE IN ACCORDANCE WITH SMACNA RECOMMENDATIONS.

2 SUPPORT FOR RECTANGULAR DUCT WITH FLEXIBLE INSULATION

SCALE: NOT TO SCALE

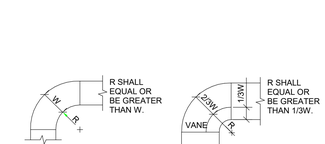


NOTES:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

8 BALANCING DAMPER DETAIL

SCALE: NOT TO SCALE

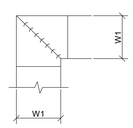


NOTES:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.
3. VANES SHALL ONLY BE UTILIZED IN SUPPLY DUCTS.

3 DUCTWORK RADIUS ELBOWS

SCALE: NOT TO SCALE

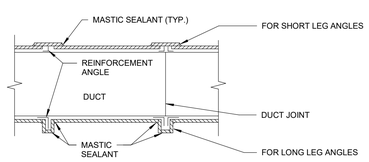


NOTES:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA. SQUARE VANES SHALL ONLY BE UTILIZED IN SUPPY AIR DUCTS.
2. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.

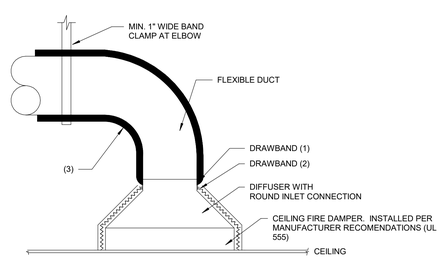
4 DUCTWORK SQUARE VANE ELBOWS

SCALE: NOT TO SCALE



12 INSULATION AT DUCT REINFORCEMENT AND JOINT

SCALE: NOT TO SCALE



NOTES:

1. PULL FLEXIBLE DUCT'S INNER LINER OVER DIFFUSER COLLAR AND SECURE WITH DRAW BAND.
2. SECURE FLEXIBLE DUCT INSULATION AND OUTER JACKET WITH DRAW BAND.
3. MAINTAIN MIN. 1.5 RADIUS ELBOW

9 DIFFUSER/GRILLE CONNECTOR

SCALE: NOT TO SCALE

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KTH # 22066A

LAKE COUNTY
ASTOR LIBRARY TEMPORARY FACILITIES
MECHANICAL DETAILS
54905 ALCO RD, ASTOR, FL 32102

SEPTEMBER 22, 2022

PERMIT SET

M601

Daniel Cesar, State of Florida, Professional Engineer, License No. 68670.

This item has been electronically signed and sealed by Daniel Cesar, PE. On 09/22/2022 using a Digital Signature.

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G:\Shared drives\3.0 PROJECT FOLDERS\2022\22-058 Library Lake County School\Drawings\M\R20 - Library Lake County School.rvt

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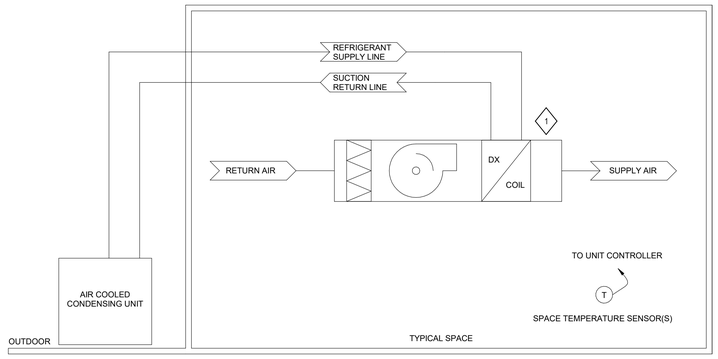


GENERAL NOTES

1. DRAWING IS TYPICAL AND MAYREPRESENT MORE THAN ONE SYSTEM.
2. COORDINATE THE INSTALLATION AND FINAL LOCATION OF INSTRUMENTS WITH OTHER TRADES.
3. VERIFY ALL CABLE REQUIREMENTS PRIOR TO TERMINATING.
4. SETPOINTS AND ALARM LIMITS ARE TO BE ADJUSTABLE AND COORDINATED VIA TAB ENGINEER, MECHANICAL SCHEDULES AND OWNER INPUT.

SHEET KEYNOTES

1 INDOOR UNIT MAY BE INSTALLED IN THE VERTICAL POSITION. REFER TO FLOOR PLANS FOR DETAILS.

SEQUENCE

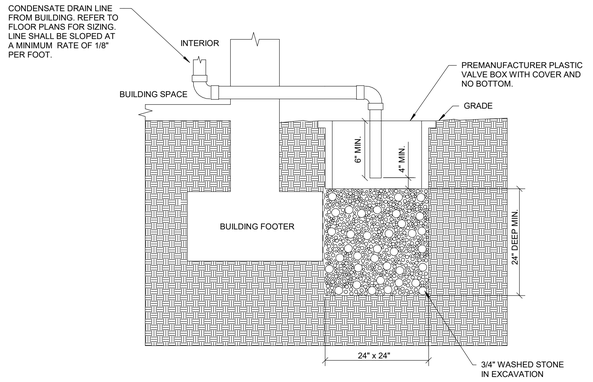
COOLING MODE:

THE UNIT CONTROLLER SHALL MONITOR SPACE TEMPERATURE AND SPACE TEMPERATURE COOLING SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR COOLING. WHEN THE SPACE TEMPERATURE RISES ABOVE THE SPACE TEMPERATURE COOLING SETPOINT, START MECHANICAL COOLING ON OR OFF AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE COOLING SETPOINT. IF UNITS HAS MULTIPLE COMPRESSOR THE FIRST, STAGE COMPRESSORS AS NECESSARY AND ALLOW A MINIMUM 5-MINUTE OFF TIMER. ONCE THE SPACE TEMPERATURE FALLS BELOW THE SETPOINT THE COMPRESSORS SHALL BE DEACTIVATED AND THE FAN SHALL REMAIN ON.

FIRE ALARM:

UPON THE ACTIVATION OF A THE FIRE ALARM SYSTEM, AIR HANDLING UNIT SHALL SHUTDOWN AND ALL DAMPERS ALL DAMPERS SHALL CLOSED. ASSOCIATED EXHAUST FAN SHALL SHUTDOWN.

4 SPLIT UNIT CONTROL DIAGRAM
SCALE: NOT TO SCALE



1 FRENCH DRAIN DETAIL
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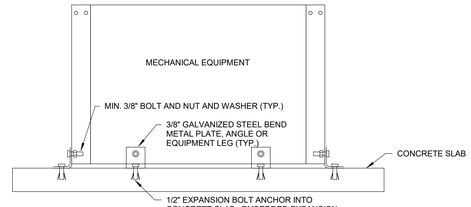
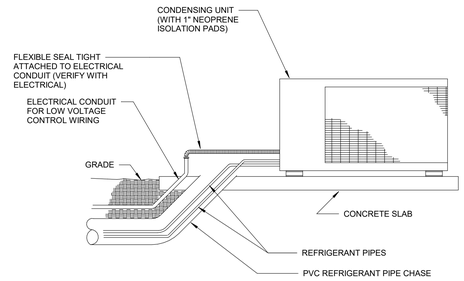


NOTES:

1. ALL EQUIPMENT MOUNTED OUTDOOR MUST BE ATTACHED AND TIED DOWN TO SUSTAIN HURRICANE WIND FORCES.

3 CONDENSING UNIT TIED DOWN DETAIL
SCALE: NOT TO SCALE



2 CONDENSING UNIT INSTALLATION DETAIL
SCALE: NOT TO SCALE

DATE | DESCRIPTION | NO.

DANIEL CESAR PE No. 68670

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Ethan J. Hine, AIA
Jennifer Zaffuto, AIA, NCARB, MPA

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DIVISION 26 - ELECTRICAL SPECIFICATIONS

DIVISION 26 - ELECTRICAL SPECIFICATIONS
GENERAL ELECTRICAL REQUIREMENTS

A. THE COMPLETE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE FOLLOWING CODES & STANDARDS:
1. NFPA 13 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS.
2. NFPA 20 STANDARD FOR THE INSTALLATION OF CENTRIFUGAL FIRE PUMPS.
3. NFPA 37 STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES
4. NFPA 70 NATIONAL ELECTRICAL CODE 2017 ED.
5. NFPA 72 NATIONAL FIRE ALARM CODE.
6. NFPA 780 LIGHTNING PROTECTION CODE.
7. NFPA 90A STANDARD TO THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS.
8. NFPA 96 STANDARD FOR VENTILATION CONTROL AND FIRE PREVENTION OF COMMERCIAL COOKING OPERATIONS.
9. NFPA 101 LIFE SAFETY CODE.
10. NFPA 110 STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS.
11. ANSI A17.1 ELEVATOR CODE.
12. ANSI A117.1 ACCESSIBILITY CODE.
13. FLORIDA AMERICANS WITH DISABILITIES ACCESSIBILITY IMPLEMENTATION ACT AS DESCRIBED IN ACCESSIBILITY REQUIREMENTS MANUAL, DEPARTMENT OF COMMUNITY AFFAIRS.
14. AMERICANS WITH DISABILITIES ACT.
15. FLORIDA BUILDING CODE 2020.
16. FLORIDA FIRE PREVENTION CODE 2020 Ed.

