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ARCHITECTURE • INTERIORS • PLANNING

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MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

1112 MANATEE AVE W., BRADENTON. FL 34205

FP ENGINEERING

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BRADENTON, FL 34208
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INDEX TO DRAWINGS

CONSTRUCTION DOCUMENTS 9.9.14

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CONSTRUCTION DOCUMENTS
9.9.14
2013019.14

STATE OF FLORIDA
RICHARD WESLEY FAWLEY
AR 0010008
REGISTERED ARCHITECT

09.09.14

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and ordinances currently adopted by standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

Richard W. Fawley
License Number
AR 0010008

Originals printed @ 24" x 36"
copies are invalid

AB	- ANCHOR BOLT
A/C	- AIR CONDITIONING
ACOUS	- ACOUSTICAL
ADA	- AMERICAN DISABILITY ACT
ADJ	- ADJUSTABLE
AFF	- ABOVE FINISH FLOOR
AHU	- AIR HANDLER UNIT
ALT	- ALTERNATE
ALUM	- ALUMINUM
ANOD	- ANODIZED
APPROX	- APPROXIMATE
ARCH	- ARCHITECTURAL
ATC	- ACOUSTICAL TILE CEILING
AUTO	- AUTOMATIC
AV	- AUDIO VISUAL
BD	- BOARD
BLDG	- BUIDLING
BRG	- BEARING
BRK	- BRICK
BTM	- BOTTOM
CAB	- CABINET
CAT	- CATEGORY
CER	- CERAMIC
CHAN	- CHANNEL
CI	- CAST IRON
CIP	- CAST IN PLACE
CJ	- CONTROL JOINT
CLG	- CEILING
CLO	- CLOSET
CLR	- CLEAR
CMU	- CONCRETE MASONRY UNIT
CO	- CLEAN-OUT
COL	- COLUMN
CONC	- CONCRETE
COND	- CONDENSER OR CONDITION
CONST	- CONSTRUCTION
CONT	- CONTINUOUS
COORD	- COORDINATE
CUST	- CUSTODIAL
CW	- COLD WATER
D	- DEEP, DEPTH
DBL	- DOUBLE
DEMO	- DEMOLITION
DEPT	- DEPARTMENT
DET	- DETAIL
DIA	- DIAMETER
DIM	- DIMENSION
DISP	- DISPENSER
DN	- DOWN
DR	- DOOR OR DRAIN
DS	- DOWNSPOUT
DW	- DISHWASHER
DWG	- DRAWING
E	- EAST
EA	- EACH
EB	- EXPANSION BOLT
EIFS	- EXTERIOR INSULATION FINISH SYSTEM
EJ	- EXPANSION JOINT
ELEC	- ELECTRICAL
ELEV	- ELEVATION OR ELEVATOR
EMERG	- EMERGENCY
ENCL	- ENCLOSURE
EQ	- EQUAL
EQUIP	- EQUIPMENT
EW	- EACH WAY
EWC	- ELECTRICAL WATER COOLER
EXIST	- EXISTING
EXP	- EXPANSION
EXT	- EXTERIOR
FA	- FIRE ALARM
FAAP	- FIRE ALARM ANNUNCIATOR PANEL
FACP	- FIRE ALARM CONTROL PANEL
FD	- FLOOR DRAIN
FDC	- FIRE DEPARTMENT CONNECTION
FE	- FIRE EXTINGUISHER
FEC	- FIRE EXTINGUISHER CABINET
FF	- FINISHED FLOOR
FF & E	- FURNITURE, FINISHES & EQUIPMENT
FG	- FIBERGLASS
FIN	- FINISH
FIXT	- FIXTURE
FJ	- FINGER JOINT
FLR	- FLOOR
FLUOR	- FLUORESCENT
FT	- FOOT / FEET
FTG	- FOOTING
FURN	- FURNITURE
GA	- GAUGE
GALV	- GALVANIZED
GC	- GENERAL CONTRACTOR
GL	- GLASS
GRD	- GROUND
GYPBD	- GYPSUM WALLBOARD
H	- HIGH OR HEIGHT
HB	- HOSE BIBB
HC	- HOLLOW CORE
HDW	- HARDWARE
HM	- HOLLOW METAL (STEEL FRAME)
HO	- HOLD-OPEN
HORIZ	- HORIZONTAL
HR	- HOUR
HVAC	- HEATING, VENTILATION, AIR CONDITIONING
HW	- HOT WATER
IN	- INCH
INCL	- INCLUDED OR INCLUDING
INFO	- INFORMATION
INSUL	- INSULATION
INT	- INTERIOR
INV	- INVERT
JAN	- JANITOR
JT	- JOINT
K	- KIP (1000 LBS)
KO	- KNOCKOUT
L	- LONG
LAB	- LABORATORY
LAM	- LAMINATE OR LAMINATION
LAV	- LAVATORY
LB	- POUND
LF	- LINEAR FOOT
M	- METER
MAINT	- MAINTENANCE
MAS	- MASONRY
MATL	- MATERIAL
MAX	- MAXIMUM
MC	- MEDICINE CABINET
MDF	- MEDIUM DENSITY FIBERBOARD
MDO	- MEDIUM DENSITY OVERLAY PLYWOOD
MECH	- MECHANICAL
MEZZ	- MEZZANINE
MFR	- MANUFACTURER
MICRO	- MICROWAVE
MIN	- MINIMUM
MISC	- MISCELLANEOUS
MKBD	- MARKERBOARD
MM	- MILLIMETER
MNT	- MOUNT
MO	- MASONRY OPENING
MR	- MOISTURE RESISTANT
MTL	- METAL
MUL	- MULLION
N	- NORTH
N/A	- NOT APPLICABLE
NIC	- NOT IN CONTRACT
NOM	- NOMINAL
NTS	- NOT TO SCALE
NO	- NUMBER
OC	- ON CENTER
OD	- OUTSIDE DIAMETER/DIMENSION
OFF	- OFFICE
OPNG	- OPENING
OPP	- OPPOSITE
OVHD	- OVERHEAD
PC	- PRECAST CONCRETE
PERP	- PERPENDICULAR
PH	- PHONE
PLAM	- PLASTIC LAMINATE
PLF	- POUNDS PER LINEAR FOOT
PLUMB	- PLUMBING
PLYWD	- PLYWOOD
PR	- PAIR
PREFAB	- PREFABRICATED
PROJ	- PROJECT
PSF	- POUNDS PER SQUARE FOOT
PT	- PRESSURE TREATED
QT	- QUARRY TILE
QTY	- QUANTITY
R	- RISER OR RADIUS
RA	- RETURN AIR
RCP	- REFLECTED CEILING PLAN
RD	- ROOF DRAIN
REBAR	- REINFORCING STEEL BAR
REF	- REFRIGERATOR
REINF	- REINFORCED OR REINFORCING
REQ'D	- REQUIRED
REV	- REVISION OR REVISED
RM	- ROOM
RO	- ROUGH OPENING
RR	- RESTROOM
RS	- ROUGH SAW
RWL	- RAIN WATER LEADER
S	- SOUTH
SAN	- SANITARY
SC	- SOLID CORE
SCHED	- SCHEDULE
SD	- STORM DRAIN OR SOAP DISPENSER
SECT	- SECTION
SF	- SQUARE FEET / FOOT
SHR	- SHOWER
SHT	- SHEET
SIM	- SIMILAR
SPEC	- SPECIFICATION
SPKLR	- SPRINKLER
SPKR	- SPEAKER
SQ	- SQUARE
SS	- STUDENT STATION OR STAINLESS STEEL
STD	- STANDARD
STL	- STEEL
STOR	- STORAGE
STRUCT	- STRUCTURAL
SUSP	- SUSPENDED
T	- TREAD OR THICKNESS
TEMP	- TEMPERED
THRU	- THROUGH
TKBD	- TACKBOARD
TS	- TUBE STEEL
TV	- TELEVISION
TYP	- TYPICAL
T&G	- TONGUE & GROOVE
UNO	- UNLESS NOTED OTHERWISE
UL	- UNDERWRITER'S LABORATORY
UR	- URINAL
VCT	- VINYL COMPOSITION TILE
VERT	- VERTICAL
VIF	- VERIFY IN FIELD
W	- WIDE OR WIDTH
W/	- WITH
WC	- WATER CLOSET
WD	- WOOD
WH	- WATER HEATER
W/O	- WITHOUT
WP	- WATERPROOFING
WT	- WEIGHT
WWM	- WELDED WIRE MESH

&	AND
∠	ANGLE
@	AT
℄	CENTER LINE
⊏	CHANNEL
°	DEGREE
⌀	DIAMETER OR ROUND
#	NUMBER
ℙ	PLATE
⍁	SQUARE FOOT (FEET)
⊥	STRUCTURAL TEE

ARCH/INTERIOR ABBREVIATIONS 7

A. GENERAL NOTES:

1. PROVIDE COMPLETE PROJECT SYSTEMS AND COMPONENTS INDICATED ON THE PROJECT DOCUMENTS.
2. THE CONTRACTOR SHALL WORK WITHIN THE AREA BOUNDARIES INDICATED IN THE PROJECT DOCUMENTS, AND SHALL COMPLY WITH ALL APPLICABLE BUILDING CODE, REGULATION, & ORDINANCE REQUIREMENTS. OCCUPANTS ADJACENT TO THE PROJECT AREA BOUNDARIES SHALL CONTINUE UNINTERRUPTED OCCUPANCY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY FIELD CONDITIONS AND COORDINATION WITH THE PROJECT DOCUMENTS PRIOR TO PROCEEDING WITH THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE WORK WITH ALL REQUIREMENTS INDICATED IN THE PROJECT DOCUMENTS.
5. THE CONTRACTOR SHALL PERFORM THE WORK AT THE PROJECT SITE DURING NORMAL BUSINESS HOURS, UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL COORDINATE THE WORK WITH EQUIPMENT, FURNISHINGS, AND SYSTEMS PROVIDED BY THE OWNER.

B. DEFINITIONS :

1. "TYPICAL" OR "TYP" INDICATES IDENTICAL COMPLETE SYSTEM FOR THE CONDITION NOTED.
2. "SIMILAR" OR "SIM" INDICATES COMPLETE SYSTEM AND COMPONENTS COMPARABLE TO THE CHARACTERISTICS FOR THE CONDITION NOTED.
3. "AS REQUIRED" OR "REQ'D" INDICATES CONTRACTOR SHALL PROVIDE COMPONENTS REQUIRED TO COMPLETE THE NOTED SYSTEM AS INDICATED IN THE PROJECT DOCUMENTS.
4. "ALIGN" INDICATES ACCURATELY PROVIDE FINISH FACES OF MATERIALS IN STRAIGHT, TRUE, AND PLUMB RELATION ADJACENT MATERIALS.

C. DIMENSIONS:

1. DIMENSIONS ARE INDICATED TO THE CENTERLINE OF THE STRUCTURAL GRID, FACE OF UNFINISHED CONCRETE WALL, NOMINAL FACE OF C.M.U. WALL OR FACE OF UNFINISHED PARTITION AS SCHEDULED, UNLESS OTHERWISE NOTED.
2. ALIGNMENT OF PARTITIONS AND FINISHES AS SCHEDULED SHALL BE STRAIGHT, TRUE & PLUMB. ANY DISCREPANCY IN DIMENSIONS BETWEEN PLANS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT.
3. MINIMUM DIMENSIONS FOR ACCESSIBILITY CLEARANCES AND BUILDING CODE REQUIREMENTS SHALL BE MAINTAINED.
4. FLOOR ELEVATIONS ARE INDICATED AT THE FACE OF THE STRUCTURAL SLAB, UNLESS OTHERWISE NOTED.
5. CEILING HEIGHTS ARE INDICATED FROM THE FLOOR ELEVATION TO THE FACE OF OF FINISH MATERIAL, UNO.
6. DOOR JAMBS IN STUD WALLS SHALL BE LOCATED 4 INCHES FROM ADJACENT WALLS UNO. DOOR JAMBS IN CMU WALLS SHALL BE LOCATED 8 INCHES FROM ADJACENT WALLS UNO.

GENERAL NOTES 6

A. THE DRAWINGS IN THIS SET ARE ORGANIZED AS FOLLOWS:
EACH DRAWING IS IDENTIFIED BY THE SHEET NUMBER IN THE LOWER RIGHT HAND CORNER OF THE TITLEBLOCK.
EXAMPLE: A312

1. DISCIPLINE: THE FIRST LETTER INDICATES THE DISCIPLINE THAT CREATED THE DRAWING (I.E. A = ARCHITECTURAL).
2. DETAIL IDENTIFICATION: THE LETTER OR NUMBER AT THE END OF A DETAIL REFERENCE SYMBOL A1/A801 INDICATES REFERENCE TO A SPECIFIC DRAWING OR DETAIL POSITION ON THE SHEET.

B. DISCIPLINES ARE ORGANIZED IN THE FOLLOWING MANNER (AS REQUIRED):

A.	ARCHITECTURAL
M.	MECHANICAL / HVAC
P.	PLUMBING
F.	FIRE PROTECTION
E.	ELECTRICAL

C. CATEGORIES ARE ORGANIZED IN THE FOLLOWING MANNER (AS REQUIRED):

A0	GENERAL
A2	LIFE SAFETY
A3.0	DEMOLITION
A3.1	DIMENSIONS, NOTES & TAGS
A3.2	REFLECTED CEILING
A3.3	FURNITURE, FIXTURES & EQUIPMENT
A6	BUILDING & WALL SECTIONS
A7	WALL TYPES
A8	DOOR & WINDOW

DRAWING ORGANIZATION 5

EARTH

STUCCO

PLYWOOD, SHEATHING

CONCRETE

RIGID INSULATION

CONCRETE MASONRY UNIT

METAL STUD FRAMING

SAND, GYPSUM WALLBOARD

MATERIAL INDICATIONS 4

WALL TO BE REMOVED

EXISTING WALL TO REMAIN

NEW METAL STUD

NEW CONCRETE BLOCK WALL

NEW CONCRETE BLOCK WALL WITH INSULATION, FURING AND GYP.

DIMENSIONING:

ALL DIMENSIONS ARE FROM FACE OF STUD (IN FRAMED PARTITIONS), OR FACE OF MASONRY (IN MASONRY PARTITIONS). (UNLESS OTHERWISE NOTED)

WALL LEGEND 3

NORTH ARROW

SEE SHEET / SEE SHEET — MATCH LINE

CJ — CONTROL JOINT

131 — CASED OPENING

EXISTING DOOR TO BE REMOVED OR RELOCATED AS INDICATED

EXIST — EXISTING DOOR TO REMAIN

131 — NEW DOOR, FRAME AND HARDWARE AND DOOR TAG ON PLAN

131 — DOOR TAG ON ELEVATIONS

A — WINDOW TAG

9'-0" — CEILING HEIGHT

SUPPLY ROOM — ROOM NAME

203 — ROOM NUMBER

1 A 1 B — ROOM FINISH SCHEDULE

1 / 2 A10 3 / 4 — A10 1 — INTERIOR ELEVATION AND SHEET NUMBER

2 / A6.2 — BUILDING / WALL SECTION CUT AND SHEET NUMBER

1 / A6.1 — DETAIL CUT AND SHEET NUMBER

WALL TYPE

1 — TOILET ACCESSORY

A 2 — SPECIAL ACCESSORY TAGS

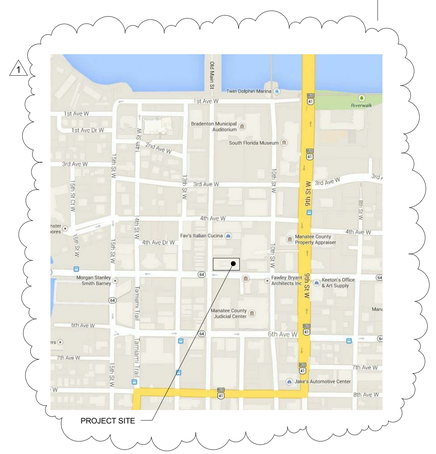
EL. 8'-0" ROOF JOIST BEARING — ELEVATION BENCHMARK

1 — REVISION MARK WITH CLOUD

INDICATES FINISHED SURFACES TO ALIGN

A / 1 — COLUMN AND / OR GRID LINE SYMBOL

SYMBOLS 2



LOCATION MAP 1

ABBREVIATIONS 1

12" = 1'-0"

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ABBREVIATIONS, NOTES & SYMBOLS

Project No.	2013019.14
Drawn By	KB
Checked By	JBT
Date	9.9.14

Revisions:

1 MANATEE COUNTY COMMENTS 09.09.14

STATE OF FLORIDA — RICHARD WESLEY FAWLEY — AR 0010008 — REGISTERED ARCHITECT

09.09.14

Richard W. Fawley
AR 0010008

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

A0.1
R1

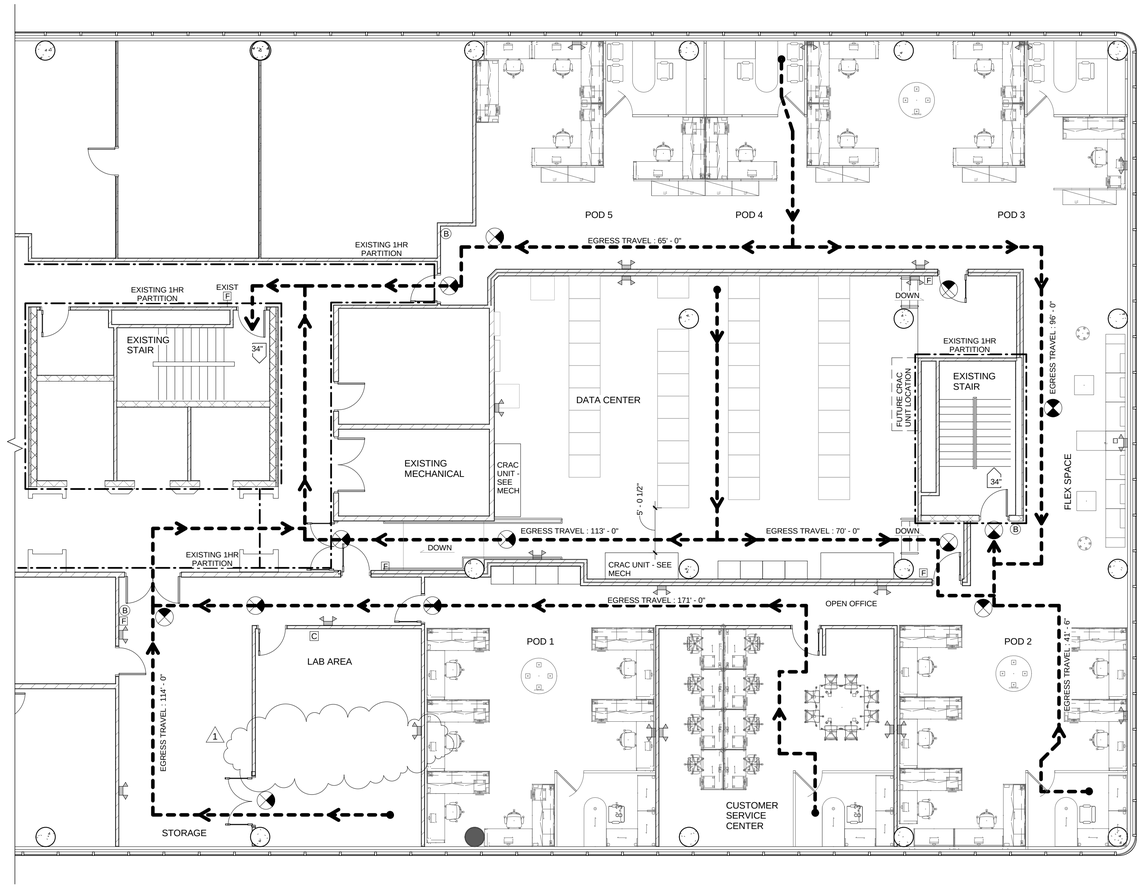
Originals printed @ 24" x 36" scale as required

1	7TH FLOOR DATA CENTER	
CODE	CODE REFERENCES	FLORIDA BUILDING CODE 2010 FBC PLUMBING CODE 2010 FBC MECHANICAL CODE 2010 FLORIDA FIRE PREVENTION CODE 2010 2010 NEC
BUILDING	USE AND OCCUPANCY CLASSIFICATION (CHAPTER 3)	**BUSINESS GROUP B**
	CLASSIFICATION OF WORK (FBC EXISTING BUILDING, CHAPTER 4 - TABLE 403)	INTERIOR RENOVATION - LEVEL II ALTERATION
	ALLOWABLE AREA (CHAPTER 5 - TABLE 503)	7,859SF EXISTING AREA TO BE RENOVATED
	TYPE OF CONSTRUCTION (CHAPTER 6)	**TYPE I-B**
	AUTOMATIC FIRE SPRINKLER SYSTEM	**PROVIDED THROUGHOUT**
FIRE RESISTANCE	FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (TABLE 601)	EXISTING - TYPE I-B
	STRUCTURAL FRAME - INCLUDING COLUMNS, GIRDERS, TRUSSES	2 HOURS **1 HOURS**
	BEARING WALLS EXTERIOR INTERIOR	 3 HOURS **2 HOURS** 3 HOURS **2 HOURS**
	NONBEARING WALLS AND PARTITIONS INTERIOR	 0 HOURS **0 HOURS**
	FLOOR CONSTRUCTION - INCLUDING SUPPORTING BEAMS AND JOISTS	2 HOURS **1 HOURS**
	ROOF CONSTRUCTION - INCLUDING SUPPORTING BEAMS AND JOISTS	1 HOURS **1 HOURS**
	FIRE SEPARATION DISTANCE (TABLE 602) NON BEARING EXTERIOR WALLS.	INTERIOR RENOVATION - NOT APPLICABLE
	SHAFT ENCLOSURES (ELEVATORS) - GREATER THAN 4 FLOORS (SECTION 707.4)	EXISTING TO REMAIN
	707.14.1 ELEVATOR LOBBY	EXISTING RATED ELEVATOR LOBBY TO REMAIN

CODE ANALYSIS

12" = 1'-0"

2	7TH FLOOR DATA CENTER					
MEANS OF EGRESS	OCCUPANT LOAD: (TABLE 1004.1.1) OCCUPANT CALCULATIONS	MAXIMUM FLOOR AREA PER OCCUPANT BUSINESS 100 GROSS 7,859SF/ 100 GROSS = **79 OCCUPANTS**				
	EGRESS WIDTH PER OCCUPANT SERVED (TABLE 1005.1) FBC 1004.4 EXITING FROM MULTIPLE LEVELS	WITH SPRINKLER SYSTEM STAIRWAYS EXISTING TO REMAIN OTHER EGRESS COMPONENTS EXISTING TO REMAIN				
	ACCESS TO ROOF 1009.11	BUILDINGS FOUR STORIES OR MORE IN HEIGHT SHALL BE PROVIDED WITH A STAIRWAY TO THE ROOF (EXISTING STAIR TO ROOF TO REMAIN)				
	EXIT ACCESS TRAVEL DISTANCE (TABLE 1016.1)	MAXIMUM EGRESS DISTANCE 200' (WITH SPRINKLER SYSTEM)				
	EXIT ACCESS COMMON PATH OF TRAVEL (SECTION 1014.3)	THE COMMON PATH OF TRAVEL SHALL NOT EXCEED 125 FEET (WITH SPRINKLER SYSTEMS, PER EXCEPTION #4)				
	CORRIDORS (SECTION 1017)	EXISTING CORRIDORS TO REMAIN OCCUPANCY **BUSINESS GROUP B** **0 HOURS** CORRIDOR WIDTH (1017.2) MINIMUM WIDTH 16" REQUIRED (80x.2) **54" PROVIDED** DEAD ENDS - 50'-0" MAX				
	NUMBER OF EXITS AND CONTINUITY **(TABLE 1019.1)**	OCCUPANT LOAD MINIMUM # OF EXITS **1-500** 2 2 EXITS REQUIRED **3 EXITS PROVIDED**				
	COMMON PATH OF TRAVEL (SECTION 1025.8)	A COMMON PATH OF TRAVEL SHALL BE PERMITTED FOR THE 20 FEET FROM ANY POINT WHERE SERVING ANY NUMBER OF OCCUPANTS AND FOR THE FIRST 75 FEET FROM ANY POINT WHERE SERVING NOT MORE THAN 50 OCCUPANTS.				
PLUMBING	PLUMBING FIXTURES PROVIDED: (FLOOR 7 ONLY)	W.C.	LAVATORY		D.F.	SERVICE SINK
		3 M 3 F	2 M 2 F		1	1
	EXISTING PLUMBING TO REMAIN					



LIFE SAFETY PLAN | 1

1/8" = 1'-0"

EGRESS LEGEND

3'-0" DOOR	34"	34" / .20" PER OCCUPANT = 170 OCCUPANTS TOTAL
PAIR 3'-0" DOOR	68"	68" / .20" PER OCCUPANT = 340 OCCUPANTS TOTAL
4'-0" DOOR	46"	46" / .20" PER OCCUPANT = 230 OCCUPANTS TOTAL
PAIR 4'-0" DOOR	92"	92" / .20" PER OCCUPANT = 460 OCCUPANTS TOTAL

SIGNAGE LEGEND

PROVIDE CODE MINIMUM SIGNAGE

SEE FLOOR PLAN FOR DEPARTMENTAL SIGNAGE LOCATIONS

LINE TYPE AND SYMBOL LEGEND

- EMERGENCY EXIT SIGN
- F — FIRE ALARM PULL STATION
- EMERGENCY LIGHTING
- 1 HOUR FIRE RATED WALL
- 2 HOUR FIRE RATED WALL
- EGRESS PATH

FIRE EXTINGUISHER LEGEND

GENERAL / MULTI-PURPOSE	B	FIRE EXTINGUISHER - BRACKET MOUNTED TYPICAL BRACKET MOUNTED FIRE EXTINGUISHER TO BE A MINIMUM UL RATING OF 2A WITH 75' TRAVEL DISTANCE - PROVIDE LARSEN'S MFG., MP5-A WITH UL RATING OF 3A-40B:C OR EQUAL
ELECTRICAL ROOMS	E	FIRE EXTINGUISHER - BRACKET MOUNTED TYPICAL BRACKET MOUNTED FIRE EXTINGUISHER TO BE A MINIMUM UL RATING OF 2A WITH 75' TRAVEL DISTANCE - PROVIDE LARSEN'S MFG., HT5 WITH UL RATING OF 5B:C OR EQUAL
NOTES		NOTE: 1. FIRE EXTINGUISHERS AND CABINETS TO BE PROVIDED AND INSTALLED BY CONTRACTOR. 2. FIRE EXTINGUISHER SELECTION AND INSTALLATION SHALL COMPLY WITH 2010 NFPA 3. FIRE EXTINGUISHERS SHALL BE MOUNTED AT A MAX HEIGHT OF 48" TO THE HANDLE OF THE EXTINGUISHER.