B. 'FURNISH AND INSTALL' AND 'PROVIDE' ARE EQUIVALENT TERMS WHICH INDICATE MATERIAL AND/OR EQUIPMENT SUPPLIED AND INSTALLED BY THIS CONTRACTOR. 'FURNISHED' DENOTES MATERIAL OR EQUIPMENT SUPPLIED BUT NOT INSTALLED BY THIS CONTRACTOR. 'INSTALLED' DENOTES THE SETTING IN POSITION OR CONNECTION OF MATERIAL OR EQUIPMENT BY THIS CONTRACTOR BUT SUPPLIED BY OTHERS.
C. IT IS THE REQUIREMENT OF THESE CONTRACT DOCUMENTS TO HAVE THE CONTRACTOR PROVIDE SYSTEMS AND COMPONENTS THAT ARE FULLY COMPLETE AND OPERATIONAL AND FULLY SUITABLE FOR THE INTENDED USE.
D. DRAWINGS ARE DIAGRAMMATIC AND SHOULD NOT BE SCALED TO DETERMINE EXACT LOCATIONS. VERIFY ALL LOCATIONS A REQUIREMENTS OF EQUIPMENT FURNISHED AND/OR INSTALLED BY OTHERS BEFORE ROUGHING IN.
E. ELECTRICAL SYSTEMS SHALL BE INSTALLED AS A COMPLETE INSTALLATION. INCIDENTAL DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER INSTALLATION AND OPERATION SHALL BE INCLUDED IN THE WORK OF THIS CONTRACTOR.
F. PREBID SURVEY.
1. THIS CONTRACTOR SHALL SURVEY THE JOBSITE PRIOR TO SUBMITTING THEIR BID TO DETERMINE THE FOLLOWING:
a. AREAS REQUIRING DEMOLITION, TEMPORARY POWER, RELOCATING, ETC. WHICH ARE INADVERTENTLY NOT SHOWN ON THE DRAWINGS.
b. PROBLEMS WITH WORK SEQUENCE.
2. ANY UNUSUAL CONDITIONS NOT SHOWN ON THE DRAWINGS SHALL BE REPORTED TO THE ENGINEER PRIOR TO BIDDING.
G. ACCEPTABLE MANUFACTURERS: THE LISTING OF A MANUFACTURER AS "ACCEPTABLE" UNDER ANY DIVISION 26 REQUIREMENTS DOES NOT IMPLY AUTOMATIC APPROVAL. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ANY SUBMITTALS MADE ARE FOR PRODUCTS THAT MEET OR EXCEED THE SPECIFICATIONS INCLUDED HERE.
H. UPON COMPLETION OF THE WORK, BUT BEFORE FINAL ACCEPTANCE OF THE SYSTEM AND REQUEST FOR FINAL PAYMENT,FURNISH THE OWNER, FOR APPROVAL, OPERATION AND MAINTENANCE MANUALS IN LOOSE-LEAF BINDERS. PROVIDE A MINIMUM OF 6 SETS. MANUAL SHALL INCLUDE:
1. SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
2. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. CLEARLY IDENTIFIED.
3. NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE AGENCY.
I. PROVIDE OWNER WITH A RECORD SET OF AS-BUILT DRAWINGS WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE FROM A DESIGNATED MARKED-UP SET OF BLUELINES INCLUDING:
1. A SINGLE-LINE DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM AND
2. FLOOR PLANS INDICATING LOCATION AND AREA SERVED FOR ALL DISTRIBUTION.
J. PROVIDE TEMPORARY ELECTRICAL POWER TO JOBSITE FOR THE DURATION OF THE PROJECT.
K. SUBMIT SHOP DRAWINGS TO ARCHITECT FOR ALL ELECTRICAL ITEMS. THE SHOP DRAWINGS SHALL BE SUBMITTED COMPLETE FOR ALL ELECTRICAL ITEMS. INCOMPLETE SUBMITTALS WILL BE RETURNED WITHOUT BEING REVIEWED OR THE CONTRACTOR SHALL AGREE TO PAY THE ELECTRICAL ENGINEER DIRECTLY AT AN HOURLY RATE OF $135.00 TO REVIEW SUBSEQUENT SUBMITTALS. SHOP DRAWING RE-SUBMITTALS DUE TO REJECTIONS FOR NOT SUBMITTING THE SPECIFIED ITEMS ARE ALSO SUBJECT TO THE HOURLY REVIEW FEE.
L. PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT (SWITCHBOARDS, TRANSFORMERS, ETC.).
M. DIVISION 26 SUB-CONTRACTOR SHALL REVIEW DIVISION 15 SHOP DRAWINGS AND VERIFY EQUIPMENT VOLTAGE, PHASE AND AMPS PRIOR TO ROUGH-IN OF ALL EQUIPMENT.
N. ALL EQUIPMENT, DEVICES, ETC. FURNISHED BY ELECTRICAL CONTRACTOR SHALL BE U.L. LISTED (OR EQUIVALENT NATIONAL TESTING AGENCY) FOR IT'S INTENDED PURPOSE. INFORM OWNER THAT ALL OWNER FURNISHED EQUIPMENT, DEVICES, ETC. MUST ALSO HAVE A U.L. LISTING (OR EQUIVALENT LISTING).
O. ALL ELECTRICAL COMPONENTS (CONDUIT, WIRE, FITTINGS, SUPPORTS, CIRCUIT BREAKERS,LAMPS, ETC.) PROVIDED AND INSTALLED IN THIS PROJECT SHALL BE BRAND NEW. RE-USE OF EXISTING COMPONENTS WILL NOT BE APPROVED.
P. UTILITY COORDINATION (WHERE APPLICABLE): CONTRACTOR SHALL SUBMIT A COMPLETE SET OF CONSTRUCTION. DOCUMENTS TO UTILITY COMPANY IMMEDIATELY AFTER RECEIVING NOTICE TO PROCEED OR PRIOR TO ANY SITE OR BUILDING ROUGH-IN. COORDINATE EASEMENT LOCATIONS BETWEEN OWNER AND UTILITY COMPANY. VERIFY WITH UTILITY COMPANY: PROPOSED VOLTAGE, PHASE, POLE/PAD-MOUNT TRANSFORMER LOCATIONS, METERING, UTILITY PRIMARY ROUTING AND CONDUIT REQUIREMENTS, ETC.
Q. WHERE REQUIRED, AFFIX PERMANENT ARC-FLASH AND AVAILABLE FAULT CURRENT LABELS TO ALL APPLICABLE ELECTRICAL EQUIPMENT IN COMPLIANCE WITH 2017 NEC ARTICLE 110.
R. PRIOR TO FINAL INSPECTION, CONTRACTOR SHALL PROVIDE FUNCTIONAL TESTING RESULTS SHOWING THAT LIGHTING SYSTEMS COMPLIES WITH FBC CHAPTER 4 SECTION C408.3.1
S. CONTRACTOR TO PROVIDE OWNER, WITHIN 90 DAYS, WITH CERTIFICATION THAT LIGHTING CONTROL SYSTEM MEETS FBC CHAPTER 4 SECTION C408.3.2
T. THE ELECTRICAL INSTALLATION MUST MEET ALL NEC REQUIREMENTS APPLICABLE TO HEALTHCARE FACILITIES.

ELECTRICAL IDENTIFICATION

A. PROVIDE CABLE/CONDUCTOR IDENTIFICATION BANDS.
B. PROVIDE ENGRAVED PLASTIC LAMINATE SIGNS, WHITE LETTERING ON A BLACK BACKGROUND, FOR EACH UNIT OF THE FOLLOWING CATEGORIES OF ELECTRICAL WORK: SWITCHBOARDS, MOTOR STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECTS, AND JUNCTION BOXES. NAME PLATES SHALL IDENTIFY PANEL DESIGNATION (NAME), VOLTAGE, PHASE AND WIRE CONFIGURATION.
C. UNDERGROUND CABLE/CONDUIT IDENTIFICATION PLASTIC LINE MARKERS SHALL BE PROVIDED THE CONTINUOUS TRENCH LENGTH.

CONDUIT & RACEWAYS

A. MINIMUM SIZE CONDUIT SHALL BE 1/2". DOES NOT APPLY TO MC CABLE.
B. CONDUIT SHALL BE MC CABLE, ELECTRICAL METALLIC TUBING, OR RIGID GALVANIZED STEEL CONDUIT. SCHEDULE 40 PVC CONDUIT IS ALLOWED FOR CONDUITS UNDER THE SLAB AND UNDERGROUND. MC CABLE MAY NOT BE USED FOR ANY HOMERUN.
C. ALL CONDUIT SHALL BE CONCEALED.
D. COORDINATE ROUTING (LOCATION) OF CONDUIT WITH HVAC DUCTWORK, PLUMBING PIPING AND SPRINKLER PIPING.
E. SECURE CONDUIT IN PLACE WITH CORROSION-PROOF ALLOY STRAPS AT SPACING AS REQUIRED BY N.E.C. CONDUIT SHALL BE SECURED TO BUILDING STRUCTURE.
F. INSTALL FLEXIBLE STEEL CONDUIT NOT OVER 3' LONG TO MOTORS, TRANSFORMERS AND EQUIPMENT SUBJECT TO VIBRATION.
G. INSTALL LIQUID-TIGHT FLEXIBLE CONDUIT NOT OVER 3' LONG WHERE SUBJECT TO MOISTURE, DIRT OR FUMES.
H. TYPE MC CABLE SHALL BE OF THE INTERLOCKING JACKET TYPE. CABLE SHALL BE SUPPORTED AT NOT MORE THAN SIX-FOOT INTERVALS, AND ALL FITTINGS SHALL BE IDENTIFIED FOR USE WITH SAID CABLE. MC CABLE SHALL NOT BE USED FOR SERVICE ENTRANCE OR IN EXPOSED AREAS. MC CABLE MAY BE USED ABOVE DROP CEILINGS AND IN INTERIOR PARTITIONS.
I. CONTRACTOR SHALL MINIMIZE FLOOR SLAB PENETRATIONS.
J. ALL CONDUIT RUNS SHALL BE DESIGNED TO PRESENT A NEAT AND ORDERLY APPEARANCE,RUNNING LINES PARALLEL WITH BUILDING STRUCTURE OR WALLS.
K. ROOFTOP UNITS AND EXHAUST FANS ARE TO BE WIRED THROUGH THE ROOF CURBS OR UTILIZE FACTORY-FABRICATED ROOF PIPING CURBS. PITCH POCKETS ARE NOT ALLOWED.
L. ROMEX CABLE IS NOT PERMITTED.
M. CONDUIT SHALL BE ROUTED PERPENDICULAR THROUGH RATED WALLS. PROVIDE PROPER SLEEVES AND FIRE SAFING/SEALANTS.
N. PROVIDE UL APPROVED FIRE SEALS FOR ALL FIRE RATED WALL AND FLOOR PENETRATIONS.

WIRES, CABLES AND CONNECTORS

A. ALL CONDUCTORS IN "AIR-HANDLING" SPACES SHALL BE PLENUM-RATED.
B. ALL CONDUCTORS SHALL BE PLENUM-RATED. ALL CONDUCTORS SHALL BE COPPER WITH 600V 75°C WITH INSULATION SUITABLE FOR INSTALLATION ENVIRONMENT. WHERE INSTALLED BEYOND THE BUILDING CONFINES, SUCH AS IN UNDERGROUND FEEDER BANKS OR CIRCUITRY TO SITE LUMINARIES IT SHALL BE COPPER WITH 600V, 75°, XHHW -2 INSULATION.
C. USE SOLID CONDUCTOR, SINGLE CONDUCTOR, NO.10 AWG MINIMUM FOR GENERAL USE WIRING.
D. USE STRANDED CONDUCTOR, SINGLE CONDUCTOR NO. 8 AWG AND LARGER, FOR MOTORS AND OTHER INSTALLATIONS WHERE VIBRATION IS GENERATED.
E. COLOR-CODING SHALL IDENTIFY THE SAME PHASE THROUGHOUT THE SYSTEM, FROM SERVICE SWITCH OR TRANSFORMER THROUGH ALL BRANCH CIRCUITRY. ALL WIRING SHALL BE COLOR-CODED AS FOLLOWS:

208/120/240 VOLT	480/277 VOLT
PHASE A-BLACK	PHASE A-BROWN
PHASE B-RED	PHASE B-ORANGE
PHASE C-BLUE	PHASE C-YELLOW
NEUTRAL-WHITE	NEUTRAL-WHITE TRACER OR GRAY

F. A STANDARD 500V MEGGER INSULATION TEST SHALL BE MADE AND RECORDED FOR ALL FEEDER CIRCUITS. PROVIDE A COPY OF TEST RESULTS TO ENGINEER FOR REVIEW.
G. PROVIDE LUGS FOR FEEDER SIZES INDICATED ON DRAWINGS OR AS REQUIRED.
H. WIRING FOR ALL ELECTRICAL CIRCUITS SHALL BE SIZED FOR A 3% MAXIMUM VOLTAGE DROP.
I. ALL TELECOMMUNICATIONS/DATA CABLING SHALL BE CAT 6.
J. ALL TELECOM/DATA CABLING, AND ELEMENTS SHALL COMPLY THE CLIENT TECHNOLOGY REQUIREMENTS. PRIOR TO BIDDING, CONTRACTOR SHALL CONSULT OWNER AND/OR ARCHITECT TO RECEIVE A COPY OF THE TECHNOLOGY REQUIREMENT.

BOXES

A. WALL OUTLET BOXES SHALL BE 4 INCH SQUARE WITH A TOTAL DEPTH OF LESS THAN 2-1/2" GALVANIZED PRESSED STEEL WITH PLASTER RINGS OR GANG COVER, OR SIZED AS REQUIRED.
B. WHERE MORE THAN TWO SWITCHES OR DEVICES ARE LOCATED AT ONE POINT, USE GANGED BOXES AND COVERS.
C. ALL BOXES FOR ELECTRICAL EQUIPMENT SHALL HAVE COVERS.
D. DO NOT INSTALL BOXES BACK TO BACK OR THROUGH WALL. OFFSET OUTLET BOXES ON OPPOSITE SIDES OF WALL A MINIMUM OF 12" OR ON OPPOSITE SIDES OF STUD IN PARTITION WALLS. WHERE BACK TO BACK BOXES CANNOT BE AVOIDED, PROVIDE GYPSUM BOARD BETWEEN BOXES. PROVIDE PUTTY PADS ON ALL BOXES WHERE REQUIRED PER FBC 712.3.2.
E. IF A K.O. IS AVAILABLE IN THE BASE JUNCTION BOX, THEN NO TERMINATIONS ARE ALLOWED IN THE EXTENSION RINGS.

CONDUIT FITTINGS

A. COMPRESSION TYPE STEEL OR STEEL SETSCREW TYPE SHALL BE UTILIZED.
B. PROVIDE PROPER EXPANSION FITTINGS WHEN CROSSING BUILDING EXPANSION LINES.

ELECTRICAL SERVICE EQUIPMENTS

A. ALL ELECTRICAL SERVICE INSTALLATIONS SHALL BE OF A TYPE APPROVED BY THE UTILITY AND AHJ. AND IT SHALL COMPLY WITH ALL RULES SET FORTH BY BOTH ENTITIES AND THE ADOPTED EDITION OF THE NEC.
B. ALL ELECTRICAL SERVICE INSTALLATIONS SHALL BE INCLUDE A RECEPTACLE IN COMPLIANCE WITH 2017 NEC 210.64.

WIRING DEVICES

A. FOR HEALTHCARE FACILITIES,ALL DEVICES MUST MEET THE REQUIREMENTS OF NEC ARTICLE 517.
B. RECEPTACLES NEXT TO DATA OUTLETS SHALL BE TVSS.
C. GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES SHALL BE NEMA 5-20R.
D. SWITCHES SHALL BE HEAVY DUTY SINGLE POLE AC QUIET SWITCHES.
E. UON, PROVIDE SMOOTH NYLON COVERS FOR ALL DEVICES.

SUPPORTING DEVICES

A. LIGHTING FIXTURES SHALL BE SUPPORTED FROM BUILDING STRUCTURE & NOT FROM CEILING GRID. SECURE A MINIMUM OF TWO CORNERS (OPPOSITE) TO STRUCTURE ABOVE WITH CHAIN OR WIRE.
B. FASTEN CONDUIT TO STRUCTURAL PARTS OF BUILDING.

GROUNDING

A. PROVIDE INSULATED GROUND CONDUCTORS IN ALL CONDUITS.
B. PROVIDE GROUNDING BUSHINGS FOR FEEDER CONDUITS.
C. TRANSFORMERS SHALL BE GROUNDED TO BUILDING STEEL WITH EXOTHERMIC CONNECTIONS.
D. SERVICE GROUND RESISTANCE SHALL BE MEASURED WITHOUT DEPENDING ON WATER PIPING SYSTEM & SHALL BE 25Ω OR LESS, IF GREATER THAN 25Ω, DRIVE ADDITIONAL GROUND RODS TO OBTAIN REQUIRED RESISTANCE.
E. GROUND METAL LIGHTING POLES AS REQUIRED BY N.E.C.
F. FOR HEALTHCARE FACILITIES, GROUNDING FOR ALL CIRCUIT MUST MEET THE REQUIREMENTS OF NEC ARTICLE 517.

LIGHTING

A. U.L. LABELS MUST APPEAR ON ALL NEW LIGHTING FIXTURES. FLEXIBLE CONDUIT TAILS, UP TO 6' IN LENGTH, MAY BE USED BETWEEN JUNCTION BOXES & RECESSED LIGHTING FIXTURES. OUTLET BOXES MAY SERVE UP TO FOUR SEPARATELY RECESSED FIXTURES. BALLASTS SHALL BE ELECTRONIC HIGH-POWER FACTOR CBM LABELED.
B. PROVIDE PROPER TRIM PER REFLECTED CEILING PLAN OR ACTUAL CEILING INSTALLED.
C. PROVIDE NEW LAMPS IN ALL NEW FIXTURES.
D. PROVIDE FOUNDATIONS FOR ALL SITE LIGHTING FIXTURES/POLES AS RECOMMENDED BY MANUFACTURER.
E. LIGHTING FIXTURES IN MECHANICAL ROOMS, ETC., SHALL BE COORDINATED WITH EQUIPMENT.
F. ALL INTERIOR LAMPS SHALL BE 3000°K, 3500°K, 4100°K KELVIN TEMPERATURE. COORDINATE WITH ARCHITECT FOR EXACT COLOR REQUIRED.
G. EMERGENCY BATTERY BALLASTS AND BATTERY OPERATED EXIT SIGNS AND/OR EMERGENCY LIGHTS SHALL BE WIRED AHEAD OF LOCAL SWITCHING MEANS.

LIGHTING RELAY PANELS

A. PROVIDE LIGHTING RELAY PANELS WHERE INDICATED EQUAL TO THE FOLLOWING TYPES: ·
4-POLE - INTELLIGENT LIGHTING CONTROLS, APPRENTICE-II ·
8-POLE - DOUGLAS LIGHTING CONTROLS - LITE-PAK ·
16-POLE - DOUGLAS LIGHTING CONTROLS - LITE-PAK FOR LARGER POLE REQUIREMENTS USE EXTENSION KITS.
B. PROVIDE LOW VOLTAGE SWITCH FOR OVERRIDE. LOCATE NEAR FRONT ENTRANCE UNLESS OTHER WISE NOTED.
C. PROVIDE PHOTOSENSOR FOR SENSING OF NIGHT/DAY TIMES. LOCATE EXTERIOR TO THE BUILDING PER MANUFACTURER INSTRUCTIONS.
D. PROVIDE ADDITIONAL LOW VOLTAGE SWITCHES FROM SAME MANUFACTURER AS INDICATED.
E. PROGRAM ALL OPERATIONS PER OWNER'S OCCUPANCY SCHEDULE. INCLUDE A 4-HOUR TRAINING PERIOD WITH OWNER TO PROPERLY DESCRIBE OPERATION AND INSTRUCTIONS FOR SETTINGS.

SURGE SUPPRESSION EQUIPMENT

A. SERVICES 2,500AMPS AND LARGER-PROVIDE UL 1449 LISTED, 300KA SCR PER PHASE, 20KA IN, 200KAIC, TYPE 1/2 RATED SPD AT EACH SE, EMERGENCY, CRITICAL OPERATION AND INDUSTRIAL MACHINERY PANEL PER NEC AND AS SHOWN ON DRAWINGS WITH AUDIBLE ALARM, SURGE COUNTER AND REDUNDANT MODULES/INDICATOR LIGHTS PER MODE AND PER PHASE. CONNECT TO A 3POLE, 30AMP DEDICATED CB, SUPPLIED BE THE PANEL MANUFACTURER. MODEL PQ PROTECTION PQS400.
B. SERVICES UP TO 2,500AMPS-PROVIDE UL 1449 LISTED, 200KA SCR PER PHASE, 20KA IN, 200KAIC, TYPE 1/2 RATED SPD AT EACH SE, EMERGENCY, CRITICAL OPERATION AND INDUSTRIAL MACHINERY PANEL PER NEC AND AS INDICATED ON DRAWINGS WITH AUDIBLE ALARM, SURGE COUNTER AND REDUNDANT MODULES/INDICATOR LIGHTS PER MODE AND PER PHASE. CONNECT TO A 3POLE, 30AMP DEDICATED CB, SUPPLIED BE THE PANEL MANUFACTURER. MODEL PQ PROTECTION PQS300,PQM200.
C. PROVIDE UL 1449 LISTED, 100KA PER PHASE SCR, 20KA IN, 200KAIC, TYPE 1/2 RATED SPD AT EACH ELEVATOR DISCONNECT PER NEC. MODEL PQ PROTECTION PQC200.
D. FIRE PUMP CONTROLLER SPD SHALL BE PROVIDED BY FIRE PUMP MANUFACTURER AND COMPLY WITH NEC REQUIREMENTS.
E. PROVIDE UL 1449 LISTED, 100KA PER PHASE SCR, 20KA IN, 200KAIC, TYPE 1/2 RATED SPD AT EACH EMERGENCY BRANCH PANEL PER NEC AND ADDITIONAL BRANCH PANELS AS INDICATED ON THE DRAWINGS. CONNECT TO A 3POLE, 30AMP DEDICATED CB, SUPPLIED BY THE PANEL MANUFACTURER.
F. FOR AHCA SPD REQUIREMENTS PROVIDE THE ABOVE AND ADDITIONALLY PROVIDE PQ PROTECTION PQD SERIES ON ALL EXTERIOR CIRCUITS ENTERING OR EXITING THE STRUCTURE.

IMAGING EQUIPMENT NOTES

A. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE IMAGING EQUIPMENT VENDOR PLANS AND/OR DETAILS; AND THEY ARE INTENDED TO GIVE THE CONTRACTOR A GENERAL KNOWLEDGE OF THE WORK ASSOCIATED WITH THE INSTALLATION OF THE IMAGING EQUIPMENT. IT IS NOT INTENDED TO INDICATE ALL WIRING, CONNECTIONS, J-BOXES, SWITCHES, ETC, OR ANCILLARY COMPONENTS REQUIRED FOR INSTALLATION. ALL EQUIPMENT SHALL BE INSTALLED PER THE OWNER APPROVED MANUFACTURER'S INSTALLATION DRAWINGS. INSTALLATION SHALL BE COORDINATED IN FIELD WITH IMAGING EQUIPMENT MANUFACTURER.WHERE THIS ELECTRICAL DRAWING SET DIFFERS FROM THE IMAGING EQUIPMENT DRAWINGS, THE MOST STRINGENT OF THE TWO MUST BE IMPLEMENTED.
B. IT IS THE INTENTION OF THESE DRAWINGS THAT ALL WORK (LABOR, MATERIALS, ETC.) REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM SHALL BE PROVIDED.
C. EQUIPMENT MANUFACTURER SHALL SUPPLY FIXED LENGTH CABLES, WHEREBY ALL MEASUREMENTS SHALL BE DETERMINED FROM ELECTRICAL TROUGH RUNS INDICATED ON THE DRAWINGS. CONTRACTOR MAY USED EXISTING TROUGHS AFTER PROPERLY TESTING, INSPECTING AND DETERMINING THEY ARE SUITABLE FOR REUSE. ANY CHANGES TO EQUIPMENT PLACEMENT OR TROUGH ROUTINGS AT JOB SITE WILL CAUSE THE DELIVERY OF INACCURATE AND ERRONEOUS CABLE LENGTHS. THIS MAY RESULT IN ADDITIONAL COST FOR REPLACEMENT CABLES AND DELAY EQUIPMENT INSTALLATION. COORDINATE PLACEMENT OF ALL EQUIPMENT WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.
D. THE FOLLOWING MUST BE PERFORMED/PROVIDED AS REQUIRED:
D.A. REDUNDANT GROUNDING FOR THE PATIENT CARE AREA VIA THE RACEWAY SYSTEM. THE EQUIPMENT MUST BE RACEWAY SYSTEM BY THE USE OF FLEXIBLE METAL CONDUIT OR BONDING STRAPS.
D.B. SEPARATE RACEWAYS OR CONTINUOUS BARRIERS FOR THE SEPARATION OF INTERCONNECTING CABLES PER VOLTAGE RATING AND CLASS. POWER AND CLASS I CLASS 2 AND 3 CIRCUIT WIRING. PROVIDE A CHART AND/OR WIRING DIAGRAM WITH MARKED CABLES TO MUST BEDEVELOPED BY THE EQUIPMENT.
E. ALL RADIOLOGY EQUIPMENT SHALL BE TESTED AND RECORDED FOR CHASSIS LEAKAGE IN ACCORDANCE WITH NFPA 99, SECTION 8-4.1.3.4. PROVIDE A WRITTEN REPORT, SIGNED, SEALED AND DATED BY THE PERSON SUPERVISING THE TEST FOR EACH PIECE OF EQUIPMENT TABULATION PERMITTED AND RECOMMENDED.