LIFE SAFETY LEGEND

1/8" = 1'-0"

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LIFE SAFETY

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Revisions:

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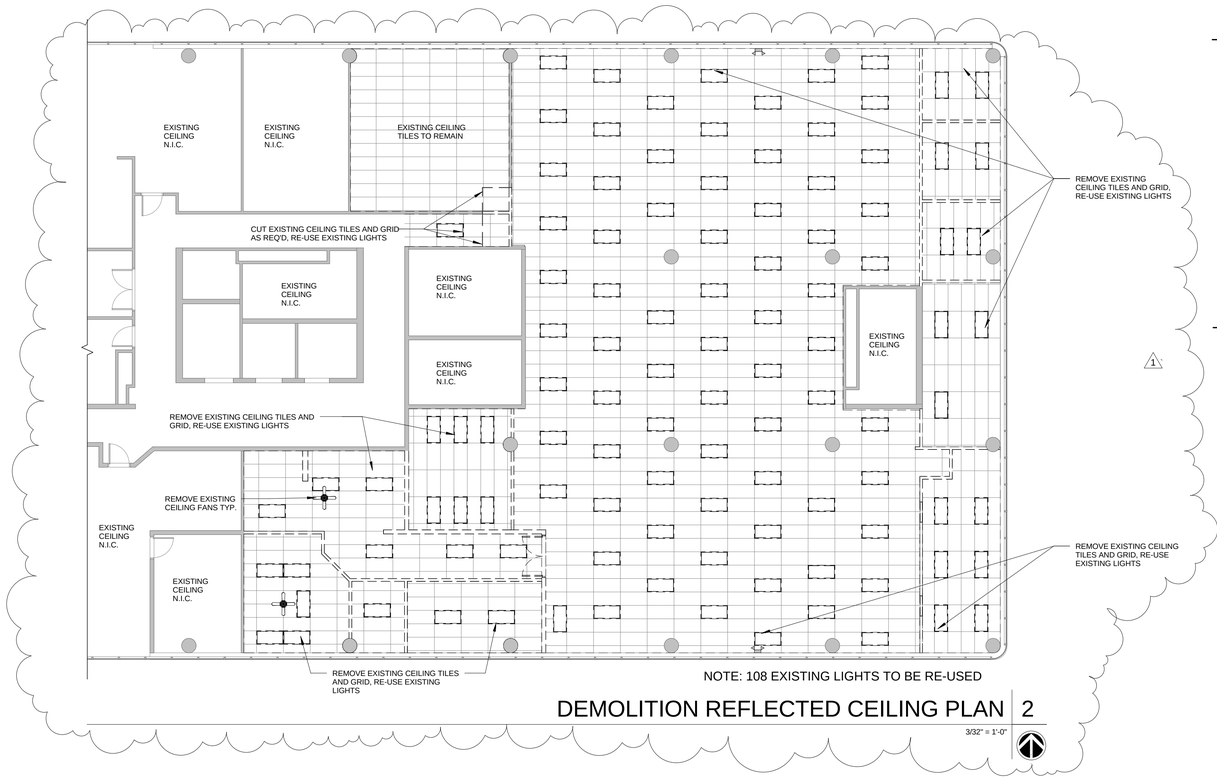


NOTE: 108 EXISTING LIGHTS TO BE RE-USED

DEMOLITION REFLECTED CEILING PLAN | 2

3/32" = 1'-0"

DEMOLITION NOTES

1. BROKEN LINES INDICATE ITEMS TO BE REMOVED.

2. ALL MATERIALS SCHEDULED TO BE REMOVED AND NOT REUSED SHALL BE REVIEWED WITH THE OWNER PRIOR TO DEMOLITION WORK COMMENCEMENT. THE CONTRACTOR SHALL TURN OVER ALL ITEMS NOT TO BE REUSED TO THE OWNER AT THE OWNER'S REQUEST.

3. SEE MECHANICAL, ELECTRICAL, & PLUMBING PLANS FOR ADDITIONAL INFORMATION.

4. ALL EXISTING INFORMATION HAS BEEN SHOWN FOR GENERAL INFORMATION PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE AND DETERMINING THE SCOPE OF THE WORK, PRIOR TO FORMULATING A BID AND/OR BEGINNING THE WORK.

5. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BE CONTAINED AND DISPOSED OF OFF-SITE.

6. THE DEMOLITION CONTRACTOR SHALL BEAR RESPONSIBILITY FOR ALL FEES ASSOCIATED WITH MATERIALS DISPOSAL UNLESS OTHERWISE DIRECTED.

7. EXISTING FLOOR TO BE DEMOLISHED.

8. EXISTING CEILING TO BE DEMOLISHED.

9. EXISTING FM2000 GAS DISCHARGE SYSTEM TO BE REMOVED (PIPES CUT AND SUPPLY SHUT OFF).

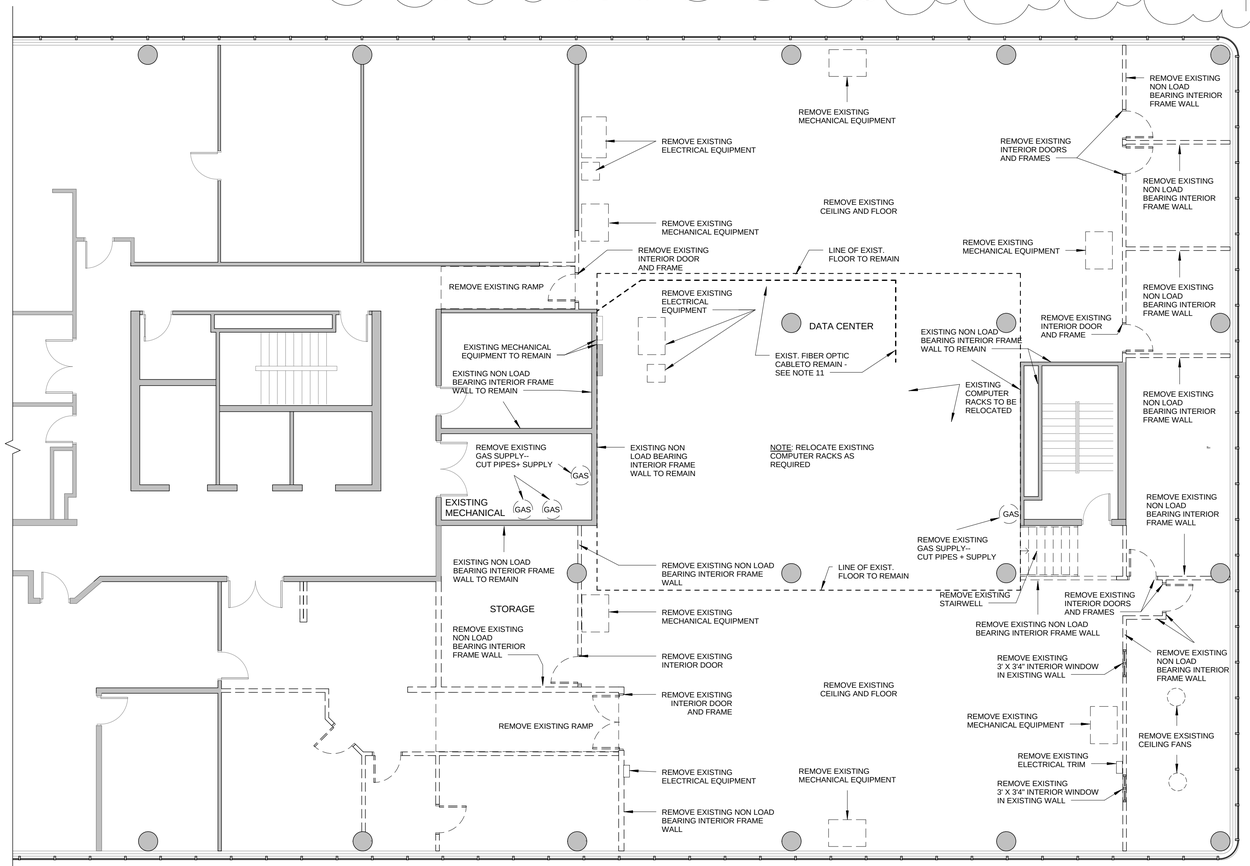
10. EXISTING COMPUTER RACKS TO BE RELOCATED BY MANATEE COUNTY ITS STAFF - CONTRACTOR TO COORDINATE RELOCATION WITH DEMOLITION.

11. EXISTING FIBER OPTIC CABLE TO REMAIN - CONTRACTOR TO PROTECT EXISTING CABLE DURING CONSTRUCTION.

GENERAL DEMOLITION NOTES

1. CONTRACTOR TO REMOVE AND SAFE OFF OR CAP ALL EXISTING UNDERFLOOR ELECTRICAL, WATER, DATA AND FIRE PROTECTION DEVICES IN AREAS OF DATA FLOOR TO BE REMOVED. CONTRACTOR TO REMOVE ALL EXISTING NON-FUNCTIONAL OR NON-USED ELECTRICAL, WATER, DATA AND FIRE PROTECTION.

1 2. ALL DEMOLITION WORK IS TO BE COMPLETED WITHIN 2 WEEKS (10 BUSINESS DAYS) OF DEMOLITION COMMENCEMENT.



DEMOLITION PLAN | 1

1/8" = 1'-0"

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SARASOTA, FL 34240
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www.fawley-bryant.com

MANATEE COUNTY GOVERNMENT
7TH FLOOR DATA CENTER RENOVATION

1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

DEMOLITION PLAN

Project No.	2013019.14
Drawn By	ACK/KB
Checked By	JBT
Date	9.9.14

Revisions:

1 MANATEE COUNTY COMMENTS 09.09.14

STATE OF FLORIDA RICHARD WESLEY FAWLEY REGISTERED ARCHITECT AR 0010008

09.09.14

Richard W. Fawley
AR 0010008

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

A3.0
R1

Originals printed @ 24" x 36" scale as required

FINISH SCHEDULE

TYPICAL OPEN OFFICE AREA, CSC AREA, STORAGE, LAB AREA

FLOOR- CARPET - INTERFACE GEOMETRIC GRAPHIC

BASE- 4" VINYL, JOHNSONITE BLACK

WALLS - PAINT, LOW VOC INTERIOR LATEX, EGGSHELL FINISH
COLORS: DUBAI SAND FOR WALLS, KITTY KITTY FOR BASE AND TRIM

CEILINGS - ARMSTRONG ULTIMA 24"x24" x 3/4" TEGULAR, WHITE

LAMINATES -
COUNTER: NEVAMAR BLOSSOM CHERRY WC5581N
CASEWORK: NEVAMAR JET BLACK S6053T

DOORS & FRAMES: PAINT COLOR Kelly Moore™ KM3792-5 Kitty Kitty

DATA CENTER
FLOOR- DATA CENTER FLOOR - LAMINATE TO MATCH EXISTING AND CARPET - INTERFACE GEOMETRIC GRAPHIC

BASE- 4" VINYL, JOHNSONITE BLACK (AT CARPET ONLY)

WALLS - PAINT, LOW VOC INTERIOR LATEX, EGGSHELL FINISH
COLORS: DUBAI SAND FOR WALLS, KITTY KITTY FOR BASE AND TRIM

CEILINGS - ARMSTRONG ULTIMA 24"x24" x 3/4" TEGULAR, WHITE

LAMINATES -
COUNTER: NEVAMAR BLOSSOM CHERRY WC5581N
CASEWORK: NEVAMAR JET BLACK S6053T

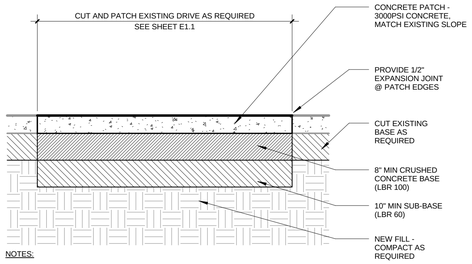
DOORS & FRAMES: PAINT COLOR Kelly Moore™ KM3792-5 Kitty Kitty

PATCH AND REPAIR EXISTING FINISHES AS REQUIRED.

ANY AREAS WHERE EXISTING FLOORING TO BE REMOVED SHALL RECEIVE NEW CARPET (INTERFACE GEOMETRIC GRAPHIC) WITH JOHNSONITE VINYL TRANSISTIONS AS REQUIRED.

FINISH SCHEDULE

1/8" = 1'-0"



NOTES:

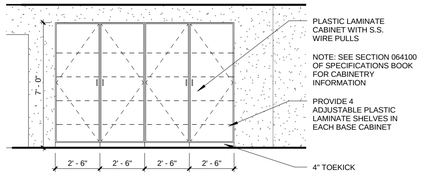
1. 8" CRUSHED CONCRETE BASE SHALL BE A MINIMUM OF 8" THICK MIN LBR 100, 98% T-180 AASHTO

2. 10" SUB-BASE SHELL MARL BLENDED w/ SANDY SUB-BASE MIN LBR 60, 98% T-180 AASHTO

3. BACKFILL, AASHTO M145-66 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6", EACH LAYER WILL BE THOROUGHLY TAMPED AND/OR ROLLED TO 98% OF MODIFIED PROCTOR MAXIMUM DENSITY (AASHTO T-180).

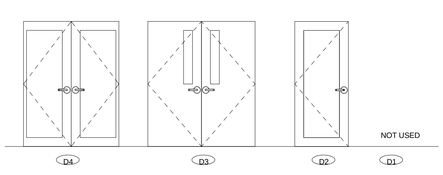
DRIVE REPAIR DETAIL | 5

3/4" = 1'-0"



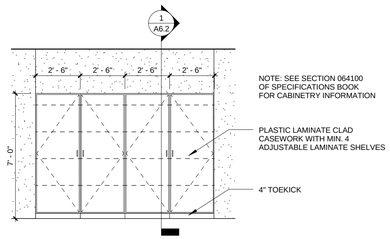
INTERIOR ELEVATION | 7

1/4" = 1'-0"



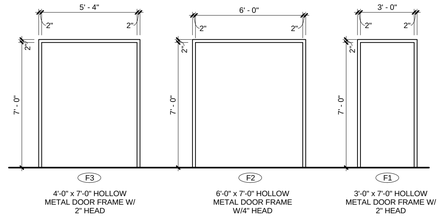
DOOR TYPES

1/4" = 1'-0"



INTERIOR ELEVATION | 6

1/4" = 1'-0"



DOOR FRAME TYPES | 3

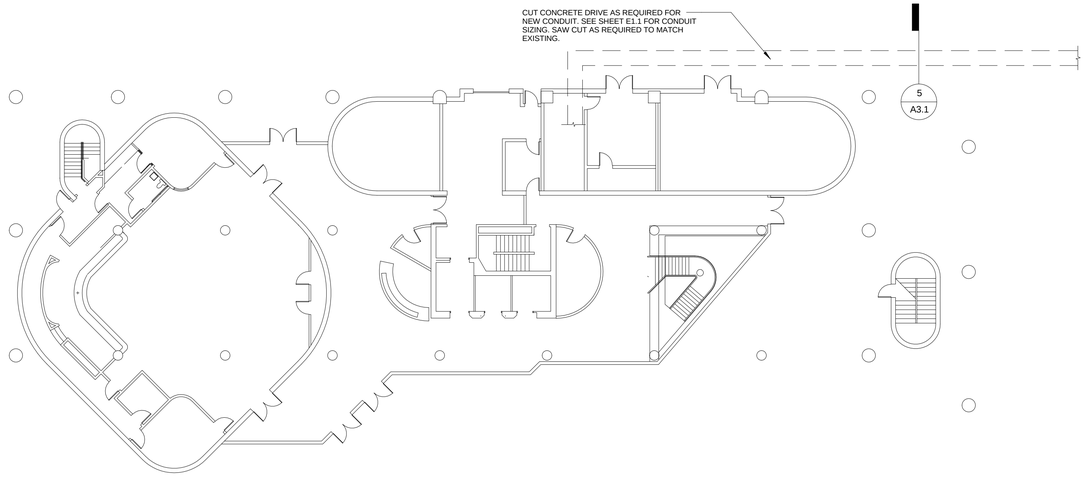
1/4" = 1'-0"

DOOR SCHEDULE

Door #	Type Mark	Width	Height	Thickness	Door Mat'l	Door Finish	Frame Type	Frame Mat'l	Frame Finish	Fire Rating	Comments
7-101	D2	3' - 0"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F1	H.M.	PAINT		PROVIDE MAGLOCK
7-105	D2	3' - 0"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F1	H.M.	PAINT	20 MIN	PROVIDE MAGLOCK
7-106	D2	3' - 0"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F1	H.M.	PAINT		PROVIDE MAGLOCK
7-107	D4	5' - 4"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F2	H.M.	PAINT		PROVIDE MAGLOCK
7-107B	D2	3' - 0"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F1	H.M.	PAINT		PROVIDE MAGLOCK
7-110A	D2	3' - 0"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F1	H.M.	PAINT		PROVIDE MAGLOCK
7-110B	D2	3' - 0"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F1	H.M.	PAINT		PROVIDE MAGLOCK
7-110C	D2	3' - 0"	7' - 0"	1 3/4"	S.C. WOOD	PAINT	F1	H.M.	PAINT		PROVIDE MAGLOCK
7-110D	D3	5' - 4"	7' - 0"	1 3/4"	S.C. WOOD	STAIN	F3	ALUM	ANODIZED	20 MIN	PROVIDE MAGLOCK

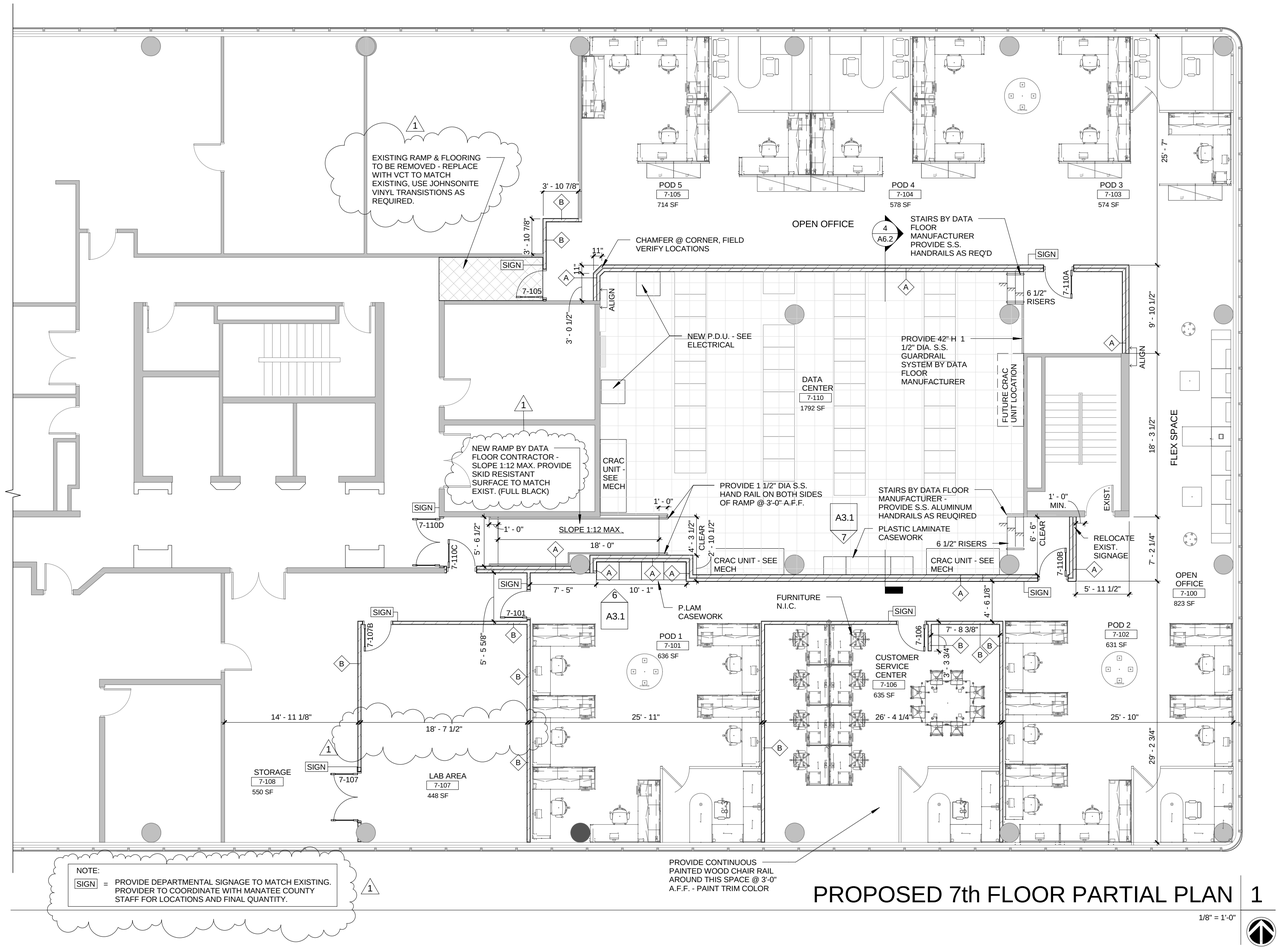
1

NOTE: SEE SPECIFICATION SECTION 087111 FOR DOOR HARDWARE INFORMATION



GROUND FLOOR PLAN | 2

1/16" = 1'-0"



PROPOSED 7th FLOOR PARTIAL PLAN | 1

1/8" = 1'-0"

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PROPOSED PLAN

Project No. 2013019.14
Drawn By AK/jbt
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Date 9.9.14

Revisions:

1 MANATEE COUNTY COMMENTS 09.09.14

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AR 0010008
REGISTERED ARCHITECT

09.09.14

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CONSTRUCTION DOCUMENTS

A3.1
R1

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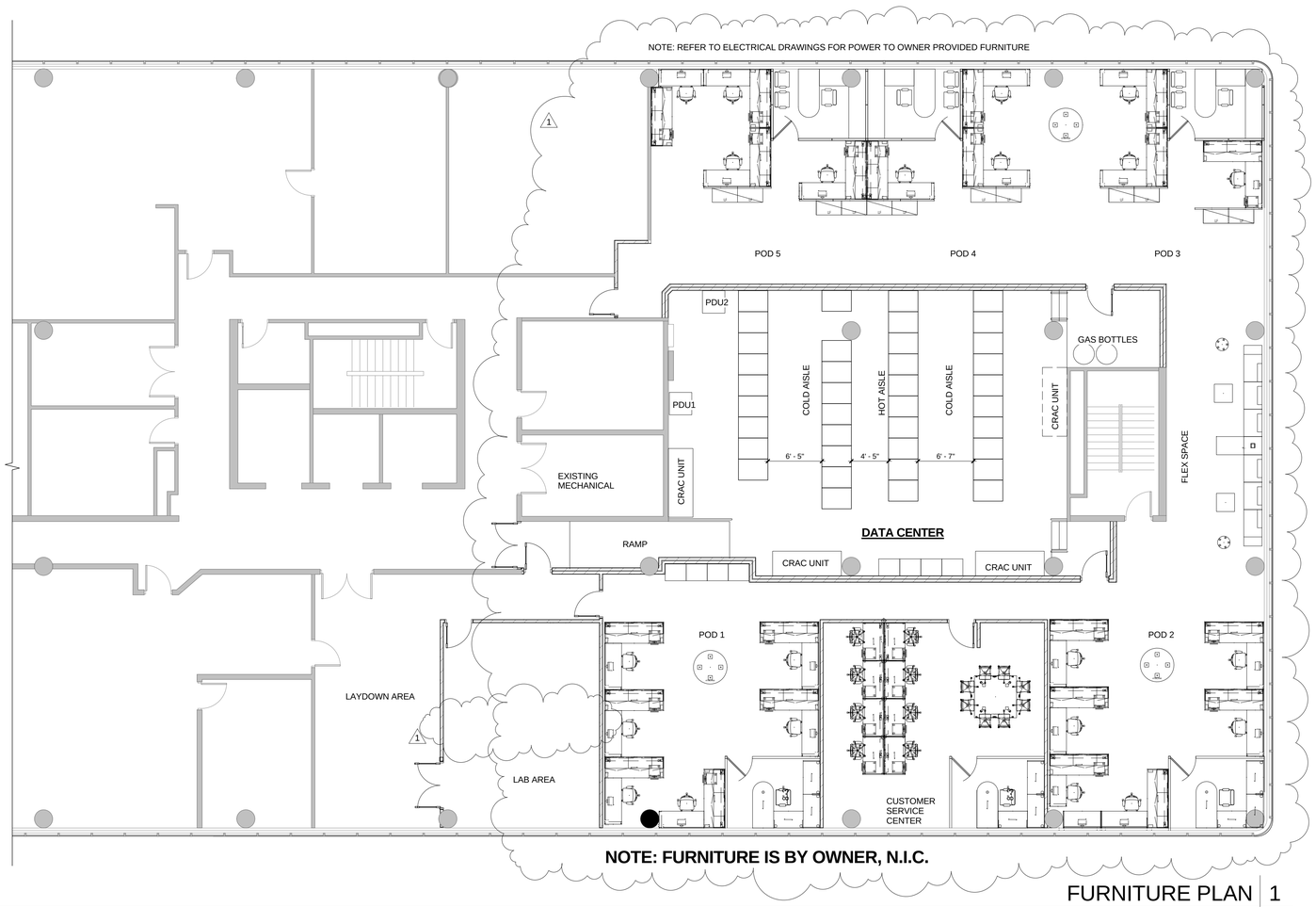

FURNITURE PLAN 1

1/8" = 1'-0"

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FURNITURE PLAN

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CONSTRUCTION DOCUMENTS

A3.2
R1

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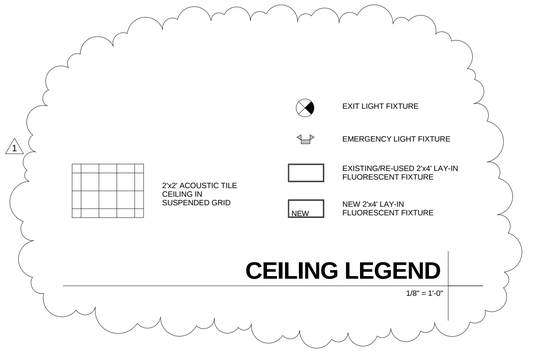
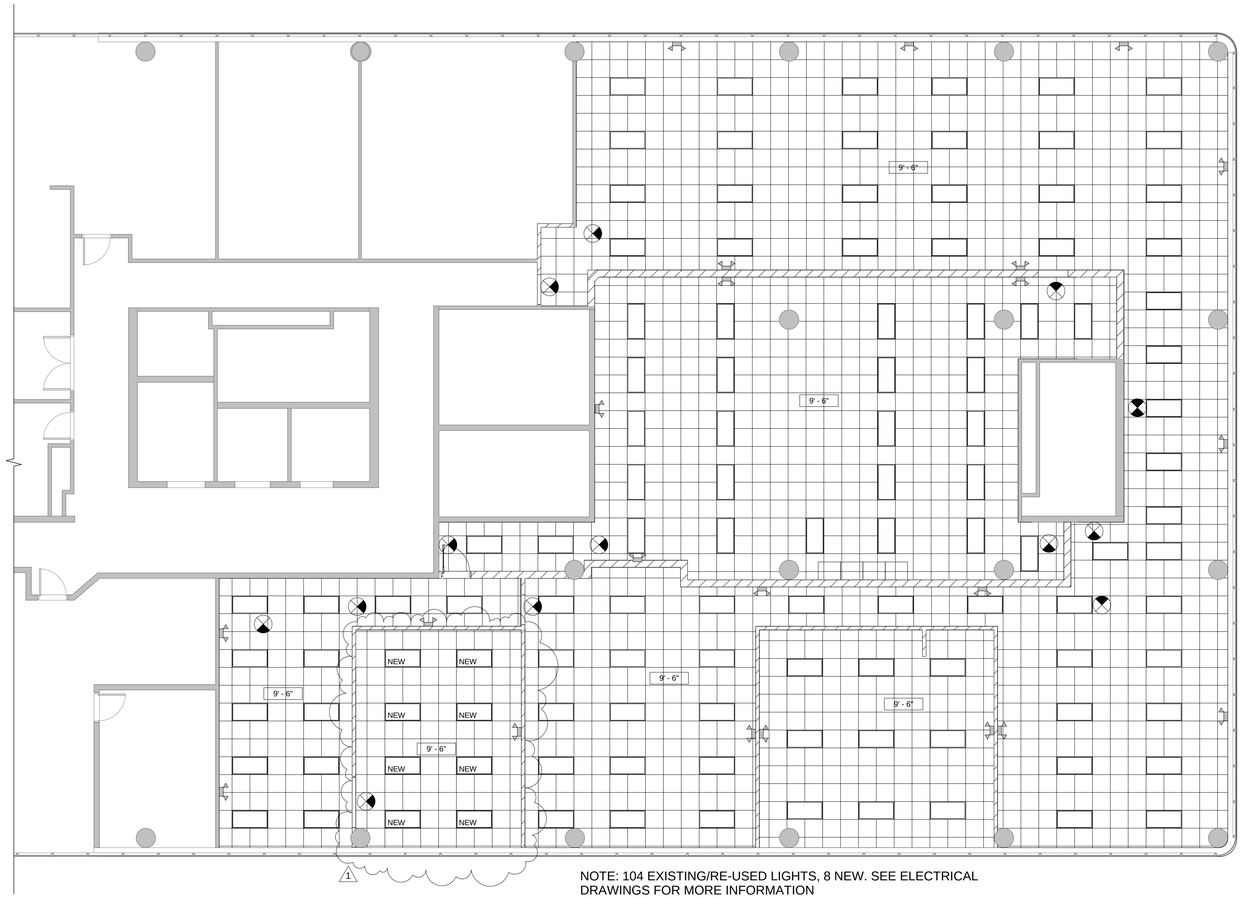


CEILING LEGEND

1/8" = 1'-0"



NOTE: 104 EXISTING/RE-USED LIGHTS, 8 NEW. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION

REFLECTED CEILING PLAN 1

1/8" = 1'-0"

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REFLECTED CEILING PLAN

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CONSTRUCTION DOCUMENTS

A3.3

R1

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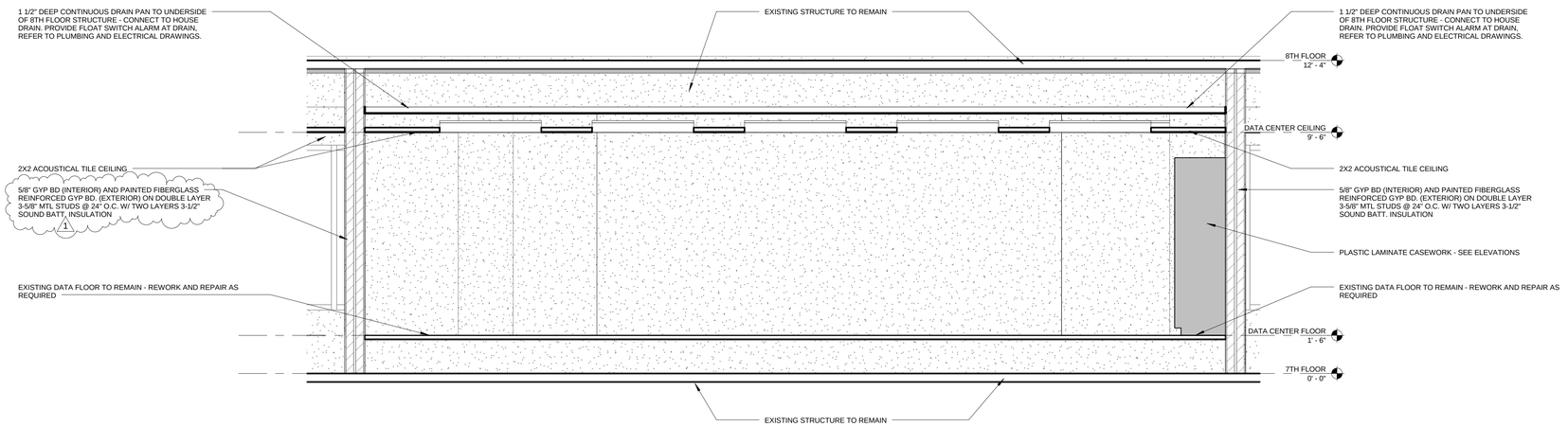
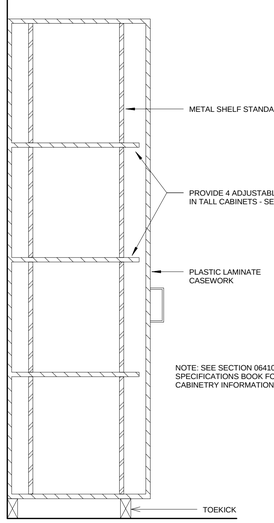


DATA CENTER SECTION | 4

3/8" = 1'-0"



CASEWORK DETAIL | 3

1" = 1'-0"

PARTITION SECTION B | 2

1" = 1'-0"

PARTITION SECTION A | 1

1" = 1'-0"

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WALL SECTIONS

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CONSTRUCTION DOCUMENTS

A6.2

R1

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MECHANICAL SPECIFICATIONS

PART 1 - GENERAL

0.01 GENERAL SCOPE

A. THIS PROJECT WILL REQUIRE INSTALLATION OF NEW HVAC SYSTEMS.

1.01 GENERAL DOCUMENTS

A. INSTALLATION SHALL BE IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 2010, WHICH INCLUDES THE FLORIDA BUILDING CODE, MECHANICAL AS WELL AS FLORIDA ENERGY CONSERVATION CODE. ALL EQUIPMENT SHALL BE UL LISTED.

B. THE MECHANICAL WORK SHALL INCLUDE FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND SERVICE NECESSARY FOR AND REASONABLY INCIDENTAL TO THE PROPER COMPLETION OF ALL MECHANICAL WORK SHOWN ON THE DRAWINGS AND AS SPECIFIED. ALL MATERIAL SHALL BE NEW.

C. EACH PROSPECTIVE CONTRACTOR SHALL EVALUATE THE SCOPE OF WORK THOROUGHLY PRIOR TO SUBMITTING A BID.

D. SOME CONDUIT, PIPING, AND OTHER OBSTACLES MAY NEED TO BE RELOCATED AND SUCH RELOCATION SHOULD BE INCLUDED IN EACH PROSPECTIVE MECHANICAL CONTRACTOR'S BID.

E. EXISTING EQUIPMENT: THE MECHANICAL CONTRACTOR SHALL RETURN ANY EXISTING MECHANICAL EQUIPMENT SHOW TO BE REMOVED IN THE SCOPE OF WORK AS REQUESTED BY THE OWNER. THIS MAY INCLUDE MAKING PROVISIONS TO RECLAIM THE REFRIGERANT. THE MECHANICAL CONTRACTOR SHALL REMOVE EXISTING MECHANICAL EQUIPMENT NOT REQUESTED BY THE OWNER FROM THE PROJECT SITE AND DISPOSE OF IT IN ACCORDANCE WITH ALL APPLICABLE LAWS.

1.02 SUBMITTALS

A. MATERIALS OR PRODUCTS SPECIFIED HEREIN AND/OR INDICATED ON DRAWINGS BY TRADE NAME, MANUFACTURER'S NAME OR CATALOG NUMBERS SHALL BE INTERPRETED AS ESTABLISHING A STANDARD OF QUALITY AND DESIGN. SUBSTITUTIONS MAY BE ALLOWED IF THEY MEET THE QUALITY STANDARDS AND DESIGN INTENT, UNLESS OTHERWISE NOTED.

B. PRIOR TO STARTING THE PROJECT, THE MECHANICAL CONTRACTOR SHALL STUDY THE COMPLETE SET OF CONSTRUCTION DOCUMENTS AND COORDINATE WITH THE MANUFACTURER(S) AS REQUIRED TO PROVIDE EQUIPMENT SUBMITTALS TO SUBMIT TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL. THE EQUIPMENT SUBMITTALS SHALL INCLUDE DIMENSIONS, WEIGHTS, SPECIFIED ACCESSORIES AND REQUIRED CLEARANCES, AS WELL AS FAN CURVES, SOUND LEVELS, CONSTRUCTION DETAILS, WARRANTY INFORMATION, AND ALL OTHER RELEVANT DATA.

C. IF ALTERNATES TO THE BASIS OF DESIGN ARE SUBMITTED, THE CONTRACTOR SHALL PROVIDE A CLEAR, DETAILED SUMMARY IN THE SUBMITTALS OF THE DIFFERENCES BETWEEN THE SUBMITTED EQUIPMENT AND THE BASIS OF DESIGN. THE ENGINEER MAY ACCEPT OR REJECT THE ALTERNATES.

1.03 SHOP DRAWINGS

A. PRIOR TO STARTING THE PROJECT, THE MECHANICAL CONTRACTOR SHALL STUDY THE COMPLETE SET OF CONSTRUCTION DOCUMENTS AND COORDINATE WITH THE OTHER TRADES AS REQUIRED TO PROVIDE SHOP DRAWINGS TO SUBMIT TO THE ENGINEER FOR APPROVAL. THE SHOP DRAWINGS MAY BE SUBMITTED AS HAND-DRAWN NOTES. THE CONSTRUCTION DOCUMENTS ARE DIAGRAMMATIC IN NATURE AND INTENDED SOLELY TO CLARIFY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. THE CONSTRUCTION DOCUMENTS ARE NOT INTENDED TO ALERT THE CONTRACTOR(S) OF ALL OBSTACLES. THE SHOP DRAWINGS SHALL SHOW THE COORDINATION OF DUCTWORK AND MECHANICAL EQUIPMENT INSTALLATION WITH EXISTING AND NEW OBSTACLES INCLUDING, BUT NOT LIMITED TO, ELECTRICAL CONDUITS, FIRE PROTECTION PIPING, RAIN LEADERS, SANITARY DRAINS, STRUCTURAL MEMBERS, AND WATER PIPING, AS WELL AS THE MECHANICAL EQUIPMENT MANUFACTURERS' RECOMMENDED CLEARANCES. THE MECHANICAL CONTRACTOR SHALL ALSO SHOW THE EXISTING CONDITIONS ON THE SHOP DRAWINGS WHERE THE EXISTING CONDITIONS ARE DIFFERENT FROM THOSE SHOWN ON THE CONSTRUCTION DOCUMENTS.

B. FURNISH SIX (6) COPIES OF SHOP DRAWINGS OF EQUIPMENT, MATERIALS AND SYSTEM LAYOUT TO OWNER PRIOR TO PURCHASING ANY EQUIPMENT AND BEGINNING WORK.

1.04 RECORD DRAWINGS

A. AFTER COMPLETION OF ALL WORK, THE MECHANICAL CONTRACTOR SHALL PROVIDE THE OWNER WITH AS BUILT RECORD DRAWINGS. CONTRACTOR SHALL KEEP A RECORD OF THE LOCATIONS OF ALL CONCEALED WORK AND UPON COMPLETION OF THE JOB, SHALL SUPPLY AS-BUILT DRAWINGS SHOWING ANY DEVIATION FROM THE ORIGINAL DRAWINGS. THESE DRAWINGS SHALL INDICATE DIMENSION OF BURIED UTILITY LINES FROM BUILDING WALLS.

PART 2 - INSTALLATION

2.01 EQUIPMENT

A. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED AS REQUIRED BY THE MANUFACTURER'S' INSTALLATION AND MAINTENANCE MANUALS. THOSE MANUALS WILL TYPICALLY PROVIDE MORE DETAIL THAN THE CONSTRUCTION DOCUMENTS. IF THERE IS A CONFLICT BETWEEN THE INSTALLATION AND MAINTENANCE MANUALS AND THE CONSTRUCTION DOCUMENTS, THEN THE MECHANICAL CONTRACTOR SHALL SUBMIT A REQUEST-FOR-INFORMATION TO THE ENGINEER.

B. VIBRATION ISOLATION: THE MECHANICAL CONTRACTOR SHALL PROVIDE VIBRATION ISOLATION AS RECOMMENDED BY THE MANUFACTURER(S) AND/OR REQUIRED BY THE ENGINEER TO ENSURE QUIET OPERATION OF THE MECHANICAL EQUIPMENT. NO UNDUE VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE STRUCTURE OR ANY OCCUPIED SPACES WITHIN THE STRUCTURE.

C. FILTERS: THE MECHANICAL CONTRACTOR SHALL PROVIDE FILTER RACKS FOR THE MECHANICAL EQUIPMENT AS REQUIRED. THE FILTER RACKS SHALL BE INSTALLED SUCH THAT SUFFICIENT CLEARANCES ARE PROVIDED FOR MAINTENANCE AND SHALL BE SEALED AIRTIGHT. THE MECHANICAL CONTRACTOR SHALL PROVIDE A TOTAL OF THREE (3) COMPLETE SETS OF FILTERS FOR ALL MECHANICAL EQUIPMENT IN THE SIZE AND ARRANGEMENT RECOMMENDED BY THE MANUFACTURER. THE FILTERS SHALL PROVIDE ASHRAE FILTRATION EFFICIENCY AS SHOWN ON THE CONSTRUCTION DOCUMENTS OR 30% ASHRAE FILTRATION EFFICIENCY (MERV 6) IF NO HIGHER VALUE IS SPECIFIED.

D. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL STARTERS, CONTACTORS, RELAYS, CONTROLS, AND ACCESSORIES NECESSARY TO PROVIDE A COMPLETE AND WORKING POWER AND CONTROL SYSTEM FOR THE MECHANICAL EQUIPMENT WITHIN THE SCOPE OF WORK. THE ELECTRICAL CONTRACTOR WILL PROVIDE ALL DISCONNECT SWITCHES, CONDUIT, AND WIRING FOR THE MECHANICAL EQUIPMENT WITHIN THE SCOPE OF WORK. ALL ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER OPERATION OF THE COMPLETE SYSTEM AND SHALL ENSURE THAT WIRING DIAGRAMS ARE PROVIDED TO THE OWNER. NO WIRING OF ANY KIND SHALL BE EXPOSED IN FINISHED AREAS.

E. HOUSEKEEPING PADS: THE GENERAL AND MECHANICAL CONTRACTORS SHALL PROVIDE A 4" HIGH CONCRETE HOUSEKEEPING PAD UNDER ALL MECHANICAL EQUIPMENT, UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DOCUMENTS. THE HOUSEKEEPING PAD SHALL EXTEND 8" BEYOND THE MECHANICAL EQUIPMENT ON ALL SIDES.

F. ELECTRIC DUCT HEATERS: ELECTRIC DUCT HEATERS SHALL BE UNDERWRITERS' LABORATORIES LISTED, BEAR THE SEAL OR MARK OF AN APPROVED TESTING AGENCY, AND BE EQUIPPED WITH AN APPROVED, AUTOMATICALLY RESETTING OUTLET AIR TEMPERATURE LIMIT CONTROL THAT WILL LIMIT THE OUTLET AIR TEMPERATURE TO NOT MORE THAN 200°F. THE MECHANICAL CONTRACTOR AND MANUFACTURER SHALL EQUIP THE ELECTRIC ELEMENTS OF THE HEATER WITH FUSIBLE LINKS OR A MANUAL RESET TEMPERATURE CONTROL THAT WILL PREVENT THE OUTLET AIR TEMPERATURE FROM EXCEEDING 250°F. EACH ELECTRIC DUCT HEATER SHALL BE INTERLOCKED WITH THE ASSOCIATED AIR HANDLER TO ENSURE ELECTRIC DUCT HEATER SHUTDOWN IN THE EVENT OF AN AIR HANDLER FAN FAILURE.

2.02 ACCESS PANELS, FIRE DAMPERS, AND FIRE/SMOKE DAMPERS

A. THE MECHANICAL CONTRACTOR SHALL PROVIDE ACCESS PANELS TO ALLOW ACCESS TO VOLUME DAMPERS ABOVE PLASTER OR GYPSUM CEILINGS, TURNING VANES, FIRE DAMPERS, FIRE/SMOKE DAMPERS, DUCT-MOUNTED SMOKE DETECTORS, AND WHERE REQUIRED FOR THE MAINTENANCE OF ALL MECHANICAL EQUIPMENT.

THE MECHANICAL CONTRACTOR SHALL ATTACH A BRIGHTLY-COLORED STRIP OF METAL TO EVERY DUCT-MOUNTED ACCESS PANEL. THE STRIP SHALL BE OF SUFFICIENT LENGTH TO HANG A MINIMUM OF 12 " BELOW THE BOTTOM OF THE ASSOCIATED DUCT.

2.03 SMOKE DETECTORS

A. INDIVIDUAL AIR HANDLING SYSTEMS WITH A DESIGN CAPACITY OF MORE THAN 2000 CFM SHALL AUTOMATICALLY SHUT DOWN BY MEANS OF AN APPROVED SMOKE DETECTOR PLACED IN THE SUPPLY AIRFLOW AFTER ANY AIR FILTERS AND BEFORE ANY BRANCH CONNECTIONS IN THE SUPPLY DUCTWORK.

B. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SMOKE DETECTORS TO ENSURE THE SMOKE DETECTORS' COMPATIBILITY WITH THE FIRE ALARM SYSTEM. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN HIS/HER BID ALL COSTS ASSOCIATED WITH INSTALLING ALL SMOKE DETECTORS INCLUDING, BUT NOT LIMITED TO, MAKING DUCTWORK MODIFICATIONS AS REQUIRED BY THE MANUFACTURER'S INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL WIRE ALL SMOKE DETECTORS.

D. THE CONTRACTOR-PROVIDED INSTRUCTIONS TO THE OWNER FOR OPERATING AND MAINTAINING ALL MECHANICAL EQUIPMENT SHALL INCLUDE TESTING ALL AUTOMATIC SHUTDOWN DEVICES AT LEAST ONCE PER YEAR. SPECIAL INSTRUCTIONS SHALL BE GIVEN WITH REGARD TO ENSURING THAT SMOKE SENSING DEVICES ARE PROPERLY CLEANED AND CALIBRATED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. MORE INFORMATION IS AVAILABLE IN CHAPTER 6 OF NFPA 90A.

E. THE MECHANICAL AND ELECTRICAL CONTRACTORS SHALL PROVIDE EACH AIR HANDLING SYSTEM WITH A MINIMUM OF ONE (1) MANUALLY-OPERABLE MEANS TO SHUT DOWN ALL SUPPLY, RETURN, EXHAUST, AND RELIEF FANS IN AN EMERGENCY. MORE INFORMATION IS AVAILABLE IN CHAPTER 6 OF NFPA 90A.

2.04 DX SYSTEMS

A. ALL REFRIGERANT LINES AND ACCESSORIES SHALL BE SIZED AND INSTALLED PER THE EQUIPMENT MANUFACTURERS' RECOMMENDATIONS. MECHANICAL CONTRACTOR AND MANUFACTURER(S) SHALL STUDY THE COMPLETE SET OF CONSTRUCTION DOCUMENTS AND EXISTING AND PROPOSED CONDITIONS TO ENSURE THAT THE EQUIPMENT HAS THE CAPACITY TO PROPERLY RETURN OIL TO THE COMPRESSOR(S). THE MECHANICAL CONTRACTOR SHALL ENSURE THAT THE MANUFACTURER(S) IS/ARE AWARE OF THE HORIZONTAL DISTANCE AND VERTICAL RISE BETWEEN EACH AIR HANDLER AND ITS ASSOCIATED CONDENSING UNIT. THE MECHANICAL CONTRACTOR SHALL PROVIDE A REFRIGERANT RISER DIAGRAM SHOWING ALL REFRIGERANT LINE SIZES AND ACCESSORIES WITH THE EQUIPMENT SUBMITTALS. REFRIGERANT LINES SHALL BE FILLED WITH DRY NITROGEN DURING SOLDERING. THE MECHANICAL CONTRACTOR SHALL TEST, CLEAN, AND DEHYDRATE ALL REFRIGERANT LINES AND PROVIDE THE CRITICAL CHARGE(S) OF REFRIGERANT PER THE MECHANICAL EQUIPMENT MANUFACTURERS' RECOMMENDATIONS. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY VALVES, TRAPS, SIGHT GLASSES, AND OTHER ACCESSORIES AS RECOMMENDED BY THE MECHANICAL EQUIPMENT MANUFACTURER(S). SERVICE FITTINGS SHALL BE ACCESSIBLE. THE MECHANICAL CONTRACTOR SHALL PROVIDE"PATE"PIPE CURB ASSEMBLIES FOR ALL REFRIGERANT LINES PENETRATING ANY ROOF.

B. EACH DX SPLIT SYSTEM'S AIR HANDLER AND CONDENSING UNIT SHALL BE BY ONE MANUFACTURER AND SHALL HAVE OR EXCEED THE CAPACITIES LISTED ON THE EQUIPMENT SCHEDULE(S) ON THE CONSTRUCTION DOCUMENTS. EACH ELECTRIC HEATER SHALL HAVE OR EXCEED THE CAPACITIES AND ELECTRICAL REQUIREMENTS LISTED IN THE EQUIPMENT SCHEDULE(S) ON THE CONSTRUCTION DOCUMENTS. THE MANUFACTURER(S) AND THE MECHANICAL CONTRACTOR SHALL PROVIDE PROTECTION FOR ALL DX MECHANICAL EQUIPMENT INCLUDING, BUT NOT LIMITED TO, AN ANTI-SHORT-CYCLE TIMER FOR EACH COMPRESSOR, HEAD PRESSURE CONTROL, HIGH PRESSURE CONTROL (MANUAL RESET), AND LOW PRESSURE CONTROL (AUTO RESET).

2.05 CONDENSATE DRAIN LINES

A. CONDENSATE DRAIN LINES SHALL BE CONSTRUCTED OF COPPER (TYPE 'L' OR HEAVIER), OR STEEL (MINIMUM SCHEDULE 40). THE MECHANICAL CONTRACTOR SHALL PROVIDE A P-TRAP AT EACH AIR HANDLERS CONDENSATE DRAIN LINE CONNECTION. EACH CONDENSATE DRAIN LINE SHALL BE SLOPED DOWN A MINIMUM OF ONE EIGHTH (1/8) INCH PER LINEAR FOOT TOWARD THE ASSOCIATED POINT OF DISCHARGE.

B. THE DIAMETER OF THE CONDENSATE DRAIN LINE SHALL BE EQUAL TO OR GREATER THAN THE CONDENSATE DRAIN LINE CONNECTION. TO AVOID EXCESSIVE DIPS IN AND TO PREVENT ANY SHIFTING OF THE CONDENSATE DRAIN LINES, THE MECHANICAL CONTRACTOR SHALL PROVIDE SUPPORTS AT THE FOLLOWING INTERVALS: THREE (3) FEET FOR CONDENSATE DRAIN LINES CONSTRUCTED OF PVC, SIX (6) FEET FOR CONDENSATE DRAIN LINES CONSTRUCTED OF COPPER, AND TEN (10) FEET FOR CONDENSATE LINES CONSTRUCTED OF STEEL. CONDENSATE DRAIN LINE SUPPORTS SHALL BE FIXED SOLIDLY IN PLACE.

C. THE MECHANICAL CONTRACTOR SHALL ROUTE CONDENSATE DRAIN LINES TO THE EXISTING CONDENSATE DRAINAGE SYSTEM UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DOCUMENTS.

D. THE MECHANICAL CONTRACTOR SHALL INSULATE EACH CONDENSATE DRAIN LINE WITH ONE-HALF (1/2) INCH CELLULAR GLASS WHEREVER THAT CONDENSATE DRAIN LINE IS ROUTED WITHIN THE STRUCTURE OR THE CONDENSATE MAY OTHERWISE CAUSE DAMAGE. PROVIDE ALUMINUM JACKET.

E. THE MECHANICAL CONTRACTOR SHALL CLEARLY LABEL ALL CONDENSATE DRAIN LINES TO INDICATE CONTENT AND DIRECTION OF FLOW.

2.06 CHILLED WATER LINES AND PIPING

A. CHILLED WATER LINES WITH DIAMETERS OF TWO (2) INCHES OR LESS SHALL BE CONSTRUCTED OF COPPER (TYPE 'L' OR HEAVIER). CHILLED WATER LINES WITH DIAMETERS OF MORE THAN TWO (2) INCHES SHALL BE CONSTRUCTED OF STEEL (MINIMUM SCHEDULE 40). ALL WATER LINES SHALL BE PITCHED UP ONE (1) INCH PER FORTY (40) LINEAR FEET IN THE DIRECTION OF WATER FLOW. THE MECHANICAL CONTRACTOR SHALL PROVIDE DRAIN VALVES AT ALL LOW POINTS AND MANUAL AIR VENTS AT ALL HIGH POINTS IN ALL WATER LINES.

B. THE MECHANICAL CONTRACTOR SHALL SUBMIT CONTROL VALVE PRESSURE DROPS TO THE MECHANICAL ENGINEER FOR APPROVAL.

C. THE MECHANICAL CONTRACTOR SHALL SLEEVE AND SEAL ALL WATER LINES AND OTHER PIPING PASSING THROUGH FLOORS, WALLS, AND ROOFS UNLESS NOTED OTHERWISE ON THE CONSTRUCTION DOCUMENTS. THE MECHANICAL CONTRACTOR SHALL PROVIDE PIPE-RATED SLEEVES FOR ALL WATER LINE OR OTHER PIPING PENETRATIONS OF FIRE-RATED OR FIRE/SMOKE-RATED ASSEMBLIES. THE CONCENTRIC ANNULAR SPACE BETWEEN EACH SLEEVE AND WATER LINE OR PIPE SHALL BE PACKED WITH FIRE-SAFING MATERIAL.

D. EVERY PENETRATION FOR WATER LINES OR OTHER PIPING, CONDUITS, OR OTHER PURPOSE THROUGH AN ASSEMBLY WITH A REQUIRED FIRE RESISTANCE RATING SHALL BE SEALED IN AN APPROVED MANNER TO MAINTAIN THE REQUIRED FIRE RESISTANCE RATING OF THE ASSEMBLY AS FOLLOWS:

D. THE MECHANICAL CONTRACTOR SHALL INSULATE ALL CHILLED WATER LINES WITH CLOSED CELLULAR GLASS INSULATION. INTERIOR CHILLED WATER LINES WITH DIAMETERS OF TWO (2) INCHES OR LESS SHALL BE PROVIDED WITH 1-1/2" OF INSULATION. INTERIOR CHILLED WATER LINES WITH DIAMETERS OF MORE THAN TWO (2) INCHES SHALL BE PROVIDED WITH 2" OF INSULATION. AND ALL EXTERIOR CHILLED WATER LINES (TO INCLUDE THOSE IN UNCONDITIONED INTERIOR SPACES) SHALL BE PROVIDED WITH 2-1/2" OF INSULATION. CHILLED WATER LINES SHALL BE FINISHED WITH ALUMINUM SERVICE JACKETS. ALL INSULATION AND SERVICE JACKETS FOR ELBOWS OR OTHER PIPE FITTINGS SHALL BE PRE-FORMED TO ELIMINATE VOIDS.

E. THE MECHANICAL CONTRACTOR SHALL CLEARLY LABEL ALL CHILLED WATER LINES AND OTHER PIPING TO INDICATE CONTENT AND DIRECTION OF FLOW.

F. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY CHEMICAL WATER TREATMENT SYSTEM COMPONENTS. AFTER EACH WATER SYSTEM IS INSTALLED AND CLEANED AND BEFORE SUBSTANTIAL COMPLETION, THE MECHANICAL CONTRACTOR SHALL INITIATE A CHEMICAL WATER TREATMENT PROGRAM AND PROVIDE ANY NECESSARY TRAINING IN CHEMICAL WATER TREATMENT TO THE OWNER.

G. TEST & BALANCE OF HYDRONIC SYSTEMS IS REQUIRED. REFER TO TESTING & BALANCING SECTION.

2.08 DUCTWORK CONSTRUCTION

A. THE SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION'S "HVAC DUCT CONSTRUCTION STANDARDS" SHALL BE CONSIDERED PART OF THE SPECIFICATIONS FOR THIS PROJECT. ANY WORK THAT DOES NOT COMPLY WITH THESE STANDARDS MAY BE REJECTED AT ANY TIME DURING THE PROJECT.