FIRE ALARM DETECTION SYSTEM

A. WHERE REQUIRED INSTALLATION SHALL BE IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS & NEC, NFPA 72, NFPA101, NFPA 90A, NFPA 13, NFPA 20; FLORIDA FIRE PREVENTION CODE 2017 7TH Ed.; FLORIDA BUILDING CODE 2017 7TH Ed.; FAC 61G15 FLORIDA STATE STATUTES 489, 633 & STATE FIRE MARSHAL RULES & REGULATIONS; APPROVAL FROM THE OFFICE OF THE STATE FIRE MARSHAL. THE CONTRACT DOCUMENTS SHOW MINIMUM REQUIREMENTS OF THE FIRE ALARM SYSTEM. PROVIDE ADDITIONAL FIRE ALARM DEVICES AS REQUIRED FOR A COMPLETE FIRE ALARM SYSTEM PER CODES & AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE COMPLETE FIRE ALARM SHOP DRAWINGS SIGNED/SEALED/DATED BY A REGISTERED FLORIDA PROFESSIONAL ENGINEER.
B. ALL WIRING & INSTALLATION SHALL COMPLY WITH NFPA 70. RECOMMENDATION BY MANUFACTURER'S DOCUMENTATION FOR WIRING REQUIREMENTS FOR SHIELDING CERTAIN CONDUCTORS FROM OTHERS OR ROUTING IN SEPARATE RACEWAYS SHALL BE FOLLOWED, PROVIDED IT DOES NOT VIOLATE NFPA 70.
C. SYSTEM INCLUDING ALL COMPONENTS SHALL BE LISTED UNDERWRITERS LABORATORIES, INC. (U.L.) FOR THE FIRE PROTECTIVE SIGNALING PURPOSE FOR WHICH USED.
1. U.L. 864 FIRE PROTECTIVE SIGNALING SYSTEMS.
2. U.L. 268 SMOKE DETECTORS.
3. U.L. 1480 FIRE ALARM SIGNALING DEVICES.
D. ALL FIRE ALARM SYSTEM ELEMENTS SHALL ADDRESSABLE AND OF A TYPE AND MODEL THAT CAN INTEGRATE TO THE EXISTING FIRE ALARM SYSTEM.
E. ADDRESSABLE MANUAL STATIONS SHALL BE SEMI-FLUSH MOUNTED 48" AFF TO TOP OF DEVICE.
F. PROVIDE REMOTE DUCT DETECTOR TEST STATION WITH INDICATOR LIGHT.
G. ALARM LIGHTS SHALL BE FLUSH WALL MOUNTED 80" AFF, WHITE COLOR. STROBE COVERAGE SHALL MEET NFPA 72 STANDARDS.
H. AUDIO-VISUAL ALARM SIGNAL DEVICES SHALL BE WHITE COLOR. ALARM LIGHTS SHALL BE SYNCHRONIZED. PROVIDE WIRING AS REQUIRED. AUDIO DEVICES SHALL BE HORNS.
I. AIR HANDLING SYSTEM & EXHAUST FAN SHUTDOWN ADDRESSABLE RELAYS SHALL BE COMPATIBLE WITH EXISTING SYSTEM.
J. WATERFLOW DETECTOR/PRESSURE SWITCHES & SPRINKLER SUPERVISORY SWITCHES TO BE SUPPLIED & INSTALLED BY THE FIRE PROTECTION SYSTEM CONTRACTOR & WIRED TO THE FIRE ALARM SYSTEM BY THIS CONTRACTOR. PROVIDE MONITOR MODULE.
K. REMOTE ANNUNCIATORS SHALL BE 80 CHARACTER, BACK-LIT, ALPHANUMERIC, LCD READOUT & BE SUPERVISED BY CONTROL PANEL.
L. PROVIDE END OF LINE RESISTORS WHERE REQUIRED.
M. ALL FIRE ALARM SYSTEM WIRING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS & SHALL MEET REQUIREMENTS OF ARTICLE 760 OF 3 THE NATIONAL ELECTRICAL CODE. STUB "C. FROM DEVICE BACKBOX 4 TO ACCESSIBLE CEILING CAVITY & TERMINATE WITH PLASTIC BUSHINGS. WIRING NOT IN CONDUIT SHALL BE ROUTED NEATLY & PERPENDICULAR TO BUILDING COLUMN LINES. SUPPORT IN ACCORDANCE WITH NEC & NFPA 72.
N. ALL WIRING SHALL BE COLOR-CODED AS FOLLOWS:
1. AUDIBLE/VISUAL ALARM (HORN/STROBE) SIGNALING-BLUE & RED.
2. ZONE INITIATING-YELLOW & BROWN.
3. SHUT-DOWN RELAYS-ORANGE (NON-POLARIZED); ORANGE WITH PHASE TAPE (POLARIZED).
4. DOOR HOLDERS-GRAY.
5. 24V POWER-BLACK & WHITE.
O. WHERE APPLICABLE, CONTROL WIRING TO THE AIR HANDLING SHUTDOWN RELAYS SHALL BE SUPERVISED FROM THE FIRE ALARM CONTROL PANEL TO THE RELAY COIL PER NFPA 101, CHAPTER 7-6.5. LOCATE SHUTDOWN RELAY WITHIN 3' OF AIR HANDLING UNIT MOTOR STARTER.
P. PERFORM AND DOCUMENT TESTS REQUIRED BY THE EQUIPMENT MANUFACTURER & NFPA 72.PERFORM SMOKE DETECTOR SENSITIVITY TESTS ON ALL SMOKE DETECTORS AND PERFORM DIFFERENTIAL PRESSURE TESTS ON ALL DUCT DETECTORS. PROVIDE A COPY OF TEST RESULTS TO ENGINEER FOR REVIEW.
Q. PROVIDE ANY ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE FIRE ALARM SYSTEM CONFORMING TO ALL CODES.
R. PROVIDE CONNECTION TO ALL ELECTRONICALLY MONITORED FIRE EXTINGUISHERS AS A 'TROUBLE SIGNAL'.

CODE REQUIREMENTS

A. OPERATING AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER. THE MANUALS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:
1. SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
2. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
3. NAME AND ADDRESS OF AT LEAST ONE QUALIFIED SERVICE AGENCY. FB ECC, CHAPTER 4, SECTION C405.6.4
B. WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL ELECTRICAL INSTALLATION SHALL BE PROVIDED TO THE BUILDING OWNER, INCLUDING:
1. SINGLE-LINE DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM AND
2. FLOOR PLANS INDICATING LOCATION AND AREA SERVED FOR ALL DISTRIBUTION. FB ECC, CHAPTER 4, SECTION C405.6.4.2.
C. PRIOR TO PASSING FINAL INSPECTION, A REGISTERED DESIGN PROFESSIONAL SHALL PROVIDE EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH SECTIONS C408.3.1.1 AND C408.3.1.2 FOR THE APPLICABLE CONTROL TYPE. FB ECC, CHAPTER 4, SECTION C408.3.1.
D. WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY, THE BUILDING OWNER SHALL BE PROVIDED WITH CERTIFICATION THAT THE LIGHTING CONTROLS MEET THE DOCUMENTED PERFORMANCE CRITERIA OF THE FB ECC, CHAPTER 4, SECTION C408.32 FB ENERGY CONSERVATION CODE C405.6.4, C405.6.4.2, C408.3.1, & C408.3.2.

POWER PLAN LEGEND

SYMBOL:	DESCRIPTION:
	DUPLEX RECEPTACLE, NEMA 5-20R, MOUNT 18" AFF UON.
	DUPLEX RECEPTACLE, NEMA 5-20R, MOUNT 42" AFF OR ABOVE COUNTER.
	DUPLEX RECEPTACLE, NEMA 5-20R, SPLIT WIRE, MOUNT 42" AFF UON.
C	DUPLEX RECEPTACLE, NEMA 5-20R, AUTO SHUTOFF CONTROL RECEPTACLE.
	DUPLEX RECEPTACLE, NEMA 5-20R, FLUSH CEILING MOUNT UON.
	DUPLEX RECEPTACLE, NEMA 5-20R, FLOOR MOUNT UON.
	QUAD RECEPTACLE, 2 OF NEMA 5-20R, MOUNT 18" AFF UON.
	QUAD RECEPTACLE, 2 OF NEMA 5-20R, MOUNT 42" AFF OR ABOVE COUNTER.
	SPECIAL PURPOSE OUTLET, NEMA CONFIGURATION AS SHOWN.
IG	INDICATED ISOLATED GROUND ON ANY RECEPTACLE
GFI	DUPLEX RECEPTACLE, NEMA 5-20R, MOUNT 18" AFF UON (GROUND FAULT CIRCUIT INTERRUPTED)
GFI	DUPLEX RECEPTACLE, NEMA 5-20R, MOUNT 42" AFF OR ABOVE COUNTER (GROUND FAULT CIRCUIT INTERRUPTED)
J	JUNCTION BOX WITH BLANK PLATE; BRACKET INDICATES WALL MOUNTED.
	PANELBOARD (SURFACE MOUNT).
	ELECTRICAL MAIN DISTRIBUTION PANELBOARD OR SWITCHBOARD
WAP	WIRELESS ACCESS POINT.
	COMMUNICATIONS OUTLET BOX FOR OWNER FURNISHED VOICE AND/OR DATA. STUB 1" C. TO CEILING CAVITY AND TERMINATE WITH PLASTIC BUSHINGS. C=MOUNTED 6" ABOVE COUNTER OR BACKSPLASH, W=WALL MOUNTED AT +54" AFF.
CR	CARD READER
TV	CABLE TV OUTLET BOX FOR OWNER FURNISHED CABLE TV SYSTEM. STUB 3/4" C. TO CEILING CAVITY AND TERMINATE WITH PLASTIC BUSHINGS.
S	SPEAKER
	3/4" PLYWOOD TELEPHONE BACKBOARD.
	FLOORBOX-3 GANG/3 COMPARTMENT, 1 GANG FOR POWER AND 2 GANGS FOR COMMUNICATIONS: WALKER/WIREMOLD RFB4-4DB WITH RAKMII COVERPLATE (VERIFY FLOOR COVERING AND DESIRED COVERPLATE PRIOR TO ORDERING). COORDINATE REQUIRED COMMUNICATIONS BRACKETS WITH OWNER AND PROVIDE THOSE DESIRED BRACKETS. PROVIDE (1) 1"C. AS A MINIMUM TO NEAREST WALL AND ROUTE CONDUIT UP WALL TO ACCESSIBLE CEILING CAVITY FOR EVERY FLOORBOX SHOWING COMMUNICATION OUTLETS. FLOORBOXES MAY BE STAMPED STEEL IF NOT IN DIRECT CONTACT WITH THE EARTH. PROVIDE LAYER OF CONCRETE IF REQUIRED. OTHERWISE, IF IN DIRECT CONTACT WITH EARTH, PROVIDE CAST IRON FLOORBOXES.
F	ELECTRICAL FAN.
	REMOTE SHUNT TRIP DEVICE IN "BREAK GLASS" WEATHERPROOF BOX
	FUSED SAFETY (DISCONNECT) SWITCH
X/X	TOP NUMBER = FUSE RATING, BOTTOM NUMBER = DISCONNECT RATING USE ALL RK-1 FUSES.
X	SAFETY (DISCONNECT) SWITCH, NON-FUSED NUMBER = DISCONNECT RATING
T	TRANSFORMER SITE PLAN.
	METER SOCKET, PROVIDE PER UTILITY COMPANY REQUIREMENTS.
TC	TIME CLOCK