B. ALL DUCTWORK SHALL BE SHEET METAL.

C. ALL DUCT DIMENSIONS SHOWN ON THE CONSTRUCTION DOCUMENTS ARE INSIDE CLEAR DIMENSIONS. THE MECHANICAL CONTRACTOR SHALL PROVIDE FLEXIBLE CONNECTIONS BETWEEN EACH ITEM OF MECHANICAL EQUIPMENT AND ITS ASSOCIATED DUCT(S). ALL ITEMS OF THE HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM INCLUDING, BUT NOT LIMITED TO, AIR HANDLERS, FANS, DUCTWORK, DIFFUSERS, AND GRILLES SHALL NOT BE SUPPORTED BY THE CEILING OR CEILING SUSPENSION SYSTEM, BUT INSTEAD SHALL BE SUPPORTED BY THE BUILDING STRUCTURE.

D. ALL ELBOWS SHALL HAVE A ONE AND ONE-HALF (1.5) CENTERLINE RADIUS-TO-WIDTH OR RADIUS-TO-DEPTH RATIO OR SHALL BE CONSTRUCTED WITH SINGLE BLADE TURNING VANES. ANGULAR TAPERS SHALL BE LIMITED TO THIRTY (30) DEGREES FOR CONTRACTING TAPERS AND TWENTY (20) DEGREES FOR EXPANDING TAPERS.

E. THE MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 8'-0 " . FLEXIBLE RETURN DUCT SHALL. FLEXIBLE DUCT SHALL BE INSTALLED AND SUPPORTED SO AS TO PREVENT THE USE OF EXCESS DUCT MATERIAL, PREVENT DISLOCATION OR DAMAGE, AND PREVENT CONSTRICTION OF THE DUCT BELOW THE RATED DUCT DIAMETER. FLEXIBLE DUCT BENDS SHALL MAINTAIN A CENTERLINE RADIUS OF NOT LESS THAN ONE AND ONE-HALF (1.5) DUCT DIAMETERS. SAGS SHALL NOT EXCEED ONE-HALF (0.5) INCH PER LINEAR FOOT OF FLEXIBLE DUCT. HANGERS, SADDLES, AND OTHER SUPPORTS SHALL HAVE A MINIMUM WIDTH OF ONE AND ONE-HALF (1.5) INCHES. THE MECHANICAL CONTRACTOR SHALL PROVIDE SUPPORT FOR FLEXIBLE DUCTWORK WITH A MAXIMUM SPACING OF 5'-0 UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DOCUMENTS OR AUTHORIZED BY THE MECHANICAL ENGINEER.

F. SURFACES UPON WHICH CLOSURE OR SEALING PRODUCTS ARE TO BE APPLIED SHALL BE CLEAN AND DRY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL DUCTWORK SHALL BE SEALED WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT AS REQUIRED TO MEET THE FLORIDA ENERGY CONSERVATION CODE. THE MECHANICAL CONTRACTOR SHALL PROVIDE HOT-DIPPED GALVANIZED STEEL FASTENERS, ANCHORS, RODS, STRAPS, TRIM, AND ANGLES FOR INTERIOR DUCTWORK SUPPORTS. INTERIOR DUCTWORK SUPPORT SPACING SHALL NOT EXCEED 5'-0

G. IN UNCONDITIONED SPACE: PROVIDE R-8 INSULATION FOR DUCTWORK LOCATED IN UNCONDITIONED SPACES SUCH AS EXTERIOR MECHANICAL ROOMS, VENTED SOFFITS, ETC...

H. THE MECHANICAL CONTRACTOR SHALL PROVIDE INSULATION WITH A MINIMUM R-VALUE OF SIX (6) ON ALL DUCTWORK. CONCEALED DUCTWORK MAY BE INSULATED WITH FLEXIBLE FIBERGLASS INSULATION, BUT ALL EXPOSED DUCTWORK (INCLUDING DUCTWORK LOCATED IN MECHANICAL ROOMS) MUST BE INSULATED WITH FIBROUS DUCTBOARD. ALL DUCTWORK AND FACINGS, CLOTHS, AND FINISHES SHALL HAVE A MAXIMUM FLAME SPREAD RATING OF 25, A MAXIMUM SMOKE DEVELOPMENT RATING OF 50, AND SHALL BE IN COMPLIANCE WITH NFPA 90A. PROVIDE MINIMUM OF 1/2" FIBERGLASS WITH FOIL/SCRIM VAPOR BARRIER ON THE BACK PAN OF ALL NEW AIR DEVICES.

I. ALL OUTSIDE AIR INTAKES SHALL BE A MINIMUM OF 10'-0" FROM ANY EXHAUST OUTLET OR VENT PIPE (UNLESS THE VENT PIPE IS AT LEAST TWO (2) FEET ABOVE THE OUTSIDE AIR INTAKE). THE MECHANICAL CONTRACTOR SHALL PROVIDE SCREENS ON ALL OUTSIDE AIR INTAKES AND EXHAUST OUTLETS AT NO LESS THAN 1/4" BY 1/4 AND NO GREATER THAN 1/2" BY 1/2".

J. THE MECHANICAL CONTRACTOR SHALL PROVIDE AN OPPOSED-BLADE VOLUME DAMPER FOR EVERY RECTANGULAR BRANCH AND OUTLET AND AT EVERY RECTANGULAR TAKE-OFF FOR A DIFFUSER OR GRILLE. (ROUND OR OVAL BRANCHES, OUTLETS, AND TAKE-OFFS FOR DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH A STANDARD VOLUME DAMPERS.) NOT ALL DAMPERS ARE SHOWN ON THE CONSTRUCTION DOCUMENTS. HOWEVER, DAMPERS ARE REQUIRED FOR EVERY BRANCH, OUTLET, AND TAKE-OFF. SOME DAMPERS MAY BE REQUIRED AFTER TRANSITIONS.

K. THE MECHANICAL CONTRACTOR SHALL CLEARLY AND PERMANENTLY MARK EACH VOLUME DAMPER'S OPEN AND CLOSED POSITIONS. THE MECHANICAL CONTRACTOR SHALL PROVIDE A VOLUME DAMPER WITH A 2" STANDOFF WITH A LOCKING QUADRANT THAT IS 24 GAUGES OR 2 GAUGES HEAVIER.

L. PROVIDE AND INSTALL "RUSKIN PRD-18 " POSITIVE PRESSURE RELIEF DOORS IN SUPPLY DUCTWORK AND "RUSKIN NRD-18" NEGATIVE PRESSURE RELIEF DOORS FOR ALL AIR HANDLER SYSTEMS WITH VAV BOXES, SMOKE DAMPERS OR FIRE DAMPERS.

M. ALL DUCT SHALL MEET THE FOLLOWING CONSTRUCTION REQUIREMENTS:

- SUPPLY DUCTWORK (UPSTREAM OF ANY VAV): 2.0 IWG POSITIVE STATIC PRESSURE AND VELOCITIES LESS THAN 2500 FPM.
- SUPPLY DUCTWORK (DOWNSTREAM OF ANY VAV): 1.0 IWG POSITIVE STATIC PRESSURE AND VELOCITIES LESS THAN 1600 FPM.
- ALL OTHER RETURN DUCTWORK: 1.0 IWG NEGATIVE STATIC PRESSURE AND VELOCITIES LESS THAN 1600 FPM.
- ALL EXHAUST AND OUTSIDE AIR DUCTWORK: 1.0 IWG POSITIVE OR NEGATIVE STATIC PRESSURE AND VELOCITIES LESS THAN 1600 FPM.
- ALL TRANSFER DUCTWORK: 0.5 IWG POSITIVE OR NEGATIVE STATIC PRESSURE AND VELOCITIES LESS THAN 500 FPM.
- ANY OTHER DUCTWORK: REFER TO SMACNA "HVAC DUCT CONSTRUCTION STANDARDS

ALL RECTANGULAR METALLIC DUCTWORK SHALL BE SHOP FABRICATED OF GALVANIZED STEEL SHEETS, FOLLOWING ARE THE SMACNA RECOMMENDATIONS FOR GAUGES AND SEAMS. CONFORM TO THE RECOMMENDATIONS OF SMACNA AS TO SEAMS, JOINTS, CROSS BREAKS AND TRANSITIONS, ETC.

RECTANGULAR STEEL DUCT GAGE

DUCT DIAMETER IN INCHES	WITH FLAT "S" SLIP ON 5' SPACING (GA)	WITH STANDING "S" SLIP ON 5' SPACING (GA)
0 - 12	26	26 B
13 - 14	24	26 B
15 - 18	22	26 B
19 - 20	20	26 C
21 - 26	18	26 C
27 - 28	16	26 C
29 - 30	16	26 D
31 - 36	-	24 D
37 - 42	-	24 E
43 - 60	-	22 G

STANDING "S" SLIP SIZE

B 1" x 26 GA
C 1"x 22 GA
D 1-1/8" x 22 GA
E 1-1/8" x 18 GA
G 1-5/8" x 18 GA

REFER TO SMACNA TABLES FOR REINFORCEMENT FOR DUCT LENGTHS OTHER THAN FIVE (5) FEET.

ALL ROUND RIGID METAL DUCTWORK CAN BE PREFABRICATED OR SHOP FABRICATED. FOLLOWING ARE THE SMACNA RECOMMENDATIONS FOR GAUGES AND SEAMS. ELBOWS SHALL HAVE CENTERLINE RADIUS OF 1-1/2 TIMES DUCT DIAMETER. THE CONTRACTOR MAY PROVIDE EQUIVALENT ROUND OR RECTANGULAR DUCT AS CONDITIONS AND SPACE PERMIT.

ROUND STEEL DUCT GAGE

DUCT DIAMETER IN INCHES	SPIRAL SEAM IN INCHES	LONGITUDINAL SEAM IN INCHES
3 - 8	28	28
9 - 14	28	26
15 - 26	26	24
27 - 36	24	22
37 - 50	22	20
51 - 60	20	18
61 - 84	18	16

ROUND ALUMINUM DUCT GAGE

DUCT DIAMETER IN INCHES	SPIRAL SEAM IN INCHES	LONGITUDINAL SEAM IN INCHES
3 - 14	.025	.032
15 - 26	.032	.040
27 - 36	.040	.050
37 - 50	.050	.063

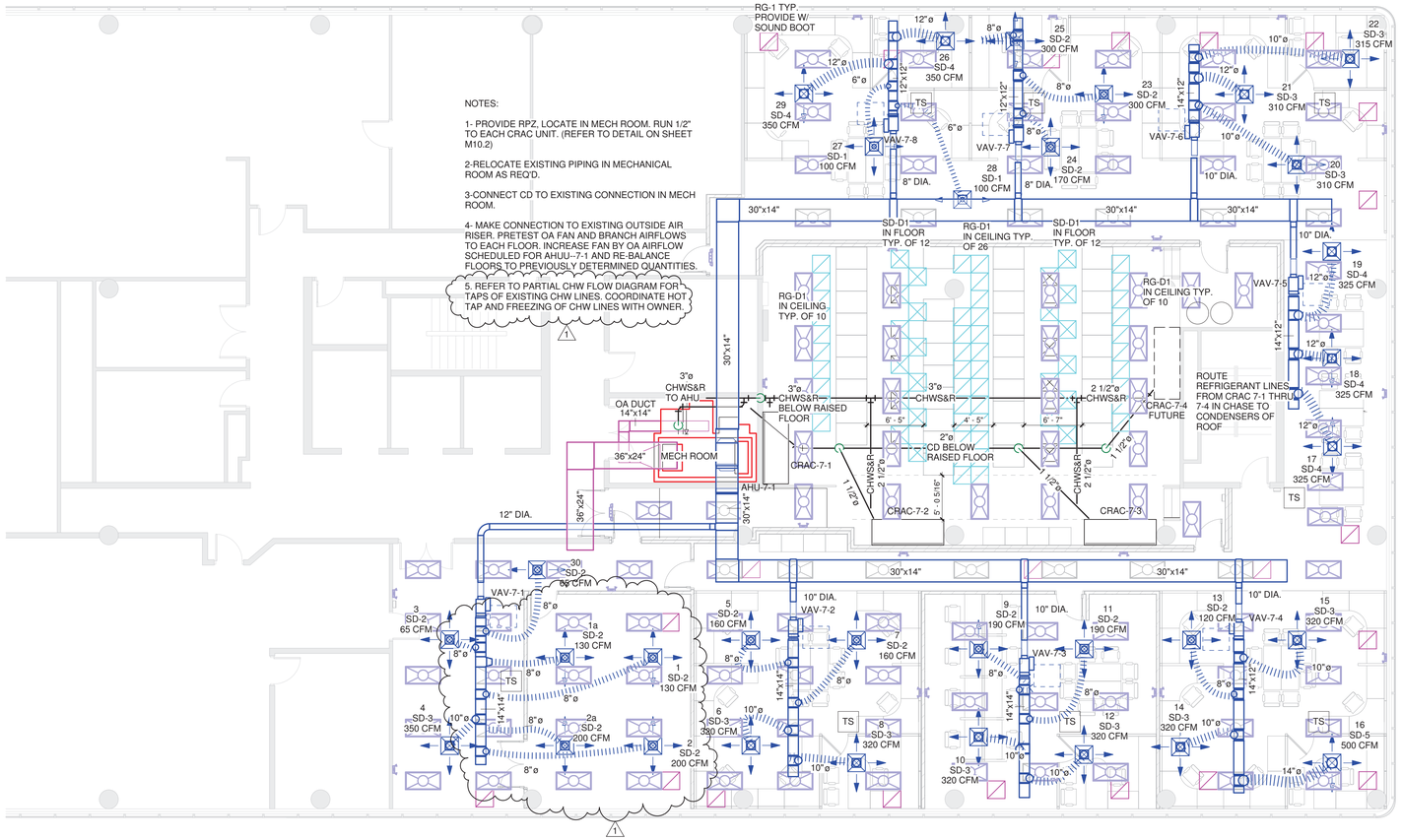
2.09 DUCT LEAKAGE PERFROMANCE

A. DUCT CONSTRUCTION AND SEALING SYSTEMS SHALL MEET THE REQUIREMENTS OF THE FLORIDA ENERGY CONSERVATION CODE AND SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS". IF THERE IS A CONFLICT AMONG THE STANDARDS, THEN THE MORE STRINGENT STANDARD SHALL BE ENFORCED.

B. THE MECHANICAL CONTRACTOR SHALL SEAL ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, AND DUCT WALL PENETRATIONS. TRANSVERSE JOINTS ARE CONNECTIONS OF TWO DUCT OR FITTING ELEMENTS ORIENTED PERPENDICULAR TO THE DIRECTION OF THE AIRFLOW. LONGITUDINAL SEAMS ARE JOINTS ORIENTED IN THE DIRECTION OF THE AIRFLOW. DUCT WALL PENETRATIONS ARE OPENINGS MADE BY SCREWS, NON-SELF-SEALING FASTENERS, PIPES, TUBING, RODS, AND WIRE. ROUND AND FLAT-OVAL SPIRAL LOCK SEAMS NEED NOT BE SEALED. DUCT LINER INSULATION AND FINISHES SHALL AFTER ASSEMBLY TO REDUCE LEAKAGE. ALL OTHER CONNECTIONS ARE CONSIDERED TRANSVERSE JOINTS INCLUDING, BUT NOT LIMITED TO, JOINTS IN TRUNKS, TAPS OR OTHER BRANCH CONNECTIONS, ACCESS DOOR FRAMES, AND DUCT CONNECTIONS TO EQUIPMENT. MORE INFORMATION IS AVAILABLE IN CHAPTER 35 OF ASHRAE'S "FUNDAMENTALS HANDBOOK".

2.10 AIR DEVICES

A. THE MECHANICAL CONTRACTOR SHALL VERIFY THE LOCATIONS OF THE DIFFUSERS AND GRILLES AND SUBMIT A REQUEST-FOR-INFORMATION IF THERE IS A CONFLICT BETWEEN THE ARCHITECTURAL AND MECHANICAL PORTIONS OF THE CONSTRUCTION DOCUMENTS. THE MECHANICAL CONTRACTOR SHALL ALSO VERIFY THE TYPES OF CEILINGS IN THE SCOPE OF WORK PRIOR TO ORDERING DIFFUSERS AND GRILLES. FOR DIFFUSERS AND GRILLES LOCATED IN PLASTER OR GYPSUM CEILINGS, THE MECHANICAL CONTRACTOR SHALL PROVIDE METALAIRE MODEL TBPF / TITUS MODEL TRM PLASTER FRAMES. THE FRAMES MAY BE ALUMINUM IN NON-FIRE-RATED CEILINGS BUT MUST BE STEEL IN FIRE-RATED CEILINGS. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE FINISH OF ALL DIFFUSERS AND GRILLES, EXPOSED DUCTWORK, GRAVITY VENTILATORS, LOUVERS, AND WALL CAPS WITH THE OWNER. ALL VISIBLE EXTERIOR COMPONENTS (SUCH AS EXPOSED DUCTWORK AND LOUVERS) SHALL B



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MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

MECHANICAL HVAC PLAN

Project No.	2013019.14
Drawn By	A.GOMEZ
Checked By	M.SEGAL
Date	09.09.2014

Revisions:

1	MANATEE COUNTY COMMENTS	09.09.14

MAKSIM A. SEGAL LICENSE No. 71454 STATE OF FLORIDA PROFESSIONAL ENGINEER

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

M4.1

Originals printed @ 24" x 36" scale as required

Job Number: 4138.14.00
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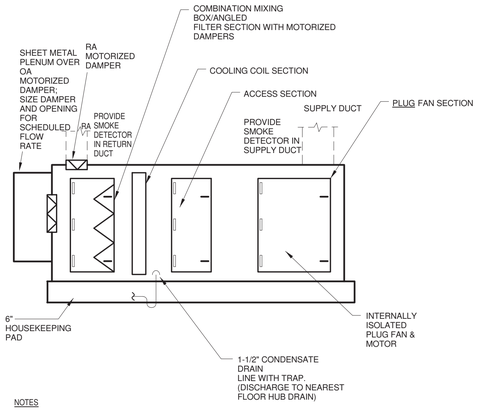

NOTES

1. REFER TO FLOOR PLANS, SCHEDULES AND SPECIFICATIONS FOR MORE DETAILS.
2. MANUFACTURER TO MODIFY DAMPER SIZE TO ACCOMMODATE ACTUAL OUTDOOR AIR FLOWRATES AS REQUIRED BY SCHEDULE AND CONTROLS
3. PROVIDE W/ SHIPPING AS REQ'D ON SITE CONDITIONS.

MODULAR AIR HANDLER 7-1

NOT TO SCALE

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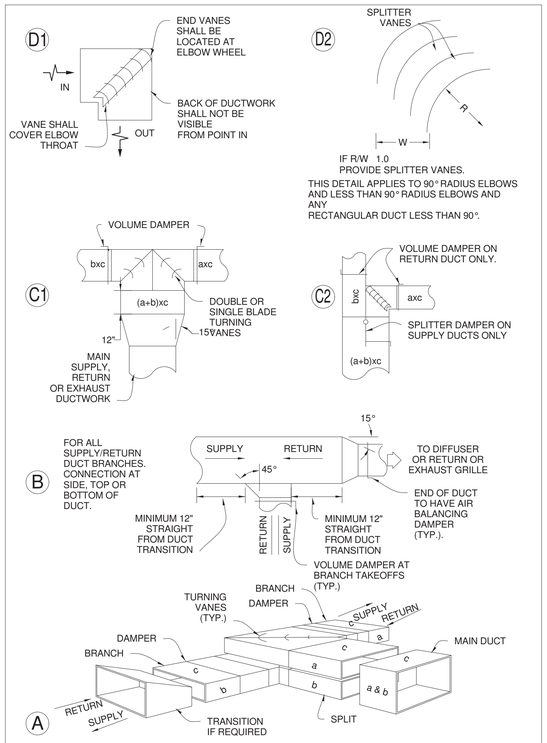
DETAIL # -	0015



TYPICAL BRANCH DUCT & FITTINGS DETAILS

NOT TO SCALE

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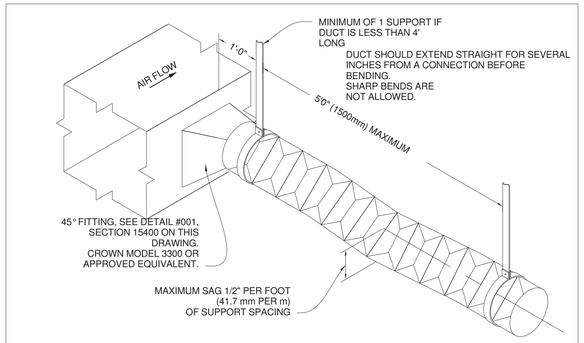
DETAIL # -	001



NOTE: CLOSER MAXIMUM HANGER INTERVALS MAY BE SPECIFIED AS A CONDITION OF U.L. LISTING, PARTICULARLY IN FIRE RATED FLOOR-CEILING ASSEMBLIES.

FLEXIBLE DUCT SUPPORTS DETAIL

NOT TO SCALE

AS PER HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE SMACNA - THIRD EDITION

G.S.I. -	06-13
SECTION -	15400
DETAIL # -	004

1 MECHANICAL DETAILS
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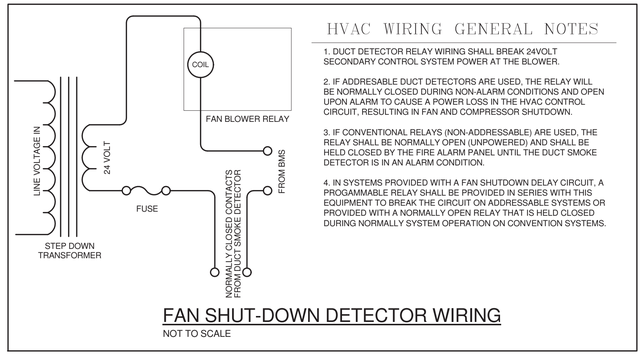
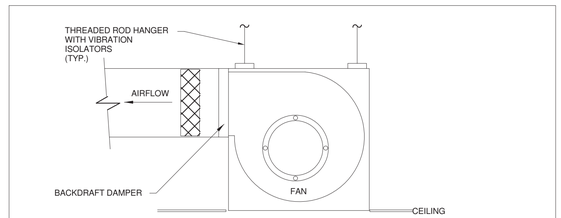


HVAC WIRING GENERAL NOTES

1. DUCT DETECTOR RELAY WIRING SHALL BREAK 24VOLT SECONDARY CONTROL SYSTEM POWER AT THE BLOWER.
2. IF ADDRESABLE DUCT DETECTORS ARE USED, THE RELAY WILL BE NORMALLY CLOSED DURING NON-ALARM CONDITIONS AND OPEN UPON ALARM TO CAUSE A POWER LOSS IN THE HVAC CONTROL CIRCUIT, RESULTING IN FAN AND COMPRESSOR SHUTDOWN.
3. IF CONVENTIONAL RELAYS (NON-ADDRESSABLE) ARE USED, THE RELAY SHALL BE NORMALLY OPEN (UNPOWERED) AND SHALL BE HELD CLOSED BY THE FIRE ALARM PANEL UNTIL THE DUCT SMOKE DETECTOR IS IN AN ALARM CONDITION.
4. IN SYSTEMS PROVIDED WITH A FAN SHUTDOWN DELAY CIRCUIT, A PROGAMMABLE RELAY SHALL BE PROVIDED IN SERIES WITH THIS EQUIPMENT TO BREAK THE CIRCUIT ON ADDRESSABLE SYSTEMS OR PROVIDED WITH A NORMALLY OPEN RELAY THAT IS HELD CLOSED DURING NORMALLY SYSTEM OPERATION ON CONVENTION SYSTEMS.

FAN SHUT-DOWN DETECTOR WIRING

NOT TO SCALE



EXHAUST FAN DETAIL

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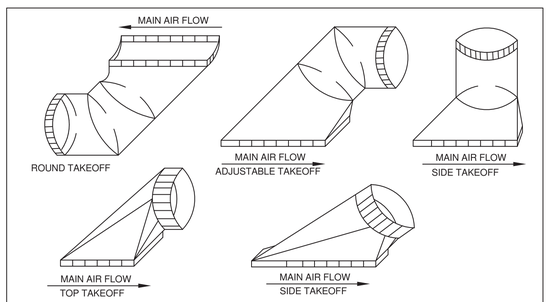
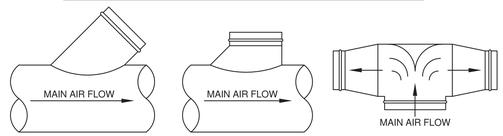


RECTANGULAR OR SQUARE TO ROUND



ROUND TO ROUND

TYPICAL TAKE-OFFS DETAIL

NOT TO SCALE

G.S.I. -	06-13
SECTION -	15400
DETAIL # -	002

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Project No.	2013019.14
Drawn By	A.GOMEZ
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Revisions:

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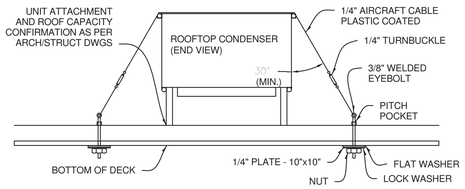
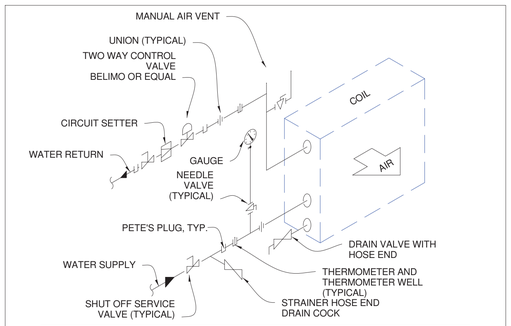
HURRICANE ANCHOR ASSEMBLY: (2) PER UNIT, EACH A MIN. 12" IN FROM THE END OF THE UNIT. (NOTE: THE ENTIRE ASSEMBLY SHOWN IN THIS DETAIL IS ONE HURRICANE ASSEMBLY.)



ROOFTOP UNIT ANCHOR DETAIL

NOT TO SCALE

G.S.I. -	06-13
SECTION -	15305
DETAIL # -	007



NOTES:

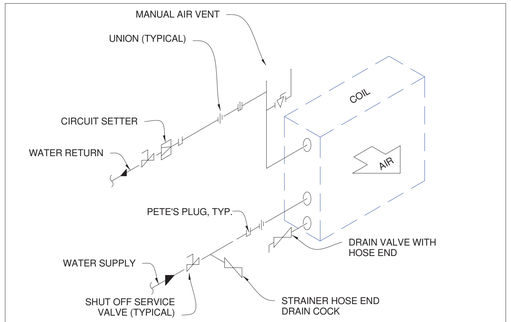
1 - CONTROL VALVE MUST BE INSTALLED IN A HORIZONTAL SECTION OF PIPE SO THE VALVE IS IN THE VERTICAL UPRIGHT POSITION.

2 - PETE'S PLUG MAY BE USED IN LIEU OF THERMOMETERS AND GAUGES.

AHU-7-1 TWO WAY CONTROL VALVE PIPING DETAIL

NOT TO SCALE

G.S.I. -	06-13
SECTION -	15300
DETAIL # -	001



NOTES:

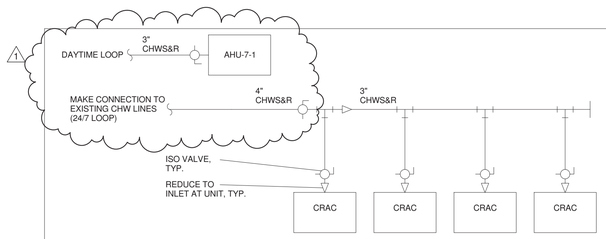
1 - CRAC UNITS TO BE SUPPLIED WITH INTERNAL CONTROL VALVES.

2 - PETE'S PLUG MAY BE USED IN LIEU OF THERMOMETERS AND GAUGES.

CRAC TWO WAY CHW VALVE PIPING DETAIL

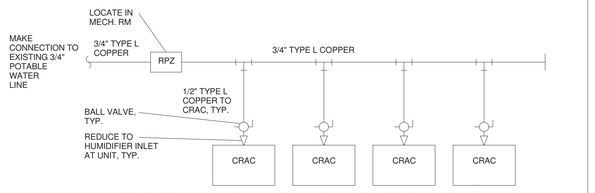
NOT TO SCALE

G.S.I. -	06-13
SECTION -	15300
DETAIL # -	001CR



PARTIAL CHW FLOW DIAGRAM

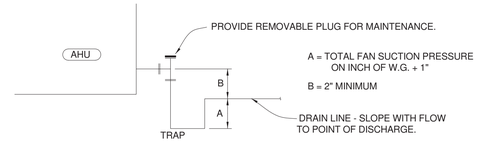
NOT TO SCALE



CRAC HUMIDIFIER FLOW DIAGRAM DETAIL

NOT TO SCALE

NOTE: DETAIL DIMENSION IS FOR DRAW THRU TYPE UNIT, FOR BLOW THRU UNITS "A" DIMENSION SHALL BE FAN
DISCHARGE PRESSURE ON INCHES +1"

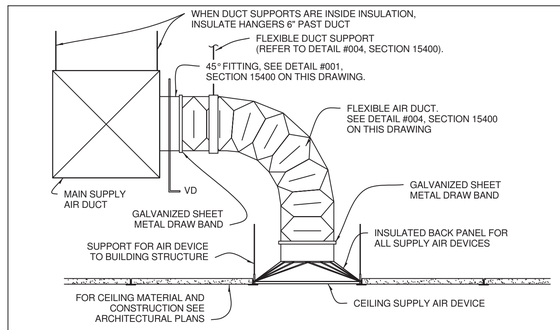


NOTE: CONDENSATE DRAIN LINE SHALL BE A MINIMUM OF ONE DIAMETER LARGER THAN UNIT DRAIN CONNECTION. 3/4" ARMAFLEX INSULATION INSIDE BUILDING.

AHU CONDENSATE DRAIN TRAP DETAIL

NOT TO SCALE

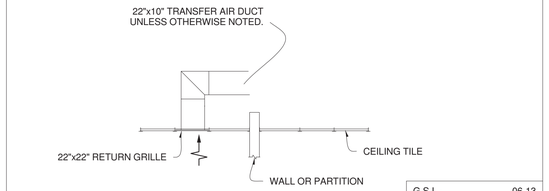
G.S.I. -	05-13
SECTION -	15223
DETAIL # -	005



SUPPLY AIR DEVICE CONNECTION DETAIL

NOT TO SCALE

G.S.I. -	06-13
SECTION -	15400
DETAIL # -	003



PLENUM RETURN SOUND BOOT DETAIL

NOT TO SCALE

G.S.I. -	06-13
SECTION -	15400
DETAIL # -	017

1 MECHANICAL DETAILS.
NOT TO SCALE

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www.fawley-bryant.com

MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

MECHANICAL DETAILS

Project No.	2013019.14
Drawn By	A.GOMEZ
Checked By	M.SEGAL
Date	09.09.2014

Revisions:

1	MANATEE COUNTY COMMENTS	09.09.14

MAKSIM A. SEGAL LICENSE No. 71454 STATE OF FLORIDA PROFESSIONAL ENGINEER

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

M10.2

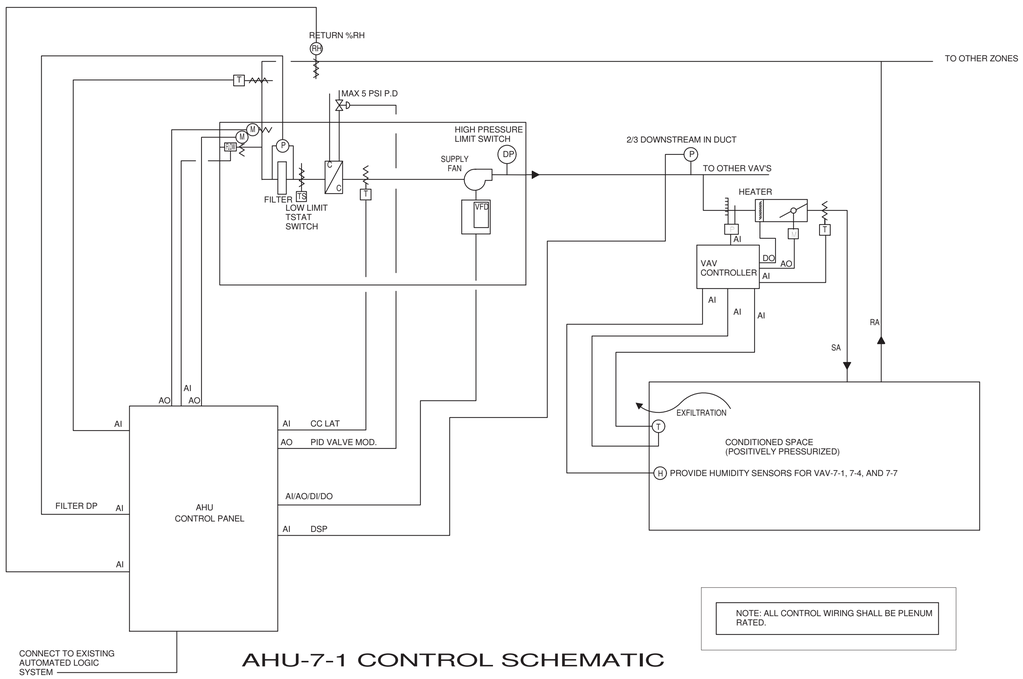
Originals printed @ 24" x 36" scale as required

Job Number: 4138.14.00

GLOBAL SANCHEZ, INC.
BUILDING SYSTEMS ENGINEERING
info@global-sanchez.com CA#: 6237

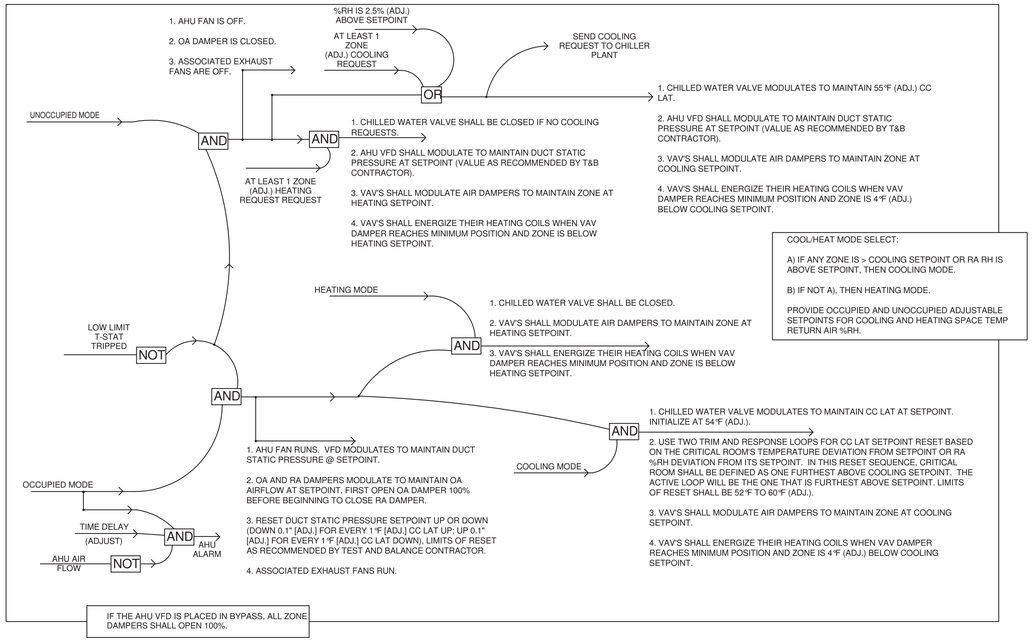
Bradenton: 816 Manatee Ave. E, Suite 18
Bradenton, FL 34208
Phone: 941-758-2551

Tampa: 3825 Henderson Blvd., Suite 103
Tampa, FL 33629
Phone: 813-281-0001



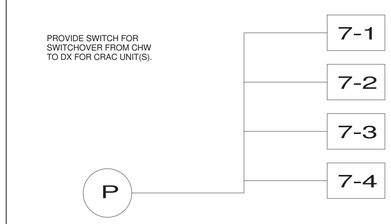
AHU-7-1 CONTROL SCHEMATIC

NOTE: ALL CONTROL WIRING SHALL BE PLENUM RATED.



AHU-7-1 LOGIC DIAGRAM

CRAC UNIT SEQUENCE OF OPS.



- UNIT INTERNAL CONTROLS CYCLE UNITS(S) AS REQUIRED TO MAINTAIN SPACE TEMPERATURE & HUMIDITY SET-POINTS.
- DX BACK UP TURNS ON IF CHW IS NOT CAPABLE OF MEETING SPACE LOAD.
- UNITS SHALL RUN DX ONCE PER WEEK TO MAINTAIN DX OPERABILITY.
- IF UNIT FAILS TO START, ALARM SHALL BE SENT TO MAIN AUTOMATED LOGIC CONTROL PANEL.

1 MECHANICAL CONTROLS
NOT TO SCALE

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1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

MECHANICAL CONTROLS

Project No.	2013019.14
Drawn By	A.GOMEZ
Checked By	M.SEGAL
Date	09.09.2014

Revisions:

MAKSIM A. SEGAL LICENSE No. 71454 STATE OF FLORIDA PROFESSIONAL ENGINEER

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

M11.1

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BUILDING SYSTEMS ENGINEERING
info@global-sanchez.com CA#: 6237
Bradenton: 816 Manatee Ave. E, Suite 18
Bradenton, FL 34208
Phone: 941-758-2551
Tampa: 3825 Henderson Blvd., Suite 103
Tampa, FL 33629
Phone: 813-281-0001

CRAC UNIT SCHEDULE OPTION 1

MARK	-	CRAC 7-1	CRAC 7-2	CRAC 7-3	CRAC 7-4
MANUFACTURER	-	LIEBERT	LIEBERT	LIEBERT	LIEBERT
MODEL	-	DS077	DS077	DS077	DS077
TOTAL COOLING CAPACITY	BTUH	274,200	274,200	274,200	274,200
SENSIBLE CAPACITY	BTUH	223,000	223,000	223,000	223,000
SUPPLY AIR QUANTITY	CFM	10,400	10,400	10,400	10,400
OUTSIDE AIR QUANTITY	CFM	0	0	0	0
FANS	-	EC-DIRECT DRIVE QUANTITY 2	EC-DIRECT DRIVE QUANTITY 2	EC-DIRECT DRIVE QUANTITY 2	EC-DIRECT DRIVE QUANTITY 2
COIL AREA & ROWS	SQ. FT./ROWS	24.7 / 3	24.7 / 3	24.7 / 3	24.7 / 3
HEAT	KW	25	25	25	25
HUMIDIFIER	LBS/HR	22	22	22	22
CHW FLOW RATE	GPM	45,2	45,2	45,2	45,2
CHW TEMPERATURES	ENT/LVG F	45/55	45/55	45/55	45/55
WATER PRESSURE DROP	FEET WG	15.4	15.4	15.4	15.4
E.S.P.	INCHES WG	0.2	0.2	0.2	0.2
ENTERING AIR TEMP. DB/WB	°F/°F	75 / 63	75 / 63	75 / 63	75 / 63
ELECTRICAL	V/PH/HZ	460/3/60	460/3/60	460/3/60	460/3/60
E.E.R.	-	11.67	11.67	11.67	11.67
FILTER	-	2" PLATED; MERV 8	2" PLATED; MERV 8	2" PLATED; MERV 8	2" PLATED; MERV 8
WEIGHT	LBS	2450	2450	2450	2450
MINIMUM CIRCUIT AMPACITY	AMPS	74.8	74.8	74.8	74.8
MAX OVERCURRENT PROTECTION	AMPS	80.0	80.0	80.0	80.0
CONDENSER					
MARK	-	CU-7-1	CU-7-2	CU-7-3	CU-7-4
MANUFACTURER	-	LIEBERT	LIEBERT	LIEBERT	LIEBERT
MODEL	-	TCDV308	TCDV308	TCDV308	TCDV308
OUTDOOR TEMPERATURE	°F	95	95	95	95
ELECTRICAL CHARACTERISTICS	V/PH/HZ	460/3/60	460/3/60	460/3/60	460/3/60
MINIMUM CIRCUIT AMPACITY	AMPS	5.7	5.7	5.7	5.7
MAX OVERCURRENT PROTECTION	AMPS	15	15	15	15
WEIGHT	LBS	670	670	670	670
NOTES:	-	(1)	(1)	(1)	(1)

(1) PROVIDE WITH:

A. ECONOCOIL OPERATION - CHW PRIMARY COOLING WITH DX BACKUP.
B. R407C REFRIGERANT.
C. 4 STEP SEMI HERMETIC COMPRESSORS.
D. PROVIDE VARIABLE FREQUENCY CONDENSERS.
E. EC PLUG FANS-UNDERFLOOR PLACEMENT.
F. 24" FLOORSTAND & 36" RETURN DUCT COLLAR.
G. NON-LOCKING DISCONNECT SWITCH.
H. MERV8 FILTER PACKAGE-EXTRA SET OF FILTERS/UNIT.
I. CONDENSATE PUMP, SMOKE DETECTOR, FIRESTAT.
J. SMARTAISLE CONTROL-3 RACK SENSORS/UNIT.
K. NETWORK INTERFACE CARD.
L. START UP, NETWORK CARD CONFIGURATION, SMARTAISLE SETUP BY THE FACTORY REP.

(2) PROVIDE WITH:

A. ECONOCOIL OPERATION-CW PRIMARY COOLING-DX BACKUP.
B. R407C REFRIGERANT.
C. DIGITAL SCROLL COMPRESSORS.
D. VARIABLE FREQUENCY CONDENSERS.
E. EC PLUG FANS-UNDERFLOOR PLACEMENT.
F. 24" FLOOR STAND & 36" RETURN DUCT COLLAR.
G. NON-LOCKING DISCONNECT SWITCH.
H. MERV8 FILTER PACKAGE-EXTRA SET OF FILTERS/UNIT.
I. CONDENSATE PUMP, SMOKE DETECTOR, FIRESTAT.
J. SMARTAISLE CONTROL-3 RACK SENSORS/UNIT.
K. NETWORK INTERFACE CARD.
L. START UP, NETWORK CARD CONFIGURATION, SMARTAISLE SETUP BY FACTORY REP.

NOTE:
PROVIDE PIPING FOR OPTION 1 CRAC UNIT, AND PROVIDE PIPING FOR CRAC UNIT OPTION 2.

CRAC UNIT SCHEDULE OPTION 2

MARK	-	CRAC 7-1	CRAC 7-2	CRAC 7-3	CRAC 7-4
MANUFACTURER	-	LIEBERT	LIEBERT	LIEBERT	LIEBERT
MODEL	-	DS070	DS070	DS070	DS070
TOTAL COOLING CAPACITY	BTUH	237,200	237,200	237,200	237,200
SENSIBLE CAPACITY	BTUH	190,000	190,000	190,000	190,000
SUPPLY AIR QUANTITY	CFM	9,600	9,600	9,600	9,600
OUTSIDE AIR QUANTITY	CFM	0	0	0	0
FANS	-	EC-DIRECT DRIVE QUANTITY 2	EC-DIRECT DRIVE QUANTITY 2	EC-DIRECT DRIVE QUANTITY 2	EC-DIRECT DRIVE QUANTITY 2
COIL AREA & ROWS	SQ. FT./ROWS	24.7 / 3	24.7 / 3	24.7 / 3	24.7 / 3
HEAT	KW	25	25	25	25
HUMIDIFIER	LBS/HR	22	22	22	22
CHW FLOW RATE	GPM	42,0	42,0	42,0	42,0
CHW TEMPERATURES	ENT/LVG F	45/55	45/55	45/55	45/55
WATER PRESSURE DROP	FEET WG	13.5	13.5	13.5	13.5
E.S.P.	INCHES WG	0.2	0.2	0.2	0.2
ENTERING AIR TEMP. DB/WB	°F/°F	75 / 63	75 / 63	75 / 63	75 / 63
ELECTRICAL	V/PH/HZ	460/3/60	460/3/60	460/3/60	460/3/60
E.E.R.	-	9.0	9.0	9.0	9.0
FILTER	-	2" PLATED; MERV 8	2" PLATED; MERV 8	2" PLATED; MERV 8	2" PLATED; MERV 8
WEIGHT	LBS	1970	1970	1970	1970
MINIMUM CIRCUIT AMPACITY	AMPS	72.9	72.9	72.9	72.9
MAX OVERCURRENT PROTECTION	AMPS	80.0	80.0	80.0	80.0
CONDENSER					
MARK	-	CU-7-1	CU-7-2	CU-7-3	CU-7-4
MANUFACTURER	-	LIEBERT	LIEBERT	LIEBERT	LIEBERT
MODEL	-	TCDV308	TCDV308	TCDV308	TCDV308
OUTDOOR TEMPERATURE	°F	95	95	95	95
ELECTRICAL CHARACTERISTICS	V/PH/HZ	460/3/60	460/3/60	460/3/60	460/3/60
MINIMUM CIRCUIT AMPACITY	AMPS	5.7	5.7	5.7	5.7
MAX OVERCURRENT PROTECTION	AMPS	15	15	15	15
WEIGHT	LBS	670	670	670	670
NOTES:	-	(2)	(2)	(2)	(2)

(1) PROVIDE WITH:

A. ECONOCOIL OPERATION - CHW PRIMARY COOLING WITH DX BACKUP.
B. R407C REFRIGERANT.
C. 4 STEP SEMI HERMETIC COMPRESSORS.
D. PROVIDE VARIABLE FREQUENCY CONDENSERS.
E. EC PLUG FANS-UNDERFLOOR PLACEMENT.
F. 24" FLOORSTAND & 36" RETURN DUCT COLLAR.
G. NON-LOCKING DISCONNECT SWITCH.
H. MERV8 FILTER PACKAGE-EXTRA SET OF FILTERS/UNIT.
I. CONDENSATE PUMP, SMOKE DETECTOR, FIRESTAT.
J. SMARTAISLE CONTROL-3 RACK SENSORS/UNIT.
K. NETWORK INTERFACE CARD.
L. START UP, NETWORK CARD CONFIGURATION, SMARTAISLE SETUP BY THE FACTORY REP.

(2) PROVIDE WITH:

A. ECONOCOIL OPERATION-CW PRIMARY COOLING-DX BACKUP.
B. R407C REFRIGERANT.
C. DIGITAL SCROLL COMPRESSORS.
D. VARIABLE FREQUENCY CONDENSERS.
E. EC PLUG FANS-UNDERFLOOR PLACEMENT.
F. 24" FLOOR STAND & 36" RETURN DUCT COLLAR.
G. NON-LOCKING DISCONNECT SWITCH.
H. MERV8 FILTER PACKAGE-EXTRA SET OF FILTERS/UNIT.
I. CONDENSATE PUMP, SMOKE DETECTOR, FIRESTAT.
J. SMARTAISLE CONTROL-3 RACK SENSORS/UNIT.
K. NETWORK INTERFACE CARD.
L. START UP, NETWORK CARD CONFIGURATION, SMARTAISLE SETUP BY FACTORY REP.

AIR DISTRIBUTION SCHEDULE

MARK	FACE SIZE	NECK SIZE	MATERIAL	ACCESSORIES	FINISH	MANUFACTURER AND MODEL	NOTES
SD-1	24X24	6"	ALUMINUM	-	-	TITUS-TMS-AA	(1)(2)
SD-2	24X24	8"	ALUMINUM	-	-	TITUS-TMS-AA	(1)(2)
SD-3	24X24	10"	ALUMINUM	-	-	TITUS-TMS-AA	(1)(2)
SD-4	24X24	12"	ALUMINUM	-	-	TITUS-TMS-AA	(1)(2)
SD-5	24X24	14"	ALUMINUM	-	-	TITUS-TMS-AA	(1)(2)
SD-S1	12X12	6"	ALUMINUM	-	-	TITUS-TMS-AA	(1)(2)
RG-S1	12X12	10X10	ALUMINUM	-	-	TITUS-50F	(1)(2)
EG-1	24X24	22X22	ALUMINUM	-	-	TITUS-50F	(1)(2)
SR-1	6X6	6"	ALUMINUM	-	-	TITUS-300RS	(1)(2)
SR-2	8X8	8"	ALUMINUM	-	-	TITUS-300RS	(1)(2)
SR-3	12X10	10"	ALUMINUM	-	-	TITUS-300RS	(2)
RG-1	24X24	22X22	ALUMINUM	-	-	TITUS-50F	(2)
TG-1	24X24	22X22	ALUMINUM	-	-	TITUS-50F	(2)
RG-D1	24X24	24X24	ALUMINUM	-	-	TITUS-50F	(2)
SD-D1	24X24	22X22	ALUMINUM	-	-	TATE GRATE AIR	(3)

(1) FLEX DUCT SIZE TO MATCH NECK SIZE. MINIMUM LENGTH OF FLEX SHALL BE 6'-0" TO MAXIMUM LENGTH OF 10'-0", BALANCE OF DUCT SHOWN ON PLAN SHALL BE RIGID STEEL DUCT SAME SIZE AS NECK SIZE, EXTERNALLY INSULATED.

(2) PROVIDE RUNOUT BRANCH DUCT TO AIR DEVICE SAME SIZE AS AIR DEVICE NECK UNLESS OTHERWISE NOTED ON PLANS. PROVIDE O.B.D. MODEL # AG-15-AA FOR AIR DEVICES IN HARD CEILING.

(3) 56% OPEN AREA, 0.05" PD @ 1500 CFM.

VAV AIR HANDLING UNIT SCHEDULE

MARK	-	AHU-7-1
MANUFACTURER	-	JCI
MODEL NUMBER	-	XTI-66X54
SUPPLY AIR QUANTITY	CFM	7200
OUTSIDE AIR QUANTITY	CFM	1500
FAN WHEEL TYPE/SIZE	-	EPLFN 200 SWSI
FAN SPEED	RPM	2141
MAXIMUM OUTLET VELOCITY	FPM	3000
STATIC PRESS. DROP EXT./TOTAL	IN. H2O/IN. H2O	2.5/4.03
MOTOR SIZE	HP/BHP	7.5/6.8
ELECTRICAL CHARACTERISTICS	V/PH/HZ	480/3/60
FILTER EFFICIENCY	MERV	8
COOLING COIL		
TOTAL COOLING CAPACITY	MBH	231,000
SENSIBLE COOLING CAPACITY	MBH	175,200
COOLING COIL MAX. FACE VELOCITY	FPM	500
ENTERING AIR TEMP. DB./WB.	°F/°F	77/65
LEAVING AIR TEMP. DB./WB.	°F/°F	52.6/51.6
COOLING COIL MAX. AIR PRESS. DROP	INCHES W.G.	0.5
COOLING COIL EWT/LWT	°F/°F	45/55
COOLING COIL WATER FLOWRATE	GPM	38.3
COOLING COIL MAX. H2O PRESS. DROP	FT. H2O	7.3
SOUND PRESSURE (AT DISCHARGE AT 250 HZ OCTAVE BAND)	DB	89
DIMENSIONS	LXWXH	127X54X66
WEIGHT	LBS	2725
NOTES	-	(1)(2)(3)(4)(5)

NOTES

(1) PROVIDE MOTORIZED DAMPERS FOR RETURN AIR AND OUTDOOR AIR DUCT CONNECTIONS. PROVIDE INTEGRAL AIR MONITOR AT INLET OF OUTDOOR AIR DUCT. RETURN AIR AND OUTDOOR AIR DAMPERS SHALL BE PROVIDED AS AN INTEGRAL PART OF THE AHU MANUFACTURER'S FILTER/MIXING BOX. MANUFACTURER TO MODIFY TRAQ DAMPER TO ACCOMMODATE ACTUAL OUTDOOR AIR FLOWRATE AS REQUIRED BY SCHEDULE AND CONTROLS.

(2) PROVIDE DIRECT DRIVE PLENUM FAN WITH FACTORY MOUNTED VFD DRIVE, WITH VFD COMPATIBLE MOTOR, INVERTER DUTY RATED AND LABELED.

(3) PROVIDE WITH STAINLESS STEEL COIL CASING, STATION STEEL DRAIN PAN, R-13 DOUBLE WALL CONTRUCTION W/ THERMAL BRAKES.

(4) PROVIDE WITH 3" BASE RAIL.

(5) REFER TO MECHANICAL DETAILS FOR UNIT CONFIGURATION.

VAV SCHEDULE

MARK	MANUFACTURER & MODEL	AIR QUANTITY				MAXIMUM PRESSURE DROP (INCHES H20)	MAXIMUM N.C. LEVEL	ELEC. HEATING CAPACITY (KW)	NUMBER OF HEATING STAGES	ELECTRICAL CHARACTERISTICS V/PH/HZ
		COOLING MODE		HEATING MODE						
		MAX.	MIN.	MAX.	MIN.					
VAV-7-1	JCI TSS-EH-10	1070	375	375	375	.05	25	3	1	277/1/60
VAV-7-2	JCI TSS-EH-10	1000	350	350	350	.05	25	3	1	277/1/60
VAV-7-3	JCI TSS-EH-10	1040	365	365	365	.05	25	3	1	277/1/60
VAV-7-4	JCI TSS-EH-10	1000	350	350	350	.05	25	3	1	277/1/60
VAV-7-5	JCI TSS-EH-10	1085	380	380	380	.05	25	3	1	277/1/60
VAV-7-6	JCI TSS-EH-10	965	340	340	340	.05	25	3	1	277/1/60
VAV-7-7	JCI TSS-EH-8	565	200	200	200	.05	25	2	1	277/1/60
VAV-7-8	JCI TSS-EH-8	430	150	150	150	.05	25	2	1	277/1/60

NOTES:

1. EACH VAV BOX WITH ELECTRIC HEAT SHALL BE PROVIDED WITH SCR CONTACTOR.
2. EACH VAV BOX WITH ELECTRIC HEAT SHALL BE PROVIDED WITH DOOR INTERLOCKED FUSED DISCONNECT.

VAV BRANCH DUCT SIZES

BOX SIZE	IF EXCEEDING 10' (1)	INLET SIZE	OUTLET SIZE
4	6"DIA.	4"DIA.	10X8
5	8"DIA.	5"DIA.	10X8
6	8"DIA.	6"DIA.	10X8
8	10"DIA.	8"DIA.	12X10
10	12"DIA.	10"DIA.	14X12
12	16X12	12"DIA.	18X14
14	20X14	14"DIA.	20X18
16	22X16	16"DIA.	24X18

VAV NOTES:
1) TRANSITION TO INLET/OUTLET OF VAV BOX AS REQUIRED.

KEYED NOTES:

(1) BRANCH DUCT RUNS EXCEEDING 10' TO THE INLET OF THE VAV SHALL BE THE SIZE LISTED.
REDUCE DUCT TO INLET SIZE OF VAV 4 DUCT DIAMETERS PRIOR TO INLET.

(1) MECHANICAL SCHEDULES
NOT TO SCALE

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1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

MECHANICAL SCHEDULES

Project No.	2013019.14
Drawn By	A.GOMEZ
Checked By	M.SEGAL
Date	09.09.2014

Revisions:

MAKSIM A. SEGAL LICENSE No. 71454 STATE OF FLORIDA PROFESSIONAL ENGINEER

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

M12.1

Originals printed @ 24" x 36" scale as required

Job Number: 4138.14.00

GLOBAL SANCHEZ, INC.
BUILDING SYSTEMS ENGINEERING
info@global-sanchez.com CA#: 6237

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Bradenton, FL 34208
Phone: 941-758-2551

Tampa: 3825 Henderson Blvd., Suite 103
Tampa, FL 33629
Phone: 813-281-0001

Project Name: MC Data Center
Prepared by: Global -Sanchez, Inc.