NOT ALL SYMBOLS ARE USED IN EVERY DESIGN

LIGHTING PLAN LEGEND

SYMBOL:	DESCRIPTION:
A, A-11	LED FIXTURE. UPPER CASE LETTER DENOTES FIXTURE TYPE.REFER TO 'LIGHTING FIXTURE SCHEDULE' FOR FIXTURE SPECIFICATIONS AND MOUNTING. CIRCUIT CONDUIT OR SIDE NUMBERING DESIGNATES WHICH PANEL BOARD/CIRCUIT FIXTURES ARE CONNECTED TO. (TYPICAL FOR ALL LIGHTING FIXTURES).
	LED STRIP LIGHTING FIXTURE.
	CEILING MOUNTED DOWNLIGHT FIXTURE (UON IN LIGHT FIXTURE SCHEDULE)
	CEILING MOUNTED WALL WASHER TYPE LIGHT FIXTURE OR SPOT LIGHT. (UON IN LIGHT FIXTURE SCHEDULE)
	SUSPENDED PENDANT FIXTURE (UON IN LIGHT FIXTURE SCHEDULE)
	WALL MOUNTED LIGHTING FIXTURE
	GROUND MOUNTED LANDSCAPE LIGHT FIXTURE
	TRACK LIGHITNG FIXTURE.
	FULL CUT-OFF WALL MOUNTED EXTERIOR WALL FIXTURE
	WALL LIGHT FIXTURE SHADING INDICATES EMERGENCY LIGHT FIXTURE.
NTL	STRIPED SHADING OR "NTL" DESIGNATION = NIGHT LIGHT FIXTURE SHALL BE CONNECTED AHEAD OF ANY CONTROL SOURCE ON THE SAME CIRCUIT AS THE OTHER FIXTURES IN THAT ROOM OR AREA.
	SOLID-HALF SHADING INDICATES EMERGENCY LIGHT FIXTURE. FIXTURE SHALL BE CONNECTED AHEAD OF ANY CONTROL SOURCE ON THE SAME CIRCUIT AS THE OTHER FIXTURES IN THAT ROOM OR AREA AND FIXTURE SHALL HAVE AN INTEGRAL EMERGENCY BALLAST FOR 90 MIN OF CONTINUOUS OPERATION.
NTL	SOLID-HALF SHADING + HALF HATCHED OR "NTL" INDICATES EMERGENCY LIGHT FIXTURE. FIXTURE SHALL BE CONNECTED AHEAD OF ANY CONTROL SOURCE ON THE SAME CIRCUIT AS THE OTHER FIXTURES IN THAT ROOM OR AREA AND FIXTURE SHALL HAVE AN INTEGRAL EMERGENCY BALLAST FOR 90 MIN OF CONTINUOUS OPERATION.
	EXIT LIGHT, UNIVERSAL MOUNT AS SPECIFIED IN THE FIXTURE SCHEDULE. ARROW(S) INDICATE DIRECTION OF TRAVEL. VERIFY WITH ARCHITECTURAL FOR OPTIMUM MOUNTING LOCATION AND SINGLE OR DUAL FACE. CONNECT FIXTURE TO SAME CIRCUIT AS NORMAL LIGHTING CIRCUIT IN THAT ROOM AHEAD OF ANY CONTROL DEVICE. DOUBLE ARROW INDICATES NON DIRECTIONAL SIGN TYPICALLY PLACED OVER DOORS.
	UNIVERSAL MOUNT BATTERY OPERATED EMERGENCY LIGHT FIXTURE MOUNTED AT 8'-0" AFF UON. PROVIDE INTEGRAL EMERGENCY BATTERY FOR 90 MIN OPERATION. FIXTURE SHALL BE CONNECTED TO SAME LIGHT CIRCUIT IN ROOM AHEAD OF ANY CONTROL DEVICE FOR CONSTANT POWER. VERIFY OPTIMUM MOUNTING LOCATION IN FIELD.
EXIT	UNIVERSAL MOUNT BATTERY OPERATED EMERGENCY LIGHT/ EXIT SIGN FIXTURE MOUNTED AT 8'-0" AFF UON. PROVIDE INTEGRAL EMERGENCY BATTERY FOR 90 MIN OPERATION. FIXTURE SHALL BE CONNECTED TO SAME LIGHT CIRCUIT IN ROOM AHEAD OF ANY CONTROL DEVICE FOR CONSTANT POWER. VERIFY OPTIMUM MOUNTING LOCATION IN FIELD.
	EXTERIOR LED STRIP LIGHT
	CCTV CAMERA
$	WALL SWITCH, SINGLE POLE, 125/277VAC, 20A, MOUNT 48" AFF UON.
$3	WALL SWITCH, THREE WAY, 125/277VAC, 20A, MOUNT 48" AFF UON.
$D	WALL SWITCH, DIMMER, 125/277VAC, 1500W, MOUNT 48" AFF UON.
$L	WALL SWITCH FOR LOW VOLTAGE SWITCHING SYSTEM, MOUNT 48" AFF UON.
$M	MANUAL MOTOR STARTER, 125/277VAC, 20A, MOUNT 48" AFF UON.
$OC	WALL SWITCH OCCUPANCY SENSOR SWITCH, SEE OCCUPANCY SENSOR SCHEDULE FOR MORE INFORMATION, MOUNT 48" AFF UON.
OS	OCCUPANCY SENSOR
	MASTER ENTRY STATION SWITCH FOR LIGHTING CONTROL. LEVITON MODEL NO. ZMDSW/10W. MOUNT AT 48" UON.
PC	PHOTOCELL.
LC	LIGHTING CONTACTOR.
LCP	LIGHTING CONTROL RELAY PANEL

NOT ALL SYMBOLS ARE USED IN EVERY DESIGN

RENOVATION/DEMOLITION LEGEND

SYMBOL:	DESCRIPTION:
<E>	EXISTING TO REMAIN
	EXISTING TO BE REMOVED
<R>	EXISTING TO BE RELOCATED

CONDUIT RACEWAY & WIRING LEGEND

SYMBOL:	DESCRIPTION:
	RACEWAY CONDUIT CONCELAED ABOVE CEILING OR WITHIN WALL UNLESS OTHERWISE NOTED. EACH CIRCUIT SHALL CONSIST OF PHASE, NEUTRAL AND GROUND CONDUCTORS. FOR LIGHTING CIRCUITS PROVIDE REQUIRED SWITCH LEGS TO ACHIEVE SWITCHING INDICATED ON PLANS. CONTRACTOR MAY COMBINE CIRCUITS INTO A COMMON HOMERUN CONSISTING OF A MAXIMUM OF A COMMON NEUTRAL/GROUND AND (3) PHASE CONDUCTORS (A, B AND C PHASE). HOWEVER, A SEPARATE NEUTRAL SHALL BE PROVIDED FOR ALL CIRCUITS SERVING COMPUTERS (DATA) CIRCUITS. SERVICING DATA IS DEFINED AS ANY RECEPTACLE NEXT TO A DATA OUTLET OR SPECIFICALLY SERVING A DATA PIECE OF EQUIPMENT
A / 1,3	HOME RUN TO PANEL ALL HOMERUNS SHALL BE #10 AWG, 3/4"C., MINIMUM. WIRING HOME RUN: LETTER INDICATES PANEL; NUMBER IS BRANCH CIRCUIT(S)
	GROUNDING CONDUCTOR
	CONDUIT IN/UNDER SLAB OR UNDERGROUND
	CONDUIT CAP
P	CONDUIT FOR POWER
FA	CONDUIT FOR FIRE ALARM
T	CONDUIT FOR TELEPHONE/DATA
DN	CONDUIT STUB-DOWN
UP	CONDUIT STUB-UP

FIRE ALARM LEGEND

SYMBOL:	DESCRIPTION:
F	FIRE ALARM PULL STATION MOUNTING LOCATION: WALL MOUNTING HEIGHT: 42" AFF
F H XXcd	FIRE ALARM COMBINATION HORN/STROBE MOUNTING LOCATION: WALL MOUNTING HEIGHT: SEE NOTE 1 XX - DENOTES CANDELA RATING
F XXcd	FIRE ALARM STROBE ONLY MOUNTING LOCATION: WALL MOUNTING HEIGHT: SEE NOTE 1 XX - DENOTES CANDELA RATING
SD	SMOKE DETECTOR, BATTERY OPERATED AND MONITORED BY FIRE ALARM SYSTEM
CO	CARBON MONOXIDE DETECTOR, BATTERY OPERATED AND MONITORED BY FIRE ALARM SYSTEM

NOTES:

1. 80" AFF TO BOTTOM OF LENS OR 6" FROM TOP OF FACEPLATE TO CEILING, WHICH EVER IS LOWER.

NOT ALL SYMBOLS ARE USED IN EVERY DESIGN

ABBREVIATIONS

A	AMPERE	JB	JUNCTION BOX
AF	AMPERE FRAME	KCMIL	THOUSAND CIRCULAR MILS
AFC	AVAILABLE FAULT CURRENT	KVA	KILOVOLT-AMPERE
AFCI	ARC FAULT CIRCUIT INTERRUPTER	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	KWH	KILOWATT-HOUR
AFG	ABOVE FINISHED GRADE	LTG	LIGHT, LIGHTING
AHU	AIR HANDLER UNIT (HVAC)	LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
AHJ	AUTHORITY HAVING JURISDICTION	LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
AIC	AMPERE INTERRUPTING CAPACITY	MCB	MAIN CIRCUIT BREAKER
AT	AMPERE TRIP	MCC	MOTOR CONTROL CENTER
AWG	AMERICAN WIRE GAUGE	MCCB	MOLDED CASE CIRCUIT BREAKER
BKR	BREAKER	MDP	MAIN DISTRIBUTION PANEL
C	CONDUIT OR CONDUCTOR	MH	METAL HALIDE LIGHT, MAN HOLE
CB	CIRCUIT BREAKER	MLO	MAIN LUGS ONLY
CLG	CEILING	N, NEUT	NEUTRAL (ELECTRICAL)
CO	CONDUIT ONLY	NEC	NATIONAL ELECTRICAL CODE)
CPT	CONTROL POWER TRANSFORMER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN.
CU	CONDENSING UNIT (HVAC), COPPER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
DS	DISCONNECT (SAFETY) SWITCH	NL	NIGHT LIGHT (UNSWITCHED)
EC	EMPTY CONDUIT	P	POLE
EF	EXHAUST FAN	PB	PULL BOX
EL	EMERGENCY LIGHT (UNSWITCHED)	PCB	POWER CIRCUIT BREAKER
ELE	ELECTRICAL, ELECTRIC	PH	PHASE (ELECTRICAL)
EM	EMERGENCY	PNL	PANEL
EMT	ELECTRICAL METALLIC TUBING	PNLB	PANELBOARD
ENT	ELECTRICAL NONMETALLIC TUBING	PVC	PLASTIC CONDUIT
EWH	ELECTRIC WATER HEATER	PWR	POWER (ELECTRICAL)
EX	EXISTING	RCPT	RECEPTACLE
FBC	FLORIDA BUILDING CODE	RMC	RIGID METAL CONDUIT
FDS	FUSED DISCONNECT (SAFETY) SWITCH	RNC	RIGID NONMETALLIC CONDUIT
FLOUR	FLOURESCENT	RTU	ROOF TOP UNIT (HVAC)
FMC	FLEXIBLE METAL CONDUIT	SD	SMOKE DETECTOR
FMT	FLEXIBLE METAL TUBING	SF	SUPPLY FAN
GND	GROUND (ELECTRICAL)	SH	SHIELDED
GEN	GENERATOR	SW	SWITCH
GFI	GROUND FAULT INTERRUPTER	SWBD	SWITCBOARD
GWH	GAS WATER HEATER	TEL	TELEPHONE
HH	HAND HOLE	TTB	TELEPHONE TERMINAL BOARD
HID	HIGH INTENSITY DISCHARGE LIGHT	UG	UNDERGROUND
HP	HORSE POWER	UL	UNDERWRITERS LABORATORY
HPS	HIGH PRESSURE SODIUM LIGHT	UPS	UNINTERRUPTABLE POWER SUPPLY
HZ	HERTZ (ELECTRICAL)	UON	UNLESS OTHERWISE NOTED
ICAN	ICANDESCENT LIGHT	V, VAC	VOLT, VOLT AC
ICCB	INSOLATED CASE CIRCUIT BREAKER	W	WATT
IGND	ISOLATED GROUND	WP	WEATHERPROOF
IMC	INTERMEDIATE METAL CONDUIT	XFMR	POWER TRANSFORMER

NOT ALL ABBREVIATIONS ARE USED IN EVERY DESIGN

Sheet List

Francisco Cabral, State of Florida, Professional Engineer, License No. 87110.