Ventilation Sizing Summary for New AHU 7-1

Zone Name / Space Name	Mult.	Minimum Supply Air (CFM)	Floor Area (ft^2)	Required Outdoor Air (CFM/ft^2)	Time Averaged Occupancy	Required Outdoor Air (CFM/person)	Air Distribution Effectiveness	Required Outdoor Air (CFM)	Uncorrected Outdoor Air (CFM)	Space Ventilation Efficiency
Zone 1										
STORAGE 7- 108	1	17	224.0	0.06	0.0	0.00	0.80	**17**	*13*	0.800
STORAGE 7- 109	1	41	550.0	0.06	0.0	0.00	0.80	**41**	*33*	0.800
LAB AREA 7-107	1	29	223.0	0.06	2.0	5.00	0.80	**29**	*23*	0.800
Zone 2										
POD1 107-1	1	98	645.0	0.06	8.0	5.00	0.80	**98**	*79*	0.800
Zone 3										
CUSTOMER SERVICE 7-106	1	104	640.0	0.06	9.0	5.00	0.80	**104**	*83*	0.800
Zone 4										
POD2 7-102	1	98	638.0	0.06	8.0	5.00	0.80	**98**	*78*	0.800
Zone 5										
FLEX SPACE	1	109	455.0	0.06	12.0	5.00	0.80	**109**	*87*	0.800
Zone 6										
POD3 7-103	1	80	654.0	0.06	5.0	5.00	0.80	**80**	*64*	0.800
Zone 7										
POD5 7-105a	1	84	700.0	0.06	5.0	5.00	0.80	**84**	*67*	0.800
Zone 8										
POD5 7-105b	1	60	550.0	0.06	3.0	5.00	0.80	**60**	*48*	0.800
Totals (incl. Space Multipliers)		**721**							**577**	**0.800**

1 AHU 7-1 VENTILATION SCHEDULE
NOT TO SCALE

FAWLEY|BRYANT
ARCHITECTURE•INTERIORS•PLANNING
FAWLEY BRYANT ARCHITECTS, INC.
5391 LAKEWOOD RANCH BLVD. NORTH, SUITE 300
SARASOTA, FL 34240
PH. 941.343.4070 FX. 941. 749.5747
www.fawley-bryant.com

MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

MECHANICAL VENTILATION SCHEDULE

Project No.	2013019.14
Drawn By	A.GOMEZ
Checked By	M.SEGAL
Date	09.09.2014

Revisions:

MAKSIM A. SEGAL LICENSE No. 71454 STATE OF FLORIDA PROFESSIONAL ENGINEER

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

M12.2

Job Number: 4138.14.00
GLOBAL SANCHEZ, INC.
BUILDING SYSTEMS ENGINEERING
info@global-sanchez.com CA#: 6237
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Tampa: 3825 Henderson Blvd., Suite 103
Tampa, FL 33629
Phone: 813-281-0001

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMPS QTY	LAMPS TYPE	VOLTS	MOUNTING	COMMENTS
A2	LITHONIA	2SP-G-A-232-A12125-120-GEB10IS	2	28W T8	120V	GRID CEILING	2' X 4', 2-LAMP LENSED TROFFER. SPECIFICATION PREMIUM GRADE, HIGH PERFORMANCE, AIR-HANDLING. #12 PATTERN ACRYLIC, 0.125" THICK, DIFFUSER LENS.
	APPROVED EQUAL FROM TAMPA BAY LIGHTING						
	APPROVED EQUAL FROM SESCO LIGHTING						
	APPROVED EQUAL FROM WESTERN FLORIDA LIGHTING						
EL	LITHONIA	EU2-M6	2	1 / 5.4W	120/ 277V	WALL MOUNT	EMERGENCY EGRESS LIGHT. WHITE, LOW-PROFILE HOUSING. SEALED, MAINTENANCE-FREE, LEAD CALCIUM BATTERY.
	APPROVED EQUAL FROM TAMPA BAY LIGHTING						
	APPROVED EQUAL FROM SESCO LIGHTING						
	APPROVED EQUAL FROM WESTERN FLORIDA LIGHTING						
EX	LITHONIA	EXG-EL-M6	LED	3.8W	120/ 277V	CEILING OR WALL MOUNT	EXIT SIGN. WHITE THERMOPLASTIC HOUSING WITH GREEN LETTERS. MAINTENANCE-FREE NI-CAD BATTERY.
	APPROVED EQUAL FROM TAMPA BAY LIGHTING						
	APPROVED EQUAL FROM SESCO LIGHTING						
	APPROVED EQUAL FROM WESTERN FLORIDA LIGHTING						
EXL	LITHONIA	ECG-M6	2	5.4W	120/ 277V	WALL MOUNT	COMBINATION EXIT SIGN AND EMERGENCY EGRESS LIGHT. WHITE THERMOPLASTIC HOUSING WITH GREEN LETTERS. MAINTENANCE-FREE BATTERY.
	APPROVED EQUAL FROM TAMPA BAY LIGHTING						
	APPROVED EQUAL FROM SESCO LIGHTING						
	APPROVED EQUAL FROM WESTERN FLORIDA LIGHTING						

DISCONNECT SCHEDULE

D/C #	SIZE	POLES	PHASE	NEMA	FUSE	VOLT.	SERVES	COMMENTS
D1	30A	3	3	1	NON-F	480	AHU-7-1	MOUNT ON WALL
D2A	100A	3	3	1	NON-F	480	CRAC-7-1	MOUNT ON UNIT
D2B	30	3	3	3R	NON-F	480	CU-7-1	MOUNT ON UNIT
D3A	100A	3	3	1	NON-F	480	CRAC-7-2	MOUNT ON UNIT
D3B	30	3	3	3R	NON-F	480	CU-7-2	MOUNT ON UNIT
D4A	100A	3	3	1	NON-F	480	CRAC-7-3	MOUNT ON UNIT
D4B	30	3	3	3R	NON-F	480	CU-7-3	MOUNT ON UNIT
D5A	100A	3	3	1	NON-F	480	CRAC-7-4	(FUTURE) MOUNT ON UNIT
D5B	30	3	3	3R	NON-F	480	CU-7-4	(FUTURE) MOUNT ON UNIT
D6	30	1	1	1	NON-F	277	VAV-7-1	MOUNT ON UNIT
D7	30	1	1	1	NON-F	277	VAV-7-2	MOUNT ON UNIT
D8	30	1	1	1	NON-F	277	VAV-7-3	MOUNT ON UNIT
D9	30	1	1	1	NON-F	277	VAV-7-4	MOUNT ON UNIT
D10	30	1	1	1	NON-F	277	VAV-7-5	MOUNT ON UNIT
D11	30	1	1	1	NON-F	277	VAV-7-6	MOUNT ON UNIT
D12	30	1	1	1	NON-F	277	VAV-7-7	MOUNT ON UNIT
D13	30	1	1	1	NON-F	277	VAV-7-8	MOUNT ON UNIT
D14	200	3	3	1	FUSED AT 200A	480	PDUB	MOUNT ON WALL

NOTES:

1. VERIFY FUSE SIZES FOR ACTUAL EQUIPMENT SUBMITTED.
2. FUSES SHALL BE DUAL ELEMENT, TIME DELAY, 100,000 AIC MININUM.
3. FINAL CONNECTIONS TO MECHANICAL EQUIPMENT FROM DISCONNECT SHALL BE FLEX. FLEX SHALL BE WATERTIGHT AT EXTERIOR OR WET LOCATIONS.
4. PROVIDE ADDITIONAL POLE TO DISCONNECT NEUTRAL WHERE REQUIRED.

ELECTRICAL SHEET INDEX

ELECTRICAL SYMBOL LEGEND

SWITCHES

- $ — SENSOR SWITCH WSX-PDT DUAL TECHNOLOGY OCCUPANCY SENSOR. RECESS MOUNT 48"AFF TO CENTER OF BACKBOX. "3" OR "4" INDICATES SWITCH IS USED FOR 3-WAY OR 4-WAY OPERATION, FOLLOW MANUFACTURER'S WIRING DIAGRAM FOR CONNECTION OF SWITCHES.
- "2P" INDICATES A 2-POLE SWITCH
- "3" INDICATES THREE-WAY SWITCH
- "4" INDICATES FOUR-WAY SWITCH
- "30A" INDICATES THE AMPERAGE OF THE SWITCH FOR NON-STANDARD SWITCHES
- "D" INDICATE DIMMER SWITCH
- "K" INDICATES KEY SWITCH. PROVIDE OWNER WITH (2) KEYS PER SWITCH. MATCH ANY EXISTING KEYED SWITCHES IF RENOVATION. VERIFY KEY TYPE (MANUFACTURER) WITH OWNER
- $M — "M" INDICATES THE SWITCH SHALL BE MOTOR DUTY RATED
- "MMS" INDICATES MANUAL MOTOR STARTER WITH SINGLE POLE, GUARD/LOCK- OFF, RED PILOT LIGHT AND THERMAL OVERLOAD IN NEMA-1 ENCLOSURE
- $S — "S" INDICATES OCCUPANCY SENSOR SWITCH
- "P" INDICATES SWITCH WITH PILOT LIGHT.
- "R" INDICATES DEVICE SHALL BE A RED COLOR. DEVICE IS CONNECTED TO A CIRCUIT FED FROM A GENERATOR (IF APPLICABLE).
- LOWER CASE LETTER (i.e. "a") INDICATES THE FIXTURE(S) CONTROLLED BY THE SWITCH.

LIGHTING FIXTURES (REFER TO THE "LIGHTING FIXTURE SCHEDULE")

- A3 b — NOTE: THE FOLLOWING ABBREVIATIONS APPLY TO LIGHTING FIXTURES WHERE INDICATED: UPPER CASE LETTER (i.e. 'A') INDICATES FIXTURE TYPE. LOWER CASE LETTER (i.e. 'b') INDICATES CONNECTION TO INDICATED SWITCH.
- NL — NOTE: THE FOLLOWING ABBREVIATIONS APPLY TO LIGHTING FIXTURES WHERE INDICATED: "NL" INDICATES NIGHT LIGHT FIXTURE
- EXIT SIGN WITH BATTERY PACK MOUNTED 7'-6" AFF, OR AS INDICATED. FACES AND ARROWS AS INDICATED. CONNECT FIXTURE TO LIGHTING CIRCUIT SERVING THE AREA, AHEAD OF ANY SWITCHING OR CONTROLS.
- EMERGENCY EGRESS LIGHTING UNIT WITH BATTERY PACK MOUNTED 7'-6" AFF OR AS INDICATED. CONNECT FIXTURE TO LIGHTING CIRCUIT SERVING THE AREA, AHEAD OF ANY SWITCHING OR CONTROLS.
- EXIT SIGN AND EMERGENCY EGRESS LIGHTING COMBO UNIT WITH BATTERY PACK MOUNTED 7'-6" AFF. CONNECT FIXTURE TO LIGHTING CIRCUIT SERVING THE AREA, AHEAD OF ANY SWITCHING OR CONTROLS.
- PASSIVE INFRARED (PIR) OCCUPANCY SENSOR. 360°. 450 SQ. FT. COVERAGE. LEVITON #OSC04-INW. CONNECT TO LOCAL POWER PACK.
- MULTI-TECHNLOGY (PIR & ULTRASONIC) OCCUPANCY SENSOR. 360°. 1000 SQ. FT. COVERAGE. SENSOR SWITCH CM-PDT-10. CONNECT TO LOCAL POWER PACK.
- PP — OCCUPANCY SENSOR POWER PACK. 20A @120/277VAC. PROVIDE QUANTITY AS NEEDED. SENSOR SWITCH PP-20-2P. CONNECT TO LOCAL OCCUPANCY SENSORS.

COMMUNICATIONS

- 1-GANG DEEP BOX FOR TELEPHONE OUTLET, RECESS MOUNT 18" TO CENTER OF BACKBOX AFF, ABOVE COUNTER OR AS NOTED. INSTALL 3/4" CONDUIT WITH BUSHINGS AND PULL STRING STUBBED INTO ACCESSIBLE CEILING SPACE ABOVE BACKBOX. INSTALL BLANK COVERPLATE. NUMBER OF PHONE JACKS AS INDICATED OR INSTALL BLANK COVERPLATE. 'W' INDICATES PHONE WILL BE WALL MOUNTED, MOUNT AT 48" AFF TO CENTER OF BACKBOX AND INSTALL WALL PHONE PLATE.
- TV — (2) GANG DEEP BOX WITH DECORA STYLE DUPLEX RECEPTACLE AND TELEVISION OUTLET. COORDINATE MOUNTING HEIGHT AND LOCATION. INSTALL 3/4" CONDUIT FOR LOW VOLTAGE WIRING WITH BUSHINGS AND PULL STRING STUBBED INTO ACCESSIBLE CEILING SPACE ABOVE BACKBOX. INSTALL DECORA COVERPLATE.
- 1-GANG DEEP BOX FOR TELEPHONE / DATA OUTLET, RECESS MOUNT 18" TO CENTER OF BACKBOX AFF, ABOVE COUNTER OR AS NOTED. INSTALL 3/4" CONDUIT WITH BUSHINGS AND PULL STRING STUBBED INTO ACCESSIBLE CEILING SPACE ABOVE BACKBOX. INSTALL BLANK COVERPLATE.
- CABINET. SEE PLANS AND SPECIFICATIONS FOR USAGE AND REQUIREMENTS.

MISCELLANEOUS

- KEYED NOTE INDICATOR. REFER TO THE "KEY NOTES" WHERE INDICATED.
- EXHAUST FAN.
  - 'R' SYMBOL INDICATES TO PROVIDE AND INSTALL 10 MINUTE TIME DELAY OFF RELAY. EXHAUST FAN SHALL OPERATE FOR 10 MINUTES AFTER LIGHTING SWITCH IS TURNED OFF. CONNECT HOT LEAD FROM AHEAD OF SWITCH TO RELAY FOR DELAYED OPERATION AND SWITCH LEG TO RELAY FOR NORMAL OPERATION.
  - 'T' SYMBOL INDICATES TO PROVIDE AND INSTALL 277V-120V TRANSFORMER. WATTAGE OF TRANSFORMER VA SHALL BE A MINIMUM 20% GREATER THAN EXHAUST FAN POWER REQUIREMENTS, COORDINATE WITH MECHANICAL CONTRACTOR.
- MD — MOTORIZED DAMPER. PROVIDE POWER AND MAKE CONNECTIONS AS INDICATED. COORDINATE WITH MECHANICAL CONTRACTOR.
- SP — CEILING MOUNTED SPEAKER LOCATIONS ON A/V SYSTEM

ABBREVIATIONS

A	AMPERE	NF	NON-FUSED
AFF	HEIGHT ABOVE FINISHED FLOOR	P	POLE
AFG	HEIGHT ABOVE FINISHED GRADE	PH	PHASE
ETR	EXISTING TO REMAIN	REL	RELOCATED
GFI	GROUND FAULT CIRCUIT INTERRUPTING TYPE WIRING DEVICE OR CIRCUIT BREAKER	REM	TO BE REMOVED
		REP	REPLACE WITH NEW
KW	KILOWATT	TBR	TO BE RELOCATED
LTG	LIGHTING	U.N.O.	UNLESS NOTED OTHERWISE
MTR	MOTOR	VA	VOLT AMPERE (POWER)
N.I.C.	NOT IN CONTRACT	WP	WEATHERPROOF ENCLOSURE
		XFMR	TRANSFORMER
		+48"	DEVICE MOUNTED AT HEIGHT INDICATED

WIRING DEVICES

NOTE: THE FOLLOWING ABBREVIATIONS APPLY TO WIRING DEVICES WHERE INDICATED:

- 'WP' INDICATES WEATHERPROOF WHILE-IN-USE ENCLOSURE. ENCLOSURE SHALL HAVE LOCKABLE COVER.
- 'EWC' INDICATES DEVICE MOUNTED BEHIND ELECTRIC WATER COOLER ENCLOSURE. COORDINATE DEVICE LOCATION WITH PLUMBING CONTRACTOR AND APPROVED SHOP DRAWINGS PRIOR TO ROUGH-IN.
- 'H' INDICATES HORIZONTALLY MOUNTED WIRING DEVICE.
- 'R' INDICATES DEVICE SHALL BE A RED COLOR. DEVICE IS CONNECTED TO A CIRCUIT FED FROM THE GENERATOR (IF APPLICABLE).
- "FD" INDICATES RECEPTACLE MOUNTED IN FLOOR DUCT. INSTALL ACCESSORIES FOR MOUNTING OF RECEPTACLE IN FLOOR DUCT SYSTEM.

- 20 AMP SIMPLEX RECEPTACLE, RECESS MOUNT 18" AFF TO CENTER OF BACKBOX OR AT HEIGHT INDICATED.
- 20 AMP DUPLEX RECEPTACLE, RECESS MOUNT 18" AFF TO CENTER OF BACKBOX.
- 20 AMP DUPLEX RECEPTACLE, RECESS MOUNT AT HEIGHT INDICATED OR ABOVE COUNTER, CASEWORK, ETC. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND EXISTING CONDITIONS PRIOR TO ROUGH-IN.
- AFCI — 20 AMP DUPLEX RECEPTACLE WITH ARC FAULT CIRCUIT INTERRUPTER (AFCI) PROTECTION, RECESS MOUNT AT HEIGHT INDICATED OR ABOVE COUNTER, CASEWORK, ETC. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND EXISTING CONDITIONS PRIOR TO ROUGH-IN.
- AFCI — 20 AMP DUPLEX RECEPTACLE WITH ARC FAULT CIRCUIT INTERRUPTER (AFCI) PROTECTION, RECESS MOUNT 18" AFF TO CENTER OF BACKBOX. 1 OF 2 RECEPTACLES IS SWITCHED, REMOVE JUMPER BETWEEN OUTLETS.
- AFCI — 20 AMP DUPLEX RECEPTACLE WITH ARC FAULT CIRCUIT INTERRUPTER (AFCI) PROTECTION, RECESS MOUNT 18" AFF TO CENTER OF BACKBOX.
- X4 — 20 AMP DOUBLE DUPLEX (QUAD) RECEPTACLE WITH COMMON COVER PLATE, RECESS MOUNT 18" AFF TO CENTER OF BACKBOX.
- X4 — 20 AMP DOUBLE DUPLEX (QUAD) RECEPTACLE WITH COMMON COVER PLATE, RECESS MOUNT ABOVE COUNTER, CASEWORK, ETC OR AT HEIGHT INDICATED. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND CONDITIONS PRIOR TO ROUGH-IN.
- 20 AMP DUPLEX RECEPTACLE, RECESS MOUNT 18" AFF TO CENTER OF BACKBOX. 1 OF 2 RECEPTACLES IS SWITCHED, REMOVE JUMPER BETWEEN OUTLETS.
- FCS — 20 AMP DUPLEX RECEPTACLE. RECESS FLUSH WITH FLOOR IN SINGLE GANG FLOOR BOX. COVER SHALL BE BRASS WITH HINGED LID FOR EACH OUTLET OF RECEPTACLE.
- FCD — 20 AMP DOUBLE DUPLEX (QUAD) RECEPTACLE. RECESS FLUSH WITH FLOOR IN DOUBLE GANG FLOOR BOX. COVER SHALL BE BRASS WITH HINGED LID FOR EACH OUTLET OF RECEPTACLES.
- GFI — 20 AMP GFCI TYPE DUPLEX RECEPTACLE, RECESS MOUNT 18" AFF TO CENTER OF BACKBOX.
- MULTI-POLE RECEPTACLE FOR APPLIANCE MOUNTED AS INDICATE. COORDINATE AMPERAGE RATING, POLES, NEMA CONFIGURATION, ETC. WITH EQUIPMENT TO BE CONNECTED.
- MULTI-POLE SPECIALTY RECEPTACLE MOUNTED AS INDICATED. COORDINATE AMPERAGE RATING, POLES, NEMA CONFIGURATION, ETC. WITH EQUIPMENT TO BE CONNECTED.
- 20 AMP DUPLEX RECEPTACLE, RECESS MOUNT HORIZONTALLY AT HEIGHT INDICATED.
- 20 AMP DUPLEX RECEPTACLE MOUNTED 18" AFF, ABOVE COUNTER, OR AT HEIGHT INDICATED (INDICATES RECEPTACLE COORDINATED WITH DATA OUTLET FOR COMPUTER USE).
- 20 AMP DOUBLE DUPLEX (QUAD) RECEPTACLE MOUNTED 18" AFF, ABOVE COUNTER, OR AT HEIGHT INDICATED (INDICATES RECEPTACLE COORDINATED WITH DATA OUTLET FOR COMPUTER USE).
- POWER POLE. 2-SECTION (POWER AND COMMUNICATIONS), 2" SQUARE METALLIC, BRUSHED ALUMINUM FINISH. DEVICES MOUNTED AT POLE AS SHOWN. POLE SHALL EXTEND FROM FLOOR TO CEILING, SECURE TO CEILING.
- 20 AMP DUPLEX RECEPTACLE, FLUSH MOUNT AT CEILING. SUPPORT BACKBOX FROM STRUCTURE, NOT GRID.
- 2-SECTION FLOOR BOX WITH DUPLEX RECEPTACLE AND DATA SECTION. FLOOR BOX SHALL BE FLUSH WITH FLOOR WITH CARPET/TILE PLATE AND TRAP DOOR FOR WIRING OUT OF BOX.
- JUNCTION BOX.

POWER DISTRIBUTION (REFER TO THE "ELECTRICAL RISER DIAGRAM")

- PANELBOARD, RECESS MOUNT IN FINISHED SPACES, SURFACE MOUNT IN BACK OF HOUSE. REFER TO THE "PANELBOARD SCHEDULE".
- FEEDER OR BRANCH CIRCUIT RACEWAY CONCEALED IN WALL, CEILING.
- FEEDER OR BRANCH CIRCUIT RACEWAY CONCEALED UNDER FLOOR, IN SLAB OR BELOW GRADE.
- DISCONNECT SWITCH. PROVIDE DISCONNECT SWITCH AS INDICATED ON THE SCHEDULES. REFER TO PLANS AND SCHEDULES FOR ADDITIONAL REQUIREMENTS. FUSES SHALL BE DUAL ELEMENT TIME DELAY. VERIFY NAMEPLATE RATINGS OF FRAME SIZE AND FUSING OF THE ACTUAL EQUIPMENT TO BE INSTALLED.
- 45 — DRY-TYPE VENTILATED TRANSFORMER. SEE SPECIFICATIONS, PLANS AND RISER FOR REQUIREMENTS. TRANSFORMERS SHALL BE NEMA 1 UNLESS AT THE EXTERIOR OR IN AREAS WHERE WATER MAY BE PRESENT. MOUNT ON 4" HOUSE KEEPING PAD BOLTED TO PAD. MAINTAIN REQUIRED CLEARANCE FROM WALLS OR OBSTRUCTIONS FOR VENTILATION.
- GROUND TO METAL FRAME OF BUILDING, SLAB STEEL, OTHER MADE ELECTRODES, AND METAL UNDERGROUND WATER PIPE. PROVIDE A MINIMUM OF (2) 3/4" DIA, 10 FOOT LONG COPPER CLAD GROUND RODS LOCATED AT LEAST 6 FEET APART. ALL CONCEALED CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. INTERIOR GROUND RODS SHALL STUB ABOVE FLOOR AT LOCATIONS NOT INTERFERING WITH FOOT TRAFFIC. LOCATE EXTERIOR GROUND ROD ASSEMBLY IN LANDSCAPE AREA OR PROVIDE WELL FOR ACCESS TO EACH GROUND ROD IF ASSEMBLY IS LOCATED IN HARD SURFACE AREAS, SUCH AS CONCRETE, ASPHALT, ETC. PROVIDE BOLTED PRESSURE CLAMP WITH AT LEAST TWO BOLTS ON RODS IN TEST WELLS. ALL GROUND ROD LOCATIONS SHALL BE ACCESSIBLE.
- VFD — VARIABLE FREQUENCY DRIVE. REFER TO SPECIFICATIONS, AND FLOOR PLANS FOR ADDITIONAL ELECTRICAL REQUIREMENTS. VFD SUPPLIED BY MECHANICAL CONTRACTOR (U.N.O.) AND INSTALLED BY ELECTRICAL CONTRACTOR. ALL CONNECTIONS TO VFD, DISCONNECT AND EQUIPMENT SERVED SHALL BE BY THE ELECTRICAL CONTRACTOR. CIRCUIT SHALL UTILIZE METAL CONDUIT TO MINIMIZE RFI NOISE.
- PANEL HOMERUN/CIRCUIT
- LP-1 — PANEL DESIGNATION/CIRCUIT NUMBER

NOTE:
NOT ALL SYMBOLS SHOWN ON LEGEND ARE USED ON FLOOR PLANS.

GENERAL NOTES

"GENERAL NOTES APPLY TO ALL ELECTRICAL SHEETS"

1. DO NOT SCALE FROM THESE DRAWINGS.
2. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC).
3. ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES TO ASSURE PROPER CLEARANCES FOR EQUIPMENT AND TO KEEP THE JOB PROGRESSING.
4. DRAWINGS ARE BASED ON FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT ANY DISCREPANCIES TO THE ARCHITECT/ ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.
5. EXISTING TO REMAIN ELECTRICAL CIRCUITRY DOWNSTREAM AND UPSTREAM OF DEMOLISHED DEVICES SHALL BE MAINTAINED. PROVIDE ALL ELECTRICAL COMPONENTS (BOXES, CONDUIT, WIRING, ETC.) AS REQUIRED.
6. ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO CUT, CAPTURE AND EXTEND OR RE-ROUTE EXISTING CONDUITS AND CONDUCTORS AS REQUIRED TO ACCOMMODATE NEW DUCTWORK TO BE INSTALLED. COORDINATE WITH MECHANICAL CONTRACTOR AS REQUIRED.
7. REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT NEEDING ELECTRICAL CONNECTIONS (MOTORS, FANS, PUMPS, ETC.). MAKE ALL CONNECTIONS AND PROVIDE APPROPRIATE WIRE, CONDUIT, AND OVERCURRENT PROTECTION FOR ALL EQUIPMENT. INSTALL ANY ELECTRICAL EQUIPMENT (STARTERS, RELAYS, VFD'S, ETC.) FURNISHED BY MECHANICAL CONTRACTOR (DIV 15). COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR.
8. USE 10 AWG CU. CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS LONGER THAN 75 FEET. USE 10 AWG CU. WHERE WIRE SIZE IS INCREASED IN SIZE FOR VOLTAGE DROP, E.G SHALL BE INCREASED PROPORTIONATELY. PER NEC 250.122 (B).
9. ALL CEILING MOUNTED ITEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE ARCHITECTURAL REFLECTIVE CEILING PLANS. IF LOCATION FOR AN ITEM IS NOT SHOWN ON THE ARCHITECTURAL REFLECTIVE CEILING PLANS, VERIFY THE EXACT LOCATION OF THE ITEM WITH THE ARCHITECT PRIOR TO INSTALLATION. THESE REQUIREMENTS APPLY TO ALL CEILING TYPES IN ALL AREAS.
10. WHERE DISCONNECTING MEANS IS NOT PROVIDED "WITHIN SIGHT" OF MECHANICAL EQUIPMENT, THE OVERCURRENT DEVICE SERVING SUCH EQUIPMENT SHALL HAVE APPROVED "LOCKED-OFF" PROVISION.
11. CONDUIT RUNS SHOWN ARE DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING AND LOCATING PULL BOXES PER NEC.
12. PROVIDE ALL H.I.D. AND FLUORESCENT LIGHT FIXTURES WITH INTEGRAL FUSING.
13. RECEPTACLES IN MECHANICAL ROOMS, ELECTRICAL ROOMS, STORAGE ROOMS, AND JANITOR CLOSETS SHALL BE G.F.C.I. TYPE MOUNTED AT 48" A.F.F.

CONDUIT AND CONDUCTOR SCHEDULE

C.B.	POLES	WIRE SIZE (TYPE THW)	CONDUIT	PHASE
20A	1	2-#12, 1-#12 E.G.	3/4"	1 PHASE 2W
	2	2-#12, 1-#12 E.G.		1 PHASE 2W
	3	3-#12, 1-#12 E.G.		3 PHASE 3W
	3	3-#12, 1-#12 N., 1-#12 E.G.		3 PHASE 4W
25A	1	2-#10, 1-#10 E.G.	3/4"	1 PHASE 2W
	2	2-#10, 1-#10 E.G.		1 PHASE 2W
	3	3-#10, 1-#10 E.G.		3 PHASE 3W
	3	3-#10, 1-#10 N., 1-#10 E.G.		3 PHASE 4W
30A	1	2-#10, 1-#10 E.G.	3/4"	1 PHASE 2W
	2	2-#10, 1-#10 E.G.		1 PHASE 2W
	3	3-#10, 1-#10 E.G.		3 PHASE 3W
	3	3-#10, 1-#10 N., 1-#10 E.G.		3 PHASE 4W
35A	3	3-#8, 1-#10 E.G.	1"	3 PHASE 3W
	3	3-#8, 1-#8 N., 1-#10 E.G.		3 PHASE 4W
40A	2	2-#8, 1-#10 E.G.	1"	1 PHASE 2W
	3	3-#8, 1-#10 E.G.		3 PHASE 3W
	3	3-#8, 1-#8 N., 1-#10 E.G.		3 PHASE 4W
45A	2	2-#8, 1-#10 E.G.	1"	1 PHASE 2W
	3	3-#8, 1-#10 E.G.		3 PHASE 3W
	3	3-#8, 1-#8 N., 1-#10 E.G.		3 PHASE 4W
50A	2	2-#8, 1-#10 E.G.	1"	1 PHASE 2W
	3	3-#8, 1-#10 E.G.		3 PHASE 3W
	3	3-#8, 1-#8 N., 1-#10 E.G.		3 PHASE 4W
60A	2	2-#6, 1-#10 E.G.	1"	1 PHASE 2W
	3	3-#6, 1-#10 E.G.		3 PHASE 3W
	3	3-#6, 1-#6 N., 1-#10 E.G.	1 1/4"	3 PHASE 4W
70A	2	2-#4, 1-#8 E.G.	1"	1 PHASE 2W
	3	3-#4, 1-#8 E.G.	1 1/4"	3 PHASE 3W
	3	3-#4, 1-#4 N., 1-#8 E.G.		3 PHASE 4W
80A	2	2-#4, 1-#8 E.G.	1"	1 PHASE 2W
	3	3-#4, 1-#8 E.G.	1 1/4"	3 PHASE 3W
	3	3-#4, 1-#4 N., 1-#8 E.G.		3 PHASE 4W
90A	2	2-#3, 1-#8 E.G.	1 1/4"	1 PHASE 2W
	3	3-#3, 1-#8 E.G.		3 PHASE 3W
	3	3-#3, 1-#3 N., 1-#8 E.G.		3 PHASE 4W
100A	2	2-#3, 1-#8 E.G.	1 1/4"	1 PHASE 2W
	3	3-#3, 1-#8 E.G.		3 PHASE 3W
	3	3-#3, 1-#3 N., 1-#8 E.G.		3 PHASE 4W

NOTES:

1. ALL CONDUCTORS SHALL BE COPPER
2. ALL CONDUIT SHALL HAVE EQUIPMENT GROUNDING CONDUCTOR INSTALLED.
3. CONDUIT BELOW GRADE OUTSIDE OF BUILDING SHALL BE 1" MINIMUM.
4. SIZING OF CONDUCTORS SHALL BE ALTERED FOR DERATING PER N.E.C. OR VOLTAGE DROP CONSIDERATIONS.
5. SEE RISER DIAGRAM FOR SIZING OF CIRCUITS GREATER THAN 100A.
6. USE #10 AWG, COPPER CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS LONGER THAN 75 FEET. USE #10 AWG, COPPER CONDUCTORS FOR 20 AMPERE, 277 VOLT BRANCH CIRCUITS LONGER THAN 200 FEET. WHERE WIRE SIZE IS INCREASED IN SIZE FOR VOLTAGE DROP, EQUIPMENT GROUND SHALL BE INCREASED PROPORTIONATELY. PER NEC 250.122 (B).
7. WHERE MC CABLE IS ALLOWED BY THE AUTHORITY HAVING JURISDICTION, THE CONDUCTORS FOR MC CABLE SHALL BE THHN. JACKET SHALL BE THE MANUFACTURER'S STANDARD SIZE FOR CONDUCTORS UTILIZED.

SPECIAL INFORMATIONAL NOTE:

THIS DRAWING PREPARED FOR TENANT IMPROVEMENTS TO AN EXISTING BUILDING OR BUILDING CONSTRUCTED BY OTHERS

IT IS UNDERSTOOD THAT ANY WARRANTY INFORMATION CONCERNING EQUIPMENT INSTALLED MUST BE FORWARDED TO THE OWNER AND THAT ANY AND ALL CONTRACTORS SHALL GUARANTEE THEIR WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF OWNERS ACCEPTANCE.

ENGINEER IS NOT RESPONSIBLE FOR MATERIALS, METHODS, INSTALLATION, AND CONSTRUCTION WHICH DEVIATE FROM CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.

1 ELECTRICAL GENERAL NOTES
NOT TO SCALE

cn=Philip J Feikema, o=Global Sanchez, Inc., ou, email=phil@global-sanchez.com, c=US
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MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION
1112 MANATEE AVENUE WEST, BRADENTON, FL 34205
ELECTRICAL GENERAL NOTES AND LEGEND

Project No.	2013019.14
Drawn By	N.HAVEN
Checked By	P.FEIKEMA
Date	09.09.2014

Revisions:

1	MANATEE COUNTY COMMENTS	09.09.14

PHILIP J. FEIKEMA LICENSE No. 65083 STATE OF FLORIDA PROFESSIONAL ENGINEER

"To the best of the Architect's or Engineer's knowledge, the plans and specifications comply with the applicable minimum building codes and applicable fire safety standards as determined by local authority in accordance with Chapter 553 and 663 of Florida Statutes."

CONSTRUCTION DOCUMENTS

E0.1

Originals printed @ 24" x 36" scale as required

Job Number: 4138.14.00

GLOBAL SANCHEZ, INC.
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info@global-sanchez.com CA#: 6237
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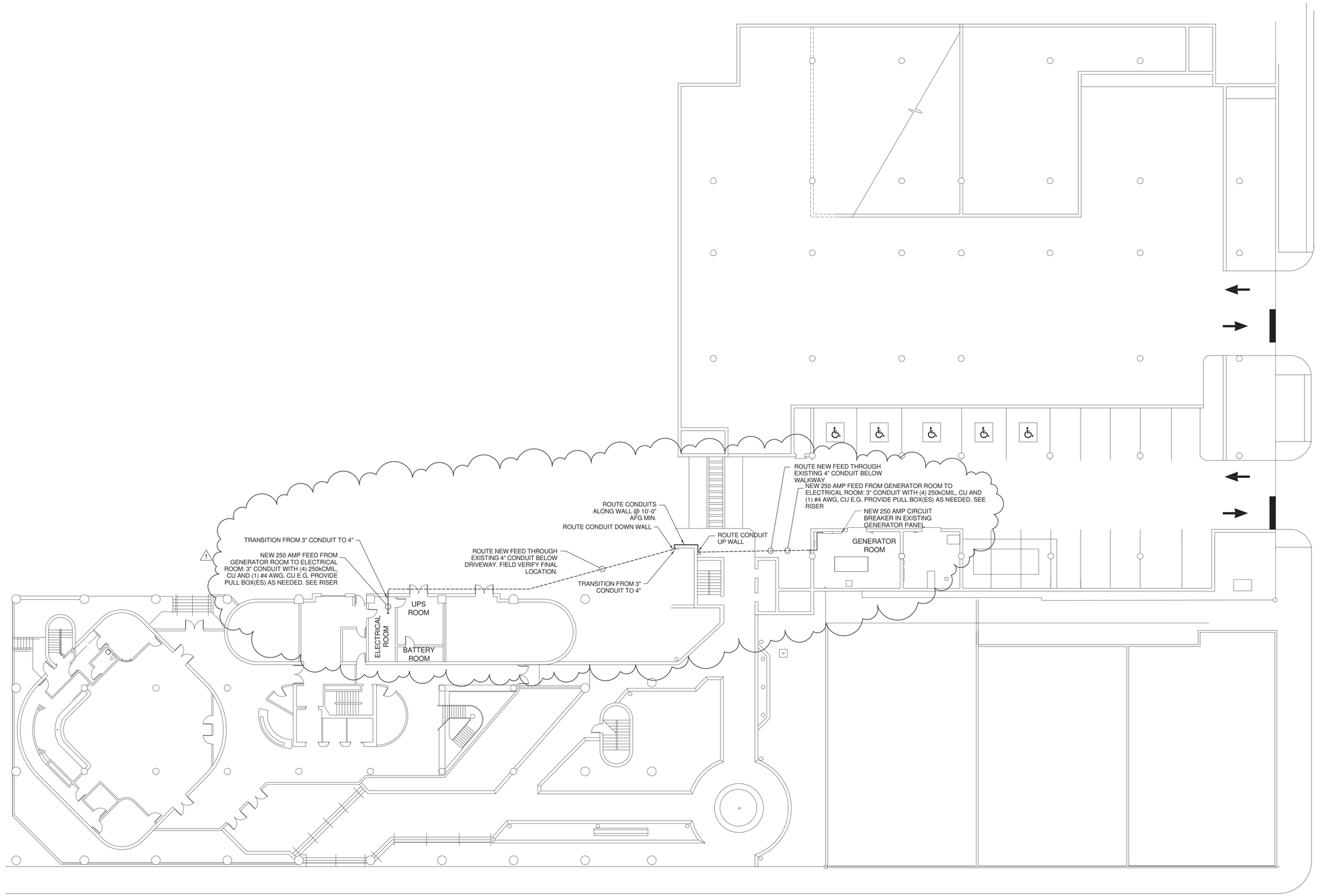

1 ELECTRICAL SITE PLAN
1/16" = 1'-0"

NORTH

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MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

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ELECTRICAL SITE PLAN

Project No.	2013019.14
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CONSTRUCTION DOCUMENTS

E1.1

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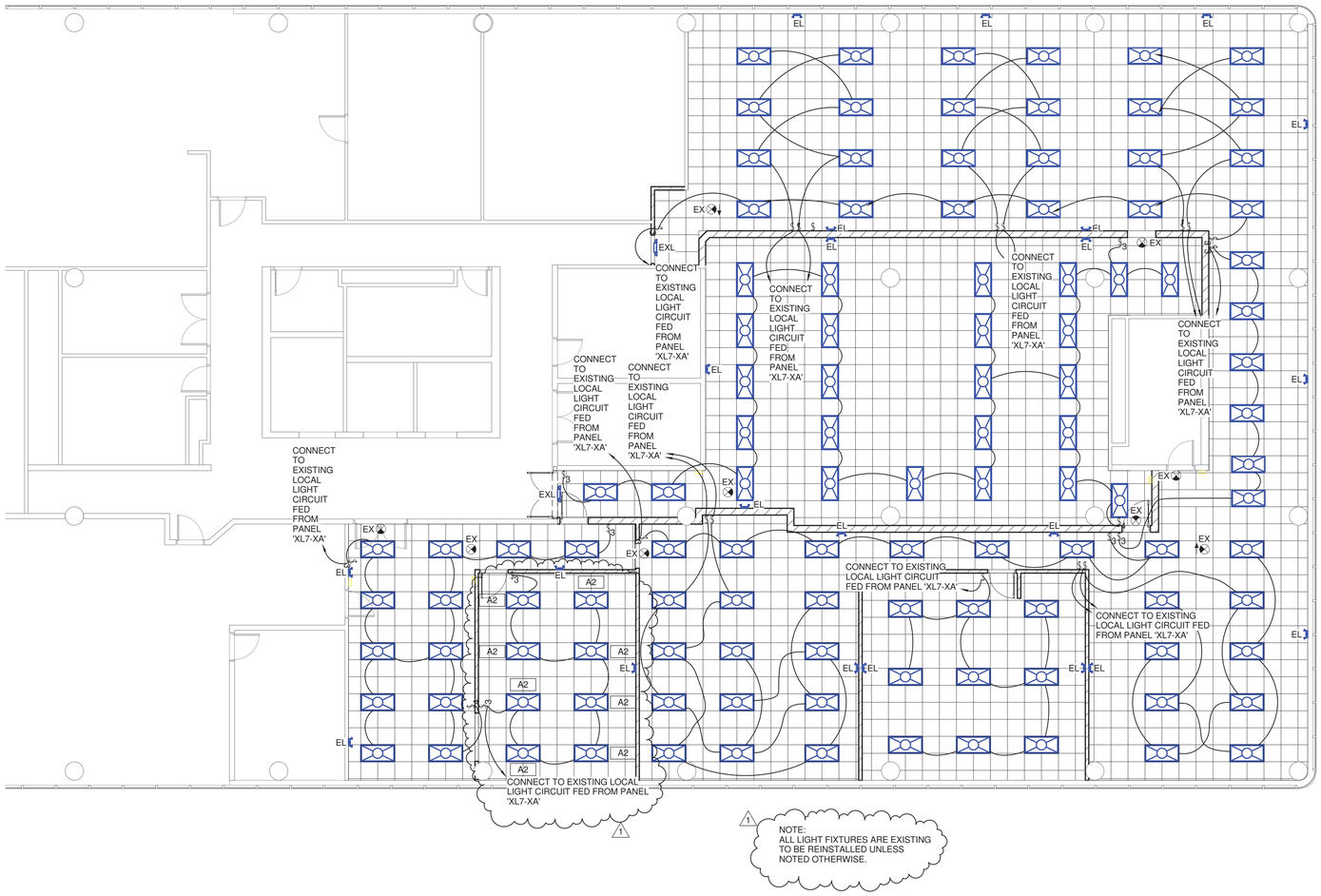

1 ELECTRICAL LIGHTING PLAN
1/8" = 1'-0"

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MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

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ELECTRICAL LIGHTING PLAN

Project No.	2013019.14
Drawn By	N.HAVEN
Checked By	P.FEIKEMA
Date	09.09.2014

Revisions:

1	MANATEE COUNTY COMMENTS	09.09.14

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CONSTRUCTION DOCUMENTS

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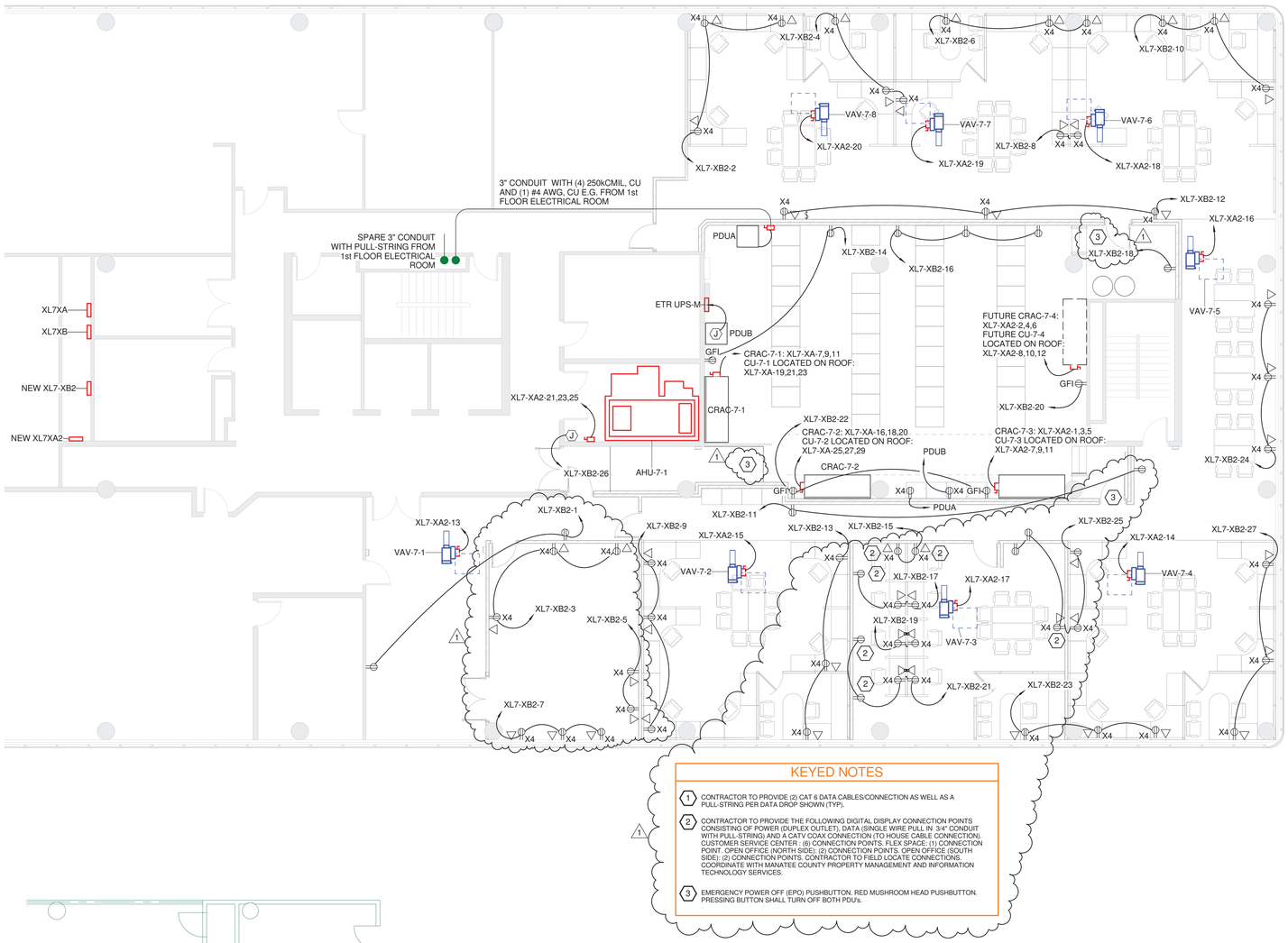
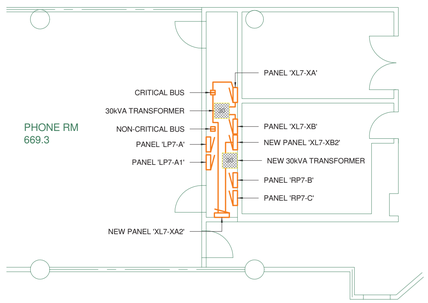


KEYED NOTES

1. CONTRACTOR TO PROVIDE (2) CAT 6 DATA CABLES/CONNECTION AS WELL AS A PULL-STRING PER DATA DROP SHOWN (TYP).
2. CONTRACTOR TO PROVIDE THE FOLLOWING DIGITAL DISPLAY CONNECTION POINTS CONSISTING OF POWER (DUPLEX OUTLET), DATA (SINGLE WIRE PULL IN 3/4" CONDUIT WITH PULL-STRING) AND A CATV COAX CONNECTION (TO HOUSE CABLE CONNECTION). CUSTOMER SERVICE CENTER : (6) CONNECTION POINTS. FLEX SPACE: (1) CONNECTION POINT. OPEN OFFICE (NORTH SIDE): (2) CONNECTION POINTS. OPEN OFFICE (SOUTH SIDE): (2) CONNECTION POINTS. CONTRACTOR TO FIELD LOCATE CONNECTIONS. COORDINATE WITH MANATEE COUNTY PROPERTY MANAGEMENT AND INFORMATION TECHNOLOGY SERVICES.
3. EMERGENCY POWER OFF (EPO) PUSHBUTTON. RED MUSHROOM HEAD PUSHBUTTON. PRESSING BUTTON SHALL TURN OFF BOTH PDUs.

1 ELECTRICAL POWER PLAN
1/8" = 1'-0"

NORTH



2 ELECTRICAL ROOM DETAIL
1/8" = 1'-0"

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MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

ELECTRICAL POWER PLAN

Project No.	2013019.14
Drawn By	N.HAVEN
Checked By	P.FEIKEMA
Date	09.09.2014

Revisions:

1	MANATEE COUNTY COMMENTS	09.09.14

PHILIP J. FEIKEMA
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STATE OF FLORIDA
PROFESSIONAL ENGINEER

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CONSTRUCTION DOCUMENTS

E5.1

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PANELBOARD: 'XL7-XA' (EXISTING TO REMAIN)
ELECTRICAL SERVICE CALCULATION

LOAD	CONNECTED	DEMAND
CRAC 7-1 (LARGEST MOTOR)	59,596	74,495
CU-1	4,541	4,541
CRAC-7-2	59,596	59,596
CU-2	4,541	4,541
EXISTING	0	0
EXISTING CRU-2A(7)	0	0
A/C 8th & 9th FLOORS	0	0
TOTAL	128,274	143,173

172 AMP DEMAND

400A SERVICE @ 480V, 3-PHASE PROVIDED

PANELBOARD DESIGNATION: 'XL7-XA' (EXISTING TO REMAIN)

VOLTAGE: 480Y/277V | 3ϕ-4W | MAINS RATING: 400 AMPS | MAIN CB TRIP RATING: - AMPS

■ SURFACE ☐ MCB | ☐ FLUSH ■ MLO | COPPER BUS | INTERRUPTING RATING: - AIC | ENCLOSURE: NEMA 1

	SERVES	CB SIZE	LOAD VA	CKT#				CKT#	LOAD VA	CB SIZE	SERVES	
	EXISTING	20		1				2		20	EXISTING	
	EXISTING	20		3				4		20	EXISTING	
	EXISTING	20		5				6		20	EXISTING	
			19865	7				8		20	EXISTING	
+	NEW CRAC7-1	80	19865	9				10				
			19865	11				12		45	EXISTING TO REMAIN 'XFMR'	
	EXISTING TO REMAIN CRU-2A(7) TELEPHONE ROOM	40		13				14				
				15				16	19865			
				17				18	19865	80	NEW CRAC7-2	+
			1514	19				20	19865			
-	CU-7-1	20	1514	21				22		20	EXISTING	
			1514	23				24		20	EXISTING	
			1514	25				26		20	EXISTING	
-	CU-7-2	20	1514	27				28		20	EXISTING	
			1514	29				30		20	EXISTING	
				31				32		20	EXISTING	
-				33				34		20	EXISTING	
				35				36		20	EXISTING	
				37				38				
-				39				40		80	AC 8th/9th FLOORS	-
				41				42				
	CONNECTED:			KVA	A	B	C	EST. DEMAND:			KVA	

+ PROVIDE NEW CIRCUIT BREAKER
- REMOVE EXISTING CIRCUIT BREAKER

PANELBOARD DESIGNATION: 'XL7-XA2' (NEW)

VOLTAGE: 480Y/277V | 3ϕ-4W | MAINS RATING: 400 AMPS | MAIN CB TRIP RATING: - AMPS

■ SURFACE ☐ MCB | ☐ FLUSH ■ MLO | COPPER BUS | INTERRUPTING RATING: - AIC | ENCLOSURE: NEMA 1

SERVES	CB SIZE	LOAD VA	CKT#				CKT#	LOAD VA	CB SIZE	SERVES
		19865	1				2	19865		
CRAC 7-3	80	19865	3				4	19865	80	CRAC 7-4 (FUTURE)
		19865	5				6	19865		
		1514	7				8	1514		
CU-7-3	20	1514	9				10	1514	20	CU-7-4 (FUTURE)
		1514	11				12	1514		
VAV-7-1	20	3000	13				14	3000	20	VAV-7-4
VAV-7-2	20	3000	15				16	3000	20	VAV-7-5
VAV-7-3	20	3000	17				18	3000	20	VAV-7-6
VAV-7-7	20	2000	19				20	2000	20	VAV-7-8
		3048	21				22			
AHU-1-1	20	3048	23				24			
		3048	25				26			
			27				28			
			29				30			
			31				32			
			33				34			
			35				36			
			37				38			
			39				40			
			41				42			
CONNECTED:			KVA	A	B	C	EST. DEMAND:			KVA

PANELBOARD: 'XL7-XA2' (NEW)
ELECTRICAL SERVICE CALCULATION

LOAD	CONNECTED	DEMAND
CRAC 7-3	59,596	59,596
CU-3	4,541	4,541
CRAC 7-4	59,596	59,596
CU-4	4,541	4,541
VAV-7-1	3,000	3,000
VAV-7-2	3,000	3,000
VAV-7-3	3,000	3,000
VAV-7-4	3,000	3,000
VAV-7-5	3,000	3,000
VAV-7-6	3,000	3,000
VAV-7-7	2,000	2,000
VAV-7-8	2,000	2,000
AHU-7-1	9,145	9,145
TOTAL	159,419	159,419

192 AMP DEMAND

400A SERVICE @ 480V, 3-PHASE PROVIDED

PANELBOARD DESIGNATION: 'XL7-XB' (NEW)

VOLTAGE: 208/120V | 3ϕ-4W | MAINS RATING: 100 AMPS | MAIN CB TRIP RATING: 200 AMPS

■ SURFACE ■ MCB | ☐ FLUSH ☐ MLO | COPPER BUS | INTERRUPTING RATING: - AIC | ENCLOSURE: NEMA 1

SERVES	CB SIZE	LOAD VA	CKT#				CKT#	LOAD VA	CB SIZE	SERVES
RECEPTACLES	20	720	1				2	1080	20	RECEPTACLES
RECEPTACLES	20	1080	3				4	1080	20	RECEPTACLES
RECEPTACLES	20	720	5				6	1080	20	RECEPTACLES
RECEPTACLES	20	1080	7				8	720	20	RECEPTACLES
RECEPTACLES	20	1080	9				10	1080	20	RECEPTACLES
RECEPTACLES	20	360	11				12	540	20	RECEPTACLES
RECEPTACLES	20	1080	13				14	360	20	RECEPTACLES
RECEPTACLES	20	720	15				16	540	20	RECEPTACLES
RECEPTACLES	20	720	17				18	180	20	RECEPTACLES
RECEPTACLES	20	720	19				20	180	20	RECEPTACLES
RECEPTACLES	20	720	21				22	360	20	RECEPTACLES
RECEPTACLES	20	1080	23				24	1080	20	RECEPTACLES
RECEPTACLES	20	1080	25				26	500	20	CONTROLS
RECEPTACLES	20	1080	27				28			
			29				30			
			31				32			
			33				34			
			35				36			
			37				38			
			39				40			
			41				42			
CONNECTED:			KVA	A	B	C	EST. DEMAND:			KVA

PANELBOARD: 'XL7-XB' (NEW)
ELECTRICAL SERVICE CALCULATION

LOAD	CONNECTED	DEMAND
RECEPTACLES (1sT 10,000 VA)	10,000	10,000
RECEPTACLES (REMAINDER @V 50%)	9,440	4,720
TOTAL	19,440	14,720

41 AMP DEMAND

100A SERVICE @ 208V, 3-PHASE PROVIDED

1 ELECTRICAL PANEL SCHEDULES
NOT TO SCALE

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MANATEE COUNTY GOVERNMENT 7TH FLOOR DATA CENTER RENOVATION

1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

ELECTRICAL SCHEDULES

Project No. 2013019.14
Drawn By N.HAVEN
Checked By P.FEIKEMA
Date 09.09.2014

Revisions:

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CONSTRUCTION DOCUMENTS

E7.1

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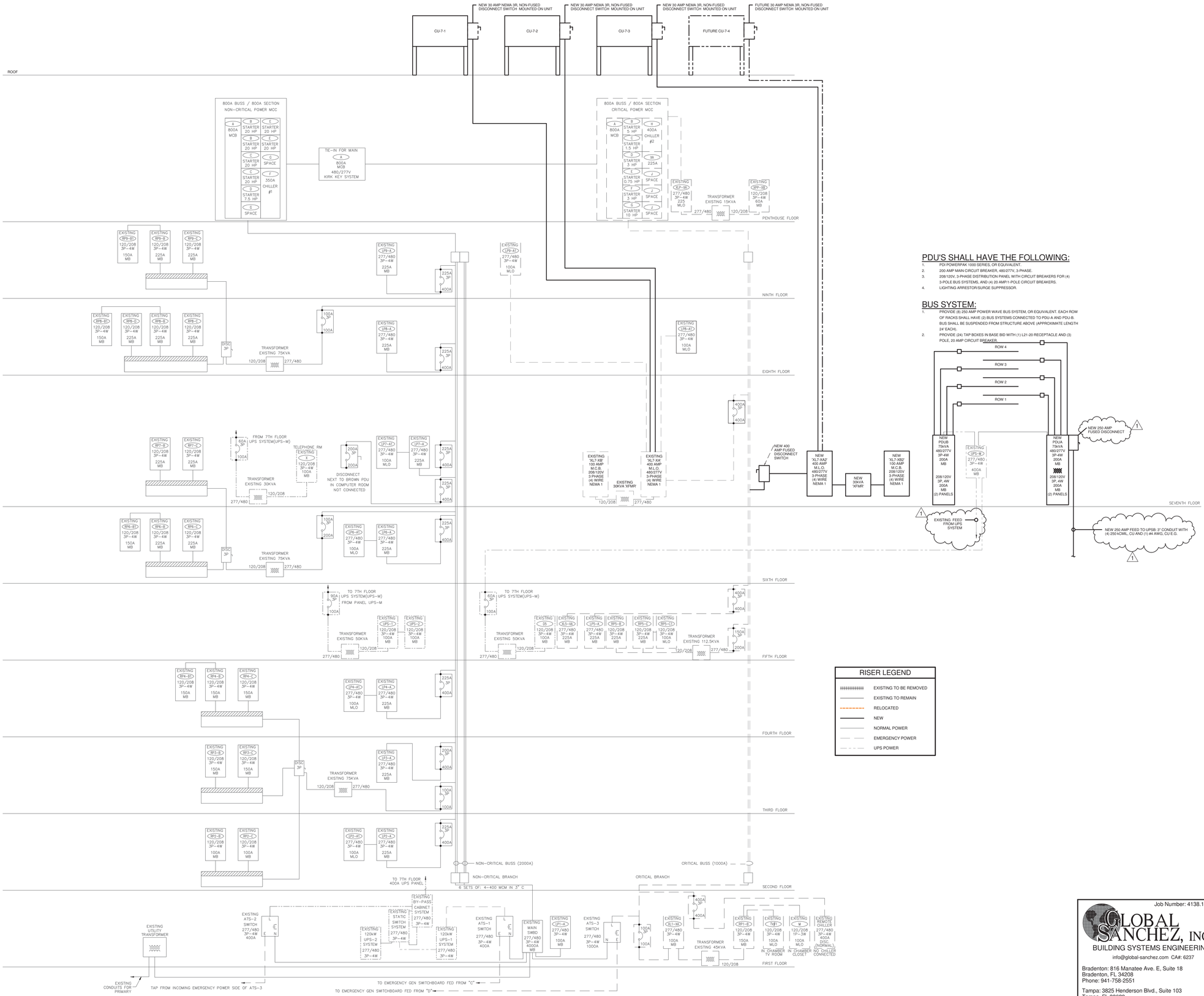

PDU'S SHALL HAVE THE FOLLOWING:

1. PDI POWERPAK 1000 SERIES, OR EQUIVALENT.
2. 200 AMP MAIN CIRCUIT BREAKER, 480/277V, 3-PHASE.
3. 208/120V, 3-PHASE DISTRIBUTION PANEL WITH CIRCUIT BREAKERS FOR (4) 3-POLE BUS SYSTEMS, AND (4) 20 AMP/1-POLE CIRCUIT BREAKERS.
4. LIGHTING ARRESTOR/SURGE SUPPRESSOR.