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NO.	DESCRIPTION	DATE

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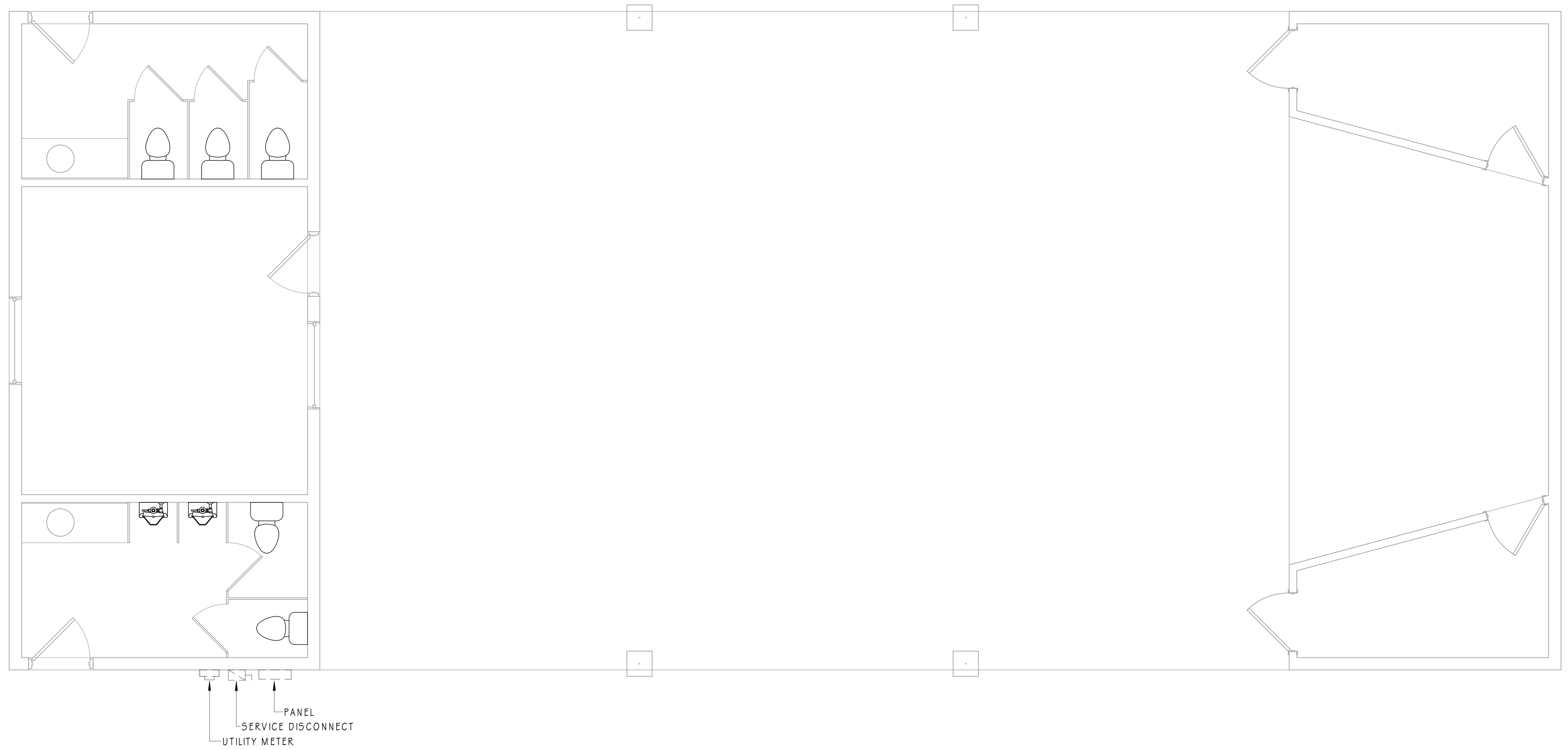
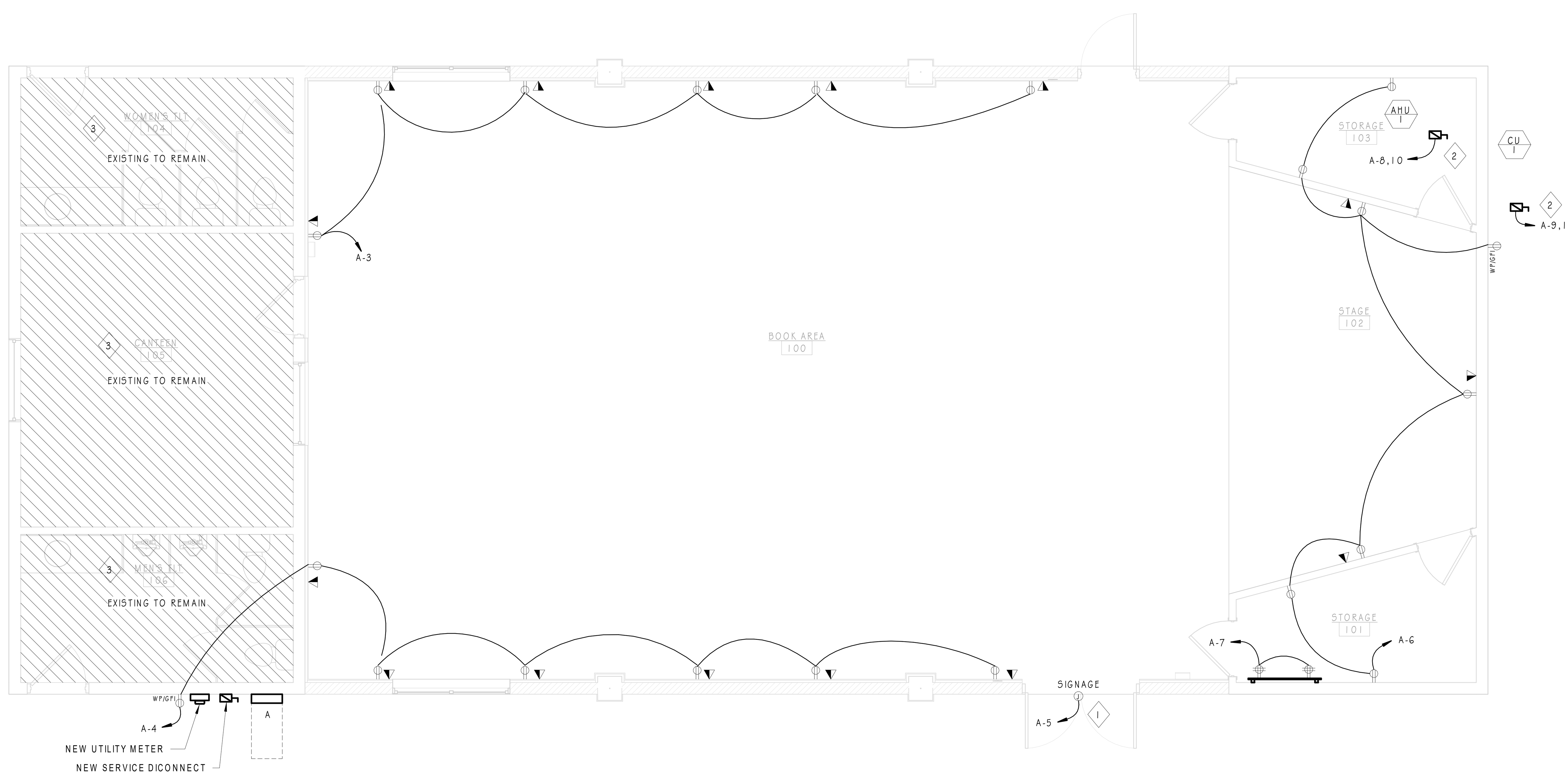


POWER AND SYSTEM DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



POWER AND SYSTEMS PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS TO COORDINATE EXACT PLACEMENT OF ALL DEVICES, EQUIPMENT, FIXTURES, SWITCHES AND RECEPTACLES. COORDINATE WITH OTHER DIVISIONS PRIOR TO ROUGH-IN.
2. VERIFY AND COORDINATE EXACT ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT WITH MANUFACTURER'S RECOMMENDATIONS PRIOR TO INSTALLATION OF EQUIPMENT.
3. DEMOLISH ALL ELECTRICAL AND COMMUNICATIONS ELEMENTS AND ASSOCIATED CONDUIT AND CABLES.
4. ELECTRICAL AND COMMUNICATIONS ELEMENTS ON THIS DRAWINGS ARE NOT COMPLETE REPRESENTATION OF EXISTING CONDITIONS. CONTRACTOR SHALL CONDUCT A FIELD SURVEY TO ACCURATELY ESTIMATE THE EXTENT OF THE DEMOLITION WORK REQUIRED BEFORE PLACING A BID.
5. THE DEMOLITION PLAN IS NOT INCLUSIVE OF ALL ELECTRICAL DEVICES WITHIN THE PROJECT AREA. IT IS INTENDED TO PROVIDE THE CONTRACTOR WITH A GENERAL KNOWLEDGE OF THE EXISTING CONDITIONS WITHIN THE PROJECT AREA. ANY DISCREPANCIES OR CONDITIONS NOT SHOWN ON THIS PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED DEMOLITION.

KEY NOTES:

1. SIGNAGE CIRCUIT. COORDINATE EXACT LOCATION WITH ARCHITECT.
2. DISCONNECT FOR MECHANICAL/ PLUMBING EQUIPMENT. COORDINATE LOCATION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
3. EXISTING TO REMAIN. DEMOLISH EXISTING CIRCUIT AND PROVIDE NEW CIRCUIT FROM NEW PANEL. EC MAY REUSE LIGHT FIXTURES IF APPROVED BY OWNER.

NO.	DESCRIPTION	DATE

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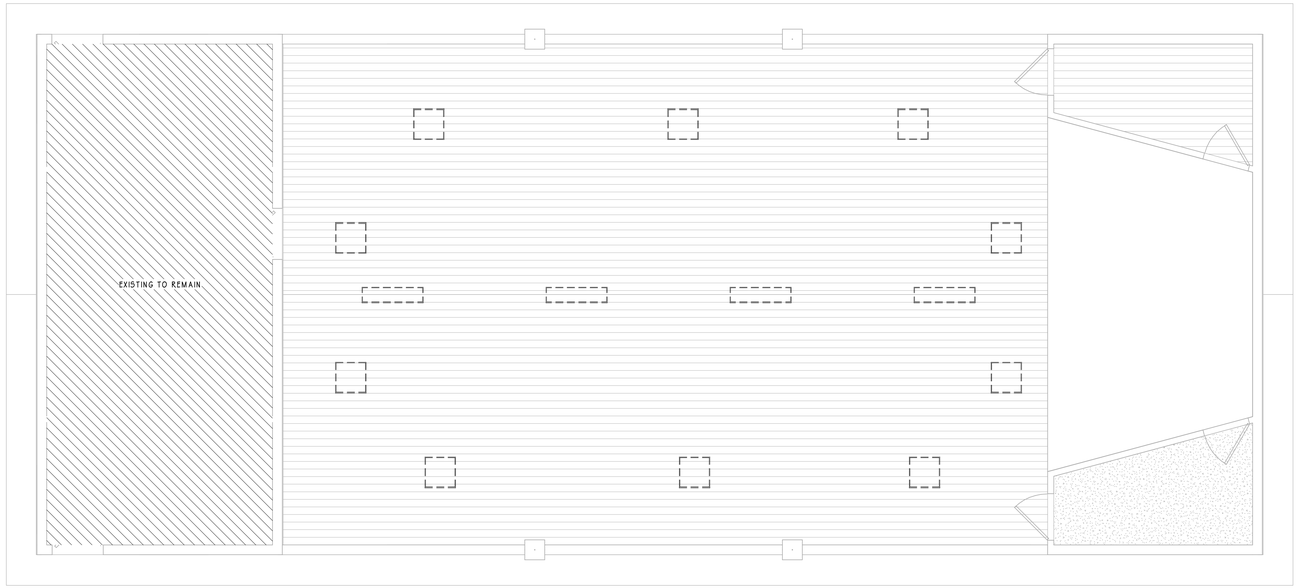
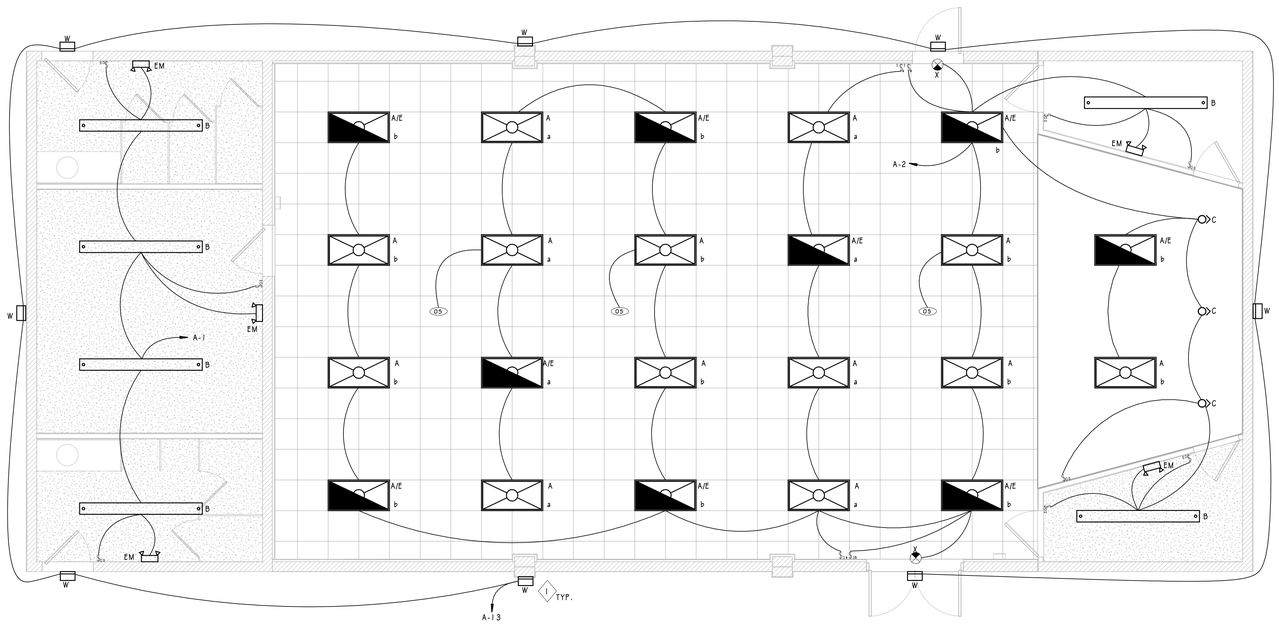
LIGHTING FIXTURE SCHEDULE

TYPE MARK	MANUFACTURER	CATALOUGE NUMBER	LOAD	COUNT	LAMP	REMARKS
A	LITHONIA LIGHTING	CPX 2x4 4000LM 80CRI 40K SWL	38.00 VA	13	LED	2x4 FLATE PANEL LED
A/E	LITHONIA LIGHTING	CPX 2x4 6000LM 80CRI 40K SWL E10WLCP	43.00 VA	9	LED	2x4 FLATE PANEL LED WITH EM BATTERY
B	LITHONIA LIGHTING	CSS L9G ALO4 MVOLT SWW3 80CRI	72.00 VA	6	T-12	STRIP LIGHT
C	LITHONIA LIGHTING	WFG-ADJ-LED-40K-90CRI-MB-MG	75.00 VA	3	LED	WALL WASHER LIGHT
EM	LITHONIA LIGHTING	EU2C MG	2.00 VA	5	LED	BUG EYE, INTEGRAL 90 MIN BATTERY LED
W	LITHONIA LIGHTING	WDGE2 LED P3 40K 80CRI VF MVOLT SRM DDBXD-E10W1 MVOLT SRM DDBXD-E10WH	18.00 VA	8	LED	EXTERIOR WALL PACK WITH BATTRY BACKUP
X	LITHONIA LIGHTING	EDGR W2 R EL	3.80 VA	2	LED	EXIT SIGN, INTEGRAL 90 MINUTE BATTERY LED



LIGHTING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



NEW LIGHTING PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. PROVIDE 90-MINUTE BATTERY PACK FOR FIXTURES DESIGNATED AS EMERGENCY LIGHTS.
2. ALL EXIT SIGNS SHOULD BE CIRCUITED TO NEARBY LIGHTING CIRCUIT. COORDINATE EXACT LOCATION ON SITE.
3. EXTERIOR LIGHTS SHALL BE OPERATED VIA PHOTOCELL / ASTRONOMICAL TIME CLOCK.
4. PROVIDE DIMMING CONTROL TO ALL THE INTERIOR LIGHTS.
5. DEMOLISH ALL ELECTRICAL AND COMMUNICATIONS ELEMENTS AND ASSOCIATED CONDUIT AND CABLES.
6. ELECTRICAL AND COMMUNICATIONS ELEMENTS ON THIS DRAWINGS ARE NOT COMPLETE REPRESENTATION OF EXISTING CONDITIONS. CONTRACTOR SHALL CONDUCT A FIELD SURVEY TO ACCURATELY ESTIMATE THE EXTENT OF THE DEMOLITION WORK REQUIRED BEFORE PLACING A BID.
7. THE DEMOLITION PLAN IS NOT INCLUSIVE OF ALL ELECTRICAL DEVICES WITHIN THE PROJECT AREA. IT IS INTENDED TO PROVIDE THE CONTRACTOR WITH A GENERAL KNOWLEDGE OF THE EXISTING CONDITIONS WITHIN THE PROJECT AREA. ANY DISCREPANCIES OR CONDITIONS NOT SHOWN ON THIS PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED DEMOLITION.
8. FBC ENERGY CONSERVATION CODE LPD ALOWANCE FOR LIBRARY=0.78 W/SQFT. AS DESIGNED, LPD=0.60 W/SQFT.

KEY NOTES:

1. LIGHT FIXTURE SHALL BE CONTROLLED THROUGH PHOTOCELL.

NO.	DESCRIPTION	DATE

FRANCISCO J CABRAL, PE #87110

John P. Adams, AIA
Jerome Bankovich, Jr., AIA, LEED
Jennifer Zaffuto, AIA, NCARB, MPA
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KTH # 22066A

LACK COUNTY
ASTOR LIBRARY TEMPORARY FACILITIES
LIGHTING PLANS
54905 ALCO RD, ASTOR, FL 32102

SEPTEMBER 22, 2022

PERMIT SET

E301

Francisco Cabral, State of Florida, Professional Engineer, License No. 87110.

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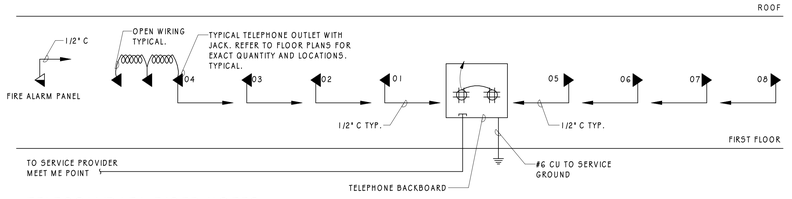


TELECOM/DATA RISER NOTES:

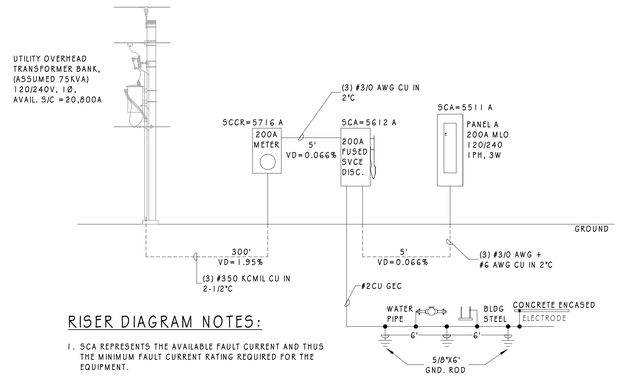
1. THE TELECOM/DATA RISER DIAGRAM IS PROVIDED TO COMMUNICATE THE OVERALL PROJECT SCOPE. THE ENGINEER HAS SHOWN SUGGESTED LOCATIONS FOR TELECOM/DATA DROPS THAT ALLOW FOR MINIMUM OPERABILITY OF A TELECOM/DATA SYSTEM. THE CONTRACTOR AND/OR LOW VOLTAGE CONSULTANT SHALL CONSULT THE OWNER TO DETERMINE ACTUAL TELECOM/DATA SYSTEM NEEDS PRIOR TO ROUGH-IN AND SYSTEM PROCUREMENT.

2. USE CAT 6 CONDUCTORS. PROVIDE ONE CAT 6 TELEPHONE CONDUCTOR AND ONE CAT 6 DATA CONDUCTOR TO EACH DATA/TELEPHONE OUTLET. HOMERUN EACH DATA/TELEPHONE PORT TO THE TELECOM BACKBOARD. CONSULT OWNER FOR BACKBOARD LOCATION.

3. CONTRACTOR SHALL TERMINATE ALL TELEPHONE/DATA OUTLETS THROUGHOUT SCOPE AREA.

TYPICAL TELECOM/DATA RISER DIAGRAM

SCALE:N.T.S



RISER DIAGRAM NOTES:

1. SCA REPRESENTS THE AVAILABLE FAULT CURRENT AND THUS THE MINIMUM FAULT CURRENT RATING REQUIRED FOR THE EQUIPMENT.

2. CABLE LENGTHS ARE ESTIMATED FOR VOLTAGE DROP AND FAULT CURRENT CALCULATION. CONTRACTOR SHALL VERIFY WITH UTILITY COMPANY FOR EXACT LOCATION OF SERVICE TRANSFORMER BEFORE ESTIMATING PROJECT COSTS.

ELECTRICAL RISER DIAGRAM

SCALE:N.T.S

Panel: A

Location: EXTERIOR WALL
Supply From: UTILITY TRANSFORMER
Mounting: Surface
Enclosure: Type 3R

Volts: 120/240 Single
Phases: 1
Wires: 3

A.I.C. Rating: 10KA
Mains Type: MLO
Mains Rating: 200 A
MCB Rating: 200 A

Notes:

	CKT	LOAD SERVED	C(")	PH	N	Gnd	Trip (A)	Poles	A (VA)		B (VA)		Poles	Trip (A)	Gnd	N	PH	C(")	LOAD SERVED	CKT
*	1	LIGHT CKT#1	1/2	12	12	12	20	1	581	1441			1	20	12	12	12	1/2	LIGHT CKT#2	2
	3	REC. BOOK AREA	1/2	12	12	12	20	1			900	1080	1	20	12	12	12	1/2	REC. BOOK AREA	4
	5	SIGNAGE #1	1/2	12	12	12	20	1	1200	1440			1	20	12	12	12	1/2	REC. STORAGE	6
	7	REC. COMM BOARD	1/2	12	12	12	20	1			720	5760	2	50	10	6	6	1	AHU-1	8
	9	CU-1	1	6	6	10	50	2	3756	5760										10
	11										3756									12
	13	EXTERIOR LIGHT	1/2	12	12	12	20	1	144											14
	15											0	2	30	--	--	--	SPD		16
	17									0										18
								Total Load:	14269 VA		12216 VA									
								Total Amps:	119 A		102 A									

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	19032 VA	100.00%	19032 VA		
Receptacle	4140 VA	100.00%	4140 VA	Total Conn. Load:	26481 VA
Lighting	3340 VA	125.00%	4175 VA	Total Est. Demand:	27310 VA
				Total Conn.:	110.3 A
				Total Est. Demand:	113.8 A

Notes:
* EXISTING LIGHT FIXTURES TO REMAIN. REWIRE TO NEW BREAKER

Francisco Cabral, State of Florida, Professional Engineer, License No. 87110.

This item has been electronically signed and sealed by Francisco Cabral, PE. on 09/22/2022 using a Digital Signature.

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NO. | DESCRIPTION | DATE

FRANCISCO J CABRAL, PE #87110

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PERMIT SET

LACK COUNTY
ASTOR LIBRARY TEMPORARY FACILITIES
ELECTRICAL DIAGRAMS AND SCHEDULES
54905 ALCO RD. ASTOR, FL 32102

KTH # 22066A

SEPTEMBER 22, 2022

E401

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Syastem No. C-AJ-1044

June 15, 2005

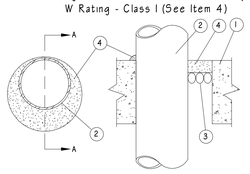
F Rating - 2,3, and 4 Hr (See Items 2A and 4)

T Rating - 0 Hr

L Rating At Ambient - 2 CFM/sq ft

L Rating At 400 F - less than 1 CFM/sq ft

W Rating - Class 1 (See Item 4)



SECTION A - A

1. Floor or Wall Assembly - Lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Except as noted in table under Item 4, min thickness of solid concrete floor or wall assembly is 4-1/2 in. (114 mm). Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow core Precast Concrete Units*. When floor is constructed of hollow core precast concrete units, packing material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is in solid lightweight or normal weight concrete. Floor is 32 in. (813 mm). Max diam of opening in floor constructed of hollow-core precast concrete units is 7 in. (178 mm).

See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturers.

1A. Steel Sleeve (Optional, not shown) - Max 15 in. (381 mm) ID (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. (51 mm) above top of floor or beyond either surface of wall. Max 16 in. (406 mm) ID (or smaller) min 0.028 (0.71 mm) wall thickness (or heavier) galvanized steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 1/2 in. (13 mm) beyond either surface of floor or wall.

2. Through Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Max annular space between pipe, conduit or tubing and edge of through opening or sleeve is dependent on the parameters shown in Item 4. Min annular space between pipe or conduit and edge of through opening is 0 in. (0 mm) (point contact). Pipe conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe - Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
C. Conduit - Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
D. Conduit - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
E. Copper - Tubing Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tube.
F. Copper Pipe - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper tube.

3. Packing Material - Polyethylene backer rod or nom 1 in. (25 mm) thickness of tightly-packed mineral wool batt or glass fiber insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item 4).

4. Fill, void or Cavity material* - Caulk or sealant - Applied to fill the annular space flush with top surface of floor. In wall assemblies, required caulk thickness to be installed symmetrically on both sides of wall, flush with wall surface. At point contact location between penetrant and sleeve or between penetrant and concrete, a min 1/4 in.(6 mm) diam bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min required caulk thicknesses are dependent upon a number of parameters, as shown in the following table.

Min Floor or Wall Thkns In. (mm)	Nom Pipe Tube or Conduit Diam in. (mm)	Max Annular Space in. (mm)	Min Caulk Thkns In. (mm)	F Rating Hr
2-1/2 (64)	1/2-12 (13-305)	1-3/8 (35)	1/2 (13)	2
2-1/2 (64)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	2
4-1/2 (114)	1/2-6 (13-152)	1-3/8 (35)	1/4 (6) (a)	2
4-1/2 (114)	1/2-12 (13-305)	1-1/4 (32)	1/2 (13)	3
4-1/2 (114)	1/2-12 (13-305)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-12 (13-305)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	3
4-1/2 (114)	22-30 (558-762)	2 (51)	1 (25)	3
5-1/2 (140)	1/2-6 (13-152)	1-3/8 (35)	1 (25) (b)	4

(a)Min 2 in. (51 mm) thickness of mineral wool batt insulation required in annular space.
(b)Min 1 in. (25 mm) thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min 1 in. (25 mm) thickness of caulk to be installed flush with each surface of floor or wall assembly.

*Bearing the UL Classification Marking

SYSTEM NO. C-AJ-1044
N.T.S. 9

Syastem No. W-L-1001

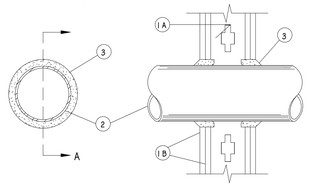
June 15, 2005

F Rating - 1,2,3, and 4 Hr (See Items 2 and 3)

T Rating - 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient - less than 1 CFM/sq ft

L Rating At 400 F - less than 1 CFM/sq ft



SECTION A - A

1. Wall Assembly - The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. Gypsum Board* - Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. Through Penetrants - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe - Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
C. Conduit - Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing
D. Copper Tubing - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
E. Copper Pipe - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
F. Through Penetrating Product* - Metal Piping - the following types of steel flexible metal gas piping may be used:

1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

TITEFLEX CORP
A BUNDY CO

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MGF INC

3. Fill, void or Cavity material* - Caulk or sealant - Min 5/8. 1-1/4, 1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam in. (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+,1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 hr.
*Bearing the UL Classification Marking

SYSTEM NO. W-L-1001
N.T.S. 7

SYSTEM NO W-L-3015

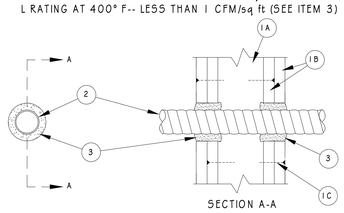
(FORMERLY SYSTEM NO. 328)

F RATINGS-- 1 AND 2 HR (SEE ITEM 3)

T RATINGS-- 0, 3/4, AND 2 HR (SEE ITEM 2)

L RATING AT AMBIENT-- LESS THAN 1 CFM/sq ft (SEE ITEM 3)

L RATING AT 400° F-- LESS THAN 1 CFM/sq ft (SEE ITEM 3)



SECTION A-A

1. Wall Assembly - The 1 or 2 hr fire rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
B. Gypsum Board* - Nom 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of openings cut in gypsum Wallboard is 2 in.
C. Fasteners- When wood stud framing is employed, gypsum wallboard attached to studs with cement coated nails as specified in the individual Wall or Partition Design. When steel channel stud framing is employed, gypsum wallboard attached to studs with Type S self-drilling, self-tapping bugle-head steel screws as specified in the individual Wall or Partition Design. Diam of circular through opening cut through gypsum wallboard on each side of wall massembly to be min 1/4 in. to max 1 1/16 in. larger than diam of through penetrating product (Item 2) installed in through opening. Side edge of circular opening to be min 3 in. from nearest stud in wall cavity.

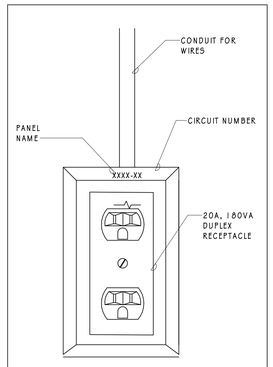
2. Trough Penetrating Product* - Max four copper conductor No. 2 AWG (or smaller) aluminum or steel Armored Cable+ or Metal-Clad Cable+. Max one armored cable or metal clad cable to be installed near center of circular opening in gypsum wallboard. Through penetrating product to be rigidly supported on both sides of wall assembly. When installed in 1 hr fire rated wall assembly, T Rating is 0 hr. When installed in 2 hr fire rated wall assembly, T Rating is 3/4 hr when max No. 2 AWG cable is used and 2 hr when max 12 AWG cable is used.

AFC CABLE SYSTEMS INC

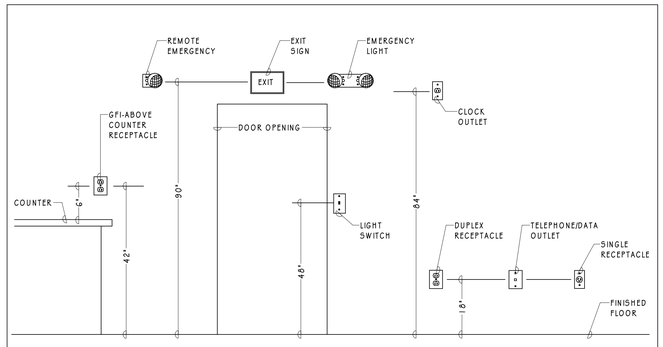
3. Fill, Void or CavityMaterial* - Caulk fill material forced into annular space around entire circumference of through penetrating product to completely fill opening in gypsum wallboard on each side of the wall assembly. A min 5/8 in. thickness of caulk is required for the 1 hr f Rating. A min 1-1/4 in. thickness of caulk is required for the 2 hr f Rating.

*Bearing the UL Classification Marking

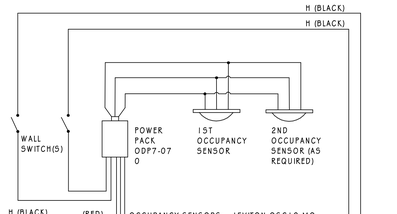
SYSTEM NO. W-L-3015
N.T.S. 8



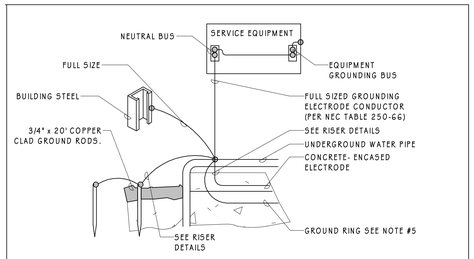
POWER OUTLET DETAIL
N.T.S. 4



MOUNTING HEIGHT DETAIL
N.T.S. 1



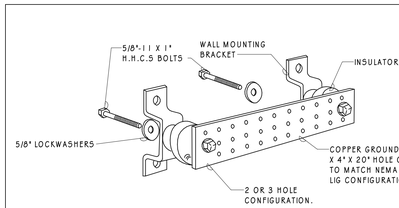
CEILING OCCUPANCY SENSOR DETAIL
N.T.S. 5



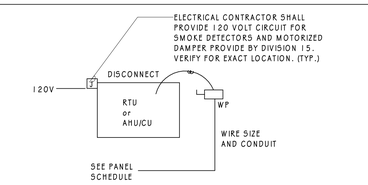
NOTES:

1. FULL SIZE GROUND MEANS THAT GROUND CONDUCTOR SIZE SHALL BE AS SHOWN ON SERVICE EQUIPMENT ON THE POWER RISER DIAGRAM.
2. AFTER GROUNDING SYSTEM IS INSTALLED, GROUND RESISTANCE SHALL BE MEASURED, TO ASSURE THAT GROUND VALUE OF 5 OHM MAXIMUM RESISTANCE IS ACHIEVED. IF NOT, ADDITIONAL GROUNDING SHALL BE PROVIDED TO MEET THE SPECIFIED VALUE.
3. ALL CONNECTIONS TO GROUND RODS SHALL BE EXOTHERMIC WELD CONNECTIONS.
4. GROUND CONDUCTOR SHALL BE LOCATED WITHIN OR NEAR BOTTOM OF CONCRETE FOUNDATION OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH, AND SHALL CONSIST OF AT LEAST 20 FEET OF ONE OR MORE STEEL REINFORCING BARS OR RODS OF NOT LESS THAN 1/2 INCH DIAMETER, OR OF AT LEAST 20 FEET OF BARE COPPER CONDUCTOR.
5. A GROUND RING ENCIRCLING THE BUILDING OR STRUCTURE, IN DIRECT CONTACT WITH EARTH, CONSISTING OF AT LEAST (20 FT.) OF BARE COPPER CONDUCTOR NOT SMALLER THEN 2 AWG SHALL BE INSTALLED, PER ARTICLE-250.52(A)(4),NEC.

GROUNDING ELECTRODE CONDUCTOR DETAIL
N.T.S. 2



GROUNDING BAR DETAIL
N.T.S. 6



TYPE	TONS	DISC.	WIRE	GROUND	CONDUIT
RTU or AHU/CU	X	XX/X/60	X	X	X"

NOTES:

1. VERIFY NAMEPLATE RATINGS, LOCATIONS, AND POINT OF POWER CONNECTIONS PRIOR TO ROUGH-IN.
2. DO NOT LOCATE DISCONNECT SWITCHES OVER UNIT ACCESS PANELS.
3. PROVIDE A 3/4" EMPTY CONDUIT THROUGH INACCESSIBLE LOCATIONS(I.E. WALLS, UNDER SLAB) FOR CONTROL WIRING. COORDINATE WITH MECHANICAL PLANS.
4. EQUIP. REQUIREMENTS ARE FOR MANUFACTURE AND MODLE NUMBER LISTED ON MECHANICAL PLANS. THE MECH. CONTRACTOR SHALL BARE ANY ADDITIONAL COST.

MECH. EQUIPMENT POWER RISER DETAIL
N.T.S. 3

NO.	DESCRIPTION	DATE

FRANCISCO J CABRAL LICENSE No. 87110 STATE OF FLORIDA PROFESSIONAL ENGINEER
FRANCISCO J CABRAL, PE #87110

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