BUS SYSTEM:

1. PROVIDE (8) 250 AMP POWER WAVE BUS SYSTEM, OR EQUIVALENT. EACH ROW OF RACKS SHALL HAVE (2) BUS SYSTEMS CONNECTED TO PDU-A AND PDU-B. BUS SHALL BE SUSPENDED FROM STRUCTURE ABOVE (APPROXIMATE LENGTH 24' EACH).
2. PROVIDE (24) TAP BOXES IN BASE BID WITH (1) L21-20 RECEPTACLE AND (3) POLE, 20 AMP CIRCUIT BREAKER.

RISER LEGEND

- EXISTING TO BE REMOVED
- EXISTING TO REMAIN
- RELOCATED
- NEW
- NORMAL POWER
- EMERGENCY POWER
- UPS POWER

1 PARTIAL ELECTRICAL RISER DIAGRAM
SCALE: NOT TO SCALE

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PARTIAL ELECTRICAL RISER DIAGRAM

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E8.1

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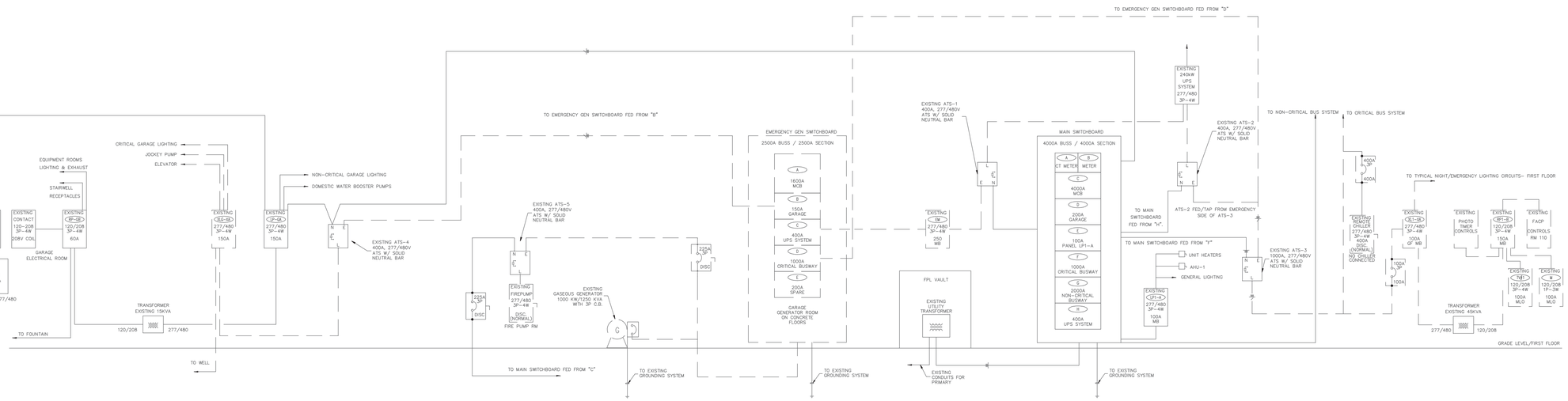
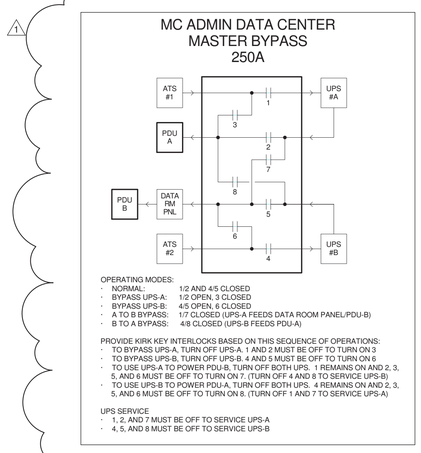
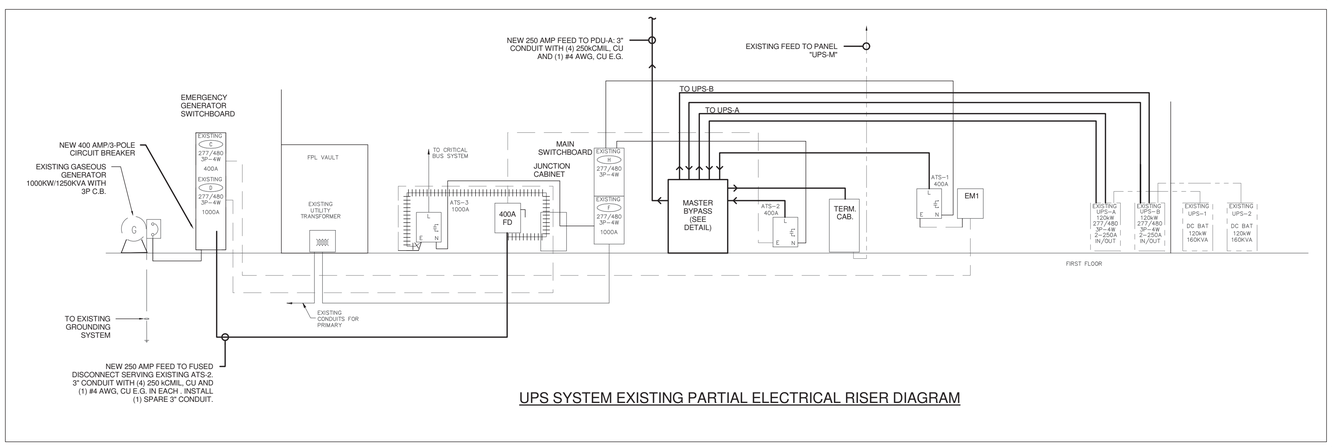


GROUND FLOOR EXISTING PARTIAL ELECTRICAL RISER DIAGRAM





UPS SYSTEM EXISTING PARTIAL ELECTRICAL RISER DIAGRAM

1 PARTIAL ELECTRICAL RISER DIAGRAM
SCALE: NOT TO SCALE

RISER LEGEND

EXISTING TO BE REMOVED	
EXISTING TO REMAIN	
RELOCATED	
NEW	
NORMAL POWER	
EMERGENCY POWER	
UPS POWER	

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PARTIAL ELECTRICAL RISER DIAGRAM

Project No.	2013019.14
Drawn By	Author
Checked By	Checker
Date	09.09.2014

Revisions:

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CONSTRUCTION DOCUMENTS

E8.2

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ELECTRICAL

PART 1 - GENERAL

0.01 GENERAL SCOPE

A. THIS PROJECT WILL REQUIRE POWER DISTRIBUTION, AND LIGHTING SYSTEMS AS SHOWN ON THE PLANS AND INCLUDED IN THE SPECIFICATIONS.

B. THE SCOPE OF WORK SPECIFIED HEREIN CONSISTS OF PROVIDING (DEFINED AS FURNISH AND INSTALL) ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE THE ELECTRICAL AND RELATED WORK INDICATED ON THE DRAWINGS, AS SPECIFIED HEREIN AND SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT. ELECTRICAL WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
- PANELBOARDS
- CIRCUIT BREAKERS
- DISCONNECT SWITCHES
- GROUNDING
- RACEWAY FOR POWER DISTRIBUTION
- CONDUCTORS FOR POWER DISTRIBUTION
- WIRING DEVICES
- LIGHTING FIXTURES
- RACEWAY FOR COMMUNICATIONS WIRING (VOICE, DATA, CABLE TELEVISION)
- CONNECTION OF MOTORS, CONTROL DEVICES AND ELECTRICAL EQUIPMENT FURNISHED BY OTHERS
- TESTING
- FINAL ACCEPTANCE/WARRANTY
- RECORD DRAWINGS

C. ITEMS SPECIFIED HEREIN, SHOWN ON THE DRAWINGS, AND/OR REASONABLY INTERPRETED FROM THE DRAWINGS THAT ARE NECESSARY TO COMPLETE THE ELECTRICAL WORK SHALL BE PROVIDED BY THIS DIVISION, WHETHER ITEM IS SPECIFICALLY SHOWN OR NOT.

1.01 GENERAL DOCUMENTS

A. CONTRACTOR SHALL BECOME THOROUGHLY ACQUAINTED WITH THE PROJECT SITE (e.g. EXISTING CONDITIONS) AND THE ENTIRE CONSTRUCTION DOCUMENTS PACKAGE (e.g. ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL DRAWINGS AND SPECIFICATIONS) BEFORE BID SUBMISSION. WORK OF THE ELECTRICAL CONTRACTOR MUST BE COORDINATED WITH THE WORK OF ALL TRADES.

B. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO DESCRIBE THAT COMPLETE ELECTRICAL AND SPECIAL SYSTEMS ARE REQUIRED. HOWEVER, THE WORK SHALL BE COMPLETE EVEN THOUGH ITEMS MAY NOT BE SPECIFICALLY CALLED FOR OR SHOWN. INSTALLATIONS SHALL MEET ALL GOVERNING CODES, SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER AND ALL AGENCIES HAVING JURISDICTION.

C. WORK NOT COVERED IN THIS SECTION. RECESSES, CHASES, AND OTHER PROVISIONS TO BE MADE IN THE STRUCTURE AS REQUIRED TO ACCOMMODATE ELECTRICAL ITEMS, SUCH AS CONDUIT, PANELS, SWITCHES, ETC, SHALL BE PROVIDED BY THE TRADES CONCERNED. THE ELECTRICIAN SHALL, HOWEVER, NOTIFY ALL SUCH TRADES OF HIS EXACT REQUIREMENTS AHEAD OF TIME AND SHALL PAY THE COSTS OF ANY CUTTING OR PATCHING CAUSED BY FAILURE TO DO SO. ALL SUCH REMEDIAL WORK SHALL BE DONE ONLY BY MECHANICS OF THE TRADES INVOLVED.

1.02 PERMITS, TAXES, FEES.

A. CONTRACTOR SHALL OBTAIN ALL GOVERNMENTAL PERMITS, PAY ALL SALES TAXES AND OTHER ASSOCIATED FEES INCLUDING COSTS FOR UTILITY CONNECTIONS, REQUIRED TO PERFORM THE INTENDED ELECTRICAL WORK. CONTRACTOR SHALL FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AGENCIES HAVING JURISDICTION. CONTRACTOR SHALL OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR ELECTRICAL WORK AND DELIVER SAME TO THE OWNER AND ARCHITECT BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

B. CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ALL LABOR, MATERIALS, SERVICES, APPARATUS, OR DRAWINGS NECESSARY TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS, WHETHER OR NOT SHOWN ON DRAWINGS AND/OR SPECIFIED.

C. ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE FOLLOWING:
- NATIONAL ELECTRIC CODE
- APPLICABLE STATE AND LOCAL CODES
- NATIONAL BUREAU OF FIRE UNDERWRITERS
- REGULATIONS OF THE SERVING UTILITY COMPANIES

D. ALL MATERIAL AND EQUIPMENT PROVIDED FOR THE ELECTRICAL WORK SHALL BEAR THE APPROVAL LABEL, OR SHALL BE LISTED, BY UNDERWRITERS' LABORATORIES, INC.

1.03 MEASUREMENTS

A. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCY BETWEEN ACTUAL MEASUREMENTS AND THOSE INDICATED ON THE DRAWINGS, WHICH WOULD BE CONTRARY TO GOOD PRACTICE OR THE INTENT OF THE DRAWINGS AND SPECIFICATIONS, HE SHALL NOTIFY THE ARCHITECT/ENGINEER THROUGH THE GENERAL CONTRACTOR, AND SHALL NOT PROCEED WITH HIS WORK UNTIL HE HAS RECEIVED INSTRUCTIONS FROM THE ARCHITECT/ENGINEER. ALL REQUESTS FOR INFORMATION (RFI) SHALL INCLUDE A PROPOSED SOLUTION.

B. PRIOR TO ROUGH-IN OF EQUIPMENT THE OWNER, ARCHITECT AND ENGINEER RESERVE THE RIGHT TO RELOCATE ANY PANELBOARD, DISCONNECT, STARTER, LIGHTING FIXTURE, WIRING DEVICE, COMMUNICATIONS OUTLET, ETC THREE (3) FEET IN ANY DIRECTION WITHOUT ANY ADDITIONAL CHARGE, FEE, OR CHANGE ORDER.

1.04 DRAWINGS

A. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION OF THE ELECTRICAL AND SPECIAL SYSTEMS WORK INCLUDED IN THE CONTRACT. THE ENTIRE CONSTRUCTION DOCUMENTS PACKAGE (DRAWINGS AND SPECIFICATIONS) SHALL BE EXAMINED FOR EXACT LOCATION OF FIXTURES, DEVICES AND EQUIPMENT. WHERE ITEMS ARE NOT LOCATED BY THE DRAWINGS OR SPECIFICATIONS OF OTHER CONSULTANTS THEN THE ITEMS SHALL BE LOCATED PER THE ENGINEERING DRAWINGS, HOWEVER, THE DRAWINGS ARE NOT TO BE SCALED.

B. CONTRACTOR SHALL FOLLOW THE ELECTRICAL DRAWINGS IN LAYING OUT WORK AND SHALL COORDINATE WITH THE DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE AT ALL LOCATIONS. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION. ALL REQUESTS FOR INFORMATION (RFI) SHALL INCLUDE A PROPOSED SOLUTION.

C. IF DIRECTED BY THE ARCHITECT/ENGINEER, THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LOCATIONS OF ELECTRICAL WORK AS NEEDED TO PREVENT CONFLICTS WITH WORK OF OTHER TRADES AND FOR PROPER INSTALLATION OF THE WORK.

1.05 SUBSTITUTION OF SPECIFIED EQUIPMENT

A. MATERIALS OR PRODUCTS SPECIFIED BY TRADE NAME, MANUFACTURER'S NAME OR CATALOG NUMBER SHALL BE PROVIDED AS SPECIFIED.

B. SUBSTITUTIONS ARE NOT PERMITTED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER VIA THE ARCHITECT TEN (10) WORKING DAYS PRIOR TO BID DATE. APPROVALS OF "EQUIVALENT" MATERIALS OR PRODUCTS WILL BE MADE AVAILABLE TO ALL KNOWN BIDDERS AND ISSUED AS AN ADDENDUM (PRIOR TO BID) TO THE CONTRACT DOCUMENTS IF SUBSTITUTED MATERIALS OR PRODUCTS ARE APPROVED BY ARCHITECT/ENGINEER.

C. ANY CONTRACTOR PROPOSING AN 'EQUIVALENT' MATERIAL OR PRODUCT MUST SUBMIT, WITH THE REQUEST, COMPLETE CATALOG INFORMATION TO PERMIT EVALUATION OF THE PRODUCT. IN THE CASE OF LIGHTING FIXTURES, AN INDEPENDENT TESTING LABORATORY TEST REPORT (NOT THE MANUFACTURER'S) STATING NATURE EFFICIENCY AND PERFORMANCE, SHALL ACCOMPANY THE REQUEST.

D. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE CORRECTIONS TO ALL SITUATIONS CREATED BY THE SUBSTITUTION OF MATERIALS OR PRODUCTS. THE ACCEPTANCE OF SUBSTITUTED MATERIALS OR PRODUCTS, EITHER PRIOR TO BID OR THEREAFTER, DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY TO PROVIDE CORRECTIONS, AT THEIR EXPENSE, FOR ALL DISCREPANCIES AND CONFLICTS CREATED BY THE SUBSTITUTION OF MATERIALS OR PRODUCTS.

1.06 SHOP DRAWINGS

A. CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL SHOP DRAWINGS OF ALL MATERIALS OR PRODUCTS REQUIRED TO COMPLETE THE PROJECT AND NO MATERIALS OR PRODUCTS SHALL BE DELIVERED TO THE JOB SITE OR INSTALLED UNTIL THE CONTRACTOR HAS ENGINEER APPROVED SHOP DRAWINGS. SHOP DRAWINGS FOR MATERIALS OR PRODUCTS SHALL BE SUBMITTED AS ONE COMPLETE PACKAGE. CONTRACTOR SHALL FURNISH THE NUMBER OF COPIES REQUIRED BY THE GENERAL AND SPECIAL CONDITIONS OF THE CONTRACT, BUT IN NO CASE LESS THAN SIX (6) IDENTICAL COPIES. SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE ELECTRICAL AND GENERAL CONTRACTORS FOR COMPLIANCE WITH THE SPECIFIED MATERIALS AND PRODUCTS PRIOR TO SUBMISSION TO THE ARCHITECT/ENGINEER.

B. SAMPLES, DRAWINGS, SPECIFICATIONS, CUT SHEETS, ETC SUBMITTED FOR REVIEW SHALL BE PROPERLY LABELED AND SHALL INDICATE THE SPECIFIC ITEM FOR WHICH THE CONTRACTOR IS PROPOSING TO PROVIDE.

C. "NO EXCEPTION" RENDERED ON SHOP DRAWINGS SHALL NOT BE CONSIDERED AS A GUARANTEE THAT THE MATERIAL OR PRODUCTS COMPLY WITH THE BUILDING CONDITIONS OR MEASUREMENTS. WHERE SHOP DRAWINGS ARE REVIEWED, SAID "NO EXCEPTION" DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF PROVIDING LABOR, MATERIAL OR PRODUCTS REQUIRED TO PERFORM THE WORK AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

D. SHOP DRAWINGS SUBMITTALS ARE REQUIRED ON ELECTRICAL DISTRIBUTION EQUIPMENT, PANELBOARDS, TRANSFORMERS, CONDUIT, CONDUCTORS (WIRE), CIRCUIT BREAKERS, DISCONNECT SWITCHES, WIRING DEVICES, FLOOR BOXES, LIGHT FIXTURES, TIMECLOCKS, CONTACTORS AND SURGE PROTECTION DEVICES (SPD)

PART 2 - PRODUCTS

2.01 SERVICE ENTRANCE

A. SERVICE ENTRANCE SHALL BE EXISTING TO REMAIN.

2.02 PANELBOARDS

A. PROVIDE POWER DISTRIBUTION EQUIPMENT AS INDICATED ON THE ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES. PANELBOARDS SHALL BE OF DEAD FRONT CONSTRUCTION AND SHALL BE MANUFACTURED BY SQUARE "D", GENERAL ELECTRIC, CUTLER-HAMMER OR SIEMENS.

B. PANELBOARDS SHALL NOT BE LESS THAN 20" WIDE AND SHALL BE FABRICATED FROM CODE GAUGE STEEL WITH A POST FABRICATION APPLIED GRAY ENAMEL FINISH.

C. PANELBOARD AND INTERNAL COMPONENTS SHALL BE CONSTRUCTED AND U.L. LISTED TO WITHSTAND THE SYMMETRICAL SHORT CIRCUIT AMPERES INDICATED ON THE ELECTRICAL RISER DIAGRAM OR PANEL SCHEDULES.

D. WIRE GUTTER SPACE SHALL COMPLY WITH U.L. AND NEC STANDARDS FOR PANELBOARDS.

E. PANELBOARDS SHALL BE SURFACE OR FLUSH MOUNTED AS SHOWN ON PANEL SCHEDULES AND/OR FLOOR PLANS. PANELBOARDS SHALL BE EQUIPPED WITH DOOR HINGES, FLUSH LOCK WITH CATCH AND SPRING LOADED DOOR PULL. ALL LOCKS SHALL BE KEYED A LIKE. TURN OVER ALL KEYS TO OWNER.

F. PROVIDE TYPED CIRCUIT IDENTIFICATION CARD INSIDE EACH PANEL. BASE DESCRIPTION ON LOAD SERVED.

G. PROVIDE LAMINATED, ENGRAVED PLASTIC NAMEPLATE WITH WHITE LETTERS STATING PANELBOARD NAME MOUNTED ON FRONT OF EACH PANEL. MOUNT NAMEPLATE WITH METAL FASTNERS. MINIMUM NAMEPLATE SHALL BE 3" WIDE BY 1-1/2" HIGH WITH 1/2" HIGH ENGRAVED LETTERS. PROVIDE BLACK NAMEPLATE COLOR FOR NORMAL AND RED NAMEPLATE COLOR FOR EMERGENCY PANELBOARDS OR COLOR AS REQUIRED TO MEET OWNERS STANDARD NAMEPLATE COLORS.

2.03 CIRCUIT BREAKERS:

A. CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC MOLDED CASE OF FRAME SIZE, NUMBER OF POLES AND TRIP RATINGS AS SHOWN ON THE ELECTRICAL RISER DIAGRAM AND/OR PANEL SCHEDULES. MULTI-POLE BREAKERS SHALL HAVE A SINGLE HANDLE TO TRIP ALL POLES AT ONCE. CIRCUIT BREAKERS SHALL BE FROM THE SAME MANUFACTURER AS THE POWER DISTRIBUTION EQUIPMENT. PROVIDE CIRCUIT BREAKERS WITH GROUND FAULT AND ARC FAULT PROTECTION WHERE REQUIRED.

2.04 DISCONNECT SWITCHES

A. DISCONNECT SWITCHES SHALL BE U.L. LISTED AND FROM SAME MANUFACTURER AS POWER DISTRIBUTION EQUIPMENT. SWITCH BLADES SHAY BE FULLY VISIBLE IN THE "OFF" POSITION WITH THE DOOR OPEN. ALL CURRENT CARRYING PARTS SHALL BE PLATED TO RESIST CORROSION.

B. SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK SUCH THAT, DURING NORMAL OPERATION, THE CONTACTS SHALL NOT BE CAPABLE OF BEING RESTRAINED BY THE OPERATING HANDLE AFTER THE CLOSING OR OPENING ACTION OF THE CONTACTS HAS STARTED. THE HANDLE AND MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, WITH POSITIVE PADLOCKING PROVISIONS IN THE "OFF" POSITION.

C. PROVIDE HEAVY-DUTY, NEMA-1 ENCLOSURE UNLESS NEMA-3R (RAIN PROOF) IS REQUIRED BY THE SWITCH LOCATION. ENCLOSURES SHALL BE PROVIDED WITH A POST FABRICATION APPLIED GRAY ENAMEL FINISH.

D. FUSIBLE SWITCHES SHALL BE CAPABLE OF FIELD CONVERSION FROM STANDARD CLASS-H FUSE SPACING TO CLASS-J FUSE SPACING WITHOUT AFFECTING THE U.L. LISTING. THE SWITCH MUST ALSO ACCEPT CLASS-R FUSES AND HAVE A FIELD INSTALLABLE U.L. LISTED REJECTION FEATURE TO REJECT ALL FUSES EXCEPT CLASS-R. THE U.L. LISTED SHORT CIRCUIT RATING, WHEN EQUIPPED WITH CLASS-J OR CLASS-R FUSES, SHALL BE 200,000 AMPERES RMS SYMMETRICAL.

2.05 GROUNDING AND BONDING

A. PROVIDE A SINGLE, COMPLETE GROUNDING NETWORK FOR THE ENTIRE ELECTRICAL AND SPECIAL SYSTEMS WHICH COMPLIES WITH NEC REQUIREMENTS.

B. SERVICE NEUTRAL AND EQUIPMENT GROUND SHALL BE CONNECTED AT ONE POINT INSIDE THE MAIN DISTRIBUTION PANEL WITH ONE CONTINUOUS CONDUCTOR FROM THIS LOCATION TO THREE 10 FOOT LONG DRIVEN GROUND RODS LOCATED IN A TRIANGULAR PATTERN, TO BUILDING STEEL AND TO METAL WATER PIPE.

C. PROVIDE BONDING CONNECTION WITH GROUND BUSHING TO CONDUIT FROM DISTRIBUTION PANEL TO THE BREAKERS AND PANELS SERVED.

D. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELDS. PROVIDE TEST WELL OVER EACH GROUND ROD.

2.06 CONDUIT FOR POWER DISTRIBUTION WIRING

A. WIRING FOR POWER DISTRIBUTION SHALL BE INSTALLED IN RIGID METALLIC (GALVANIZED STEEL) CONDUIT (RMC), INTERMEDIATE METAL CONDUIT (IMC), ELECTRICAL METALLIC TUBING (EMT), FLEXIBLE METAL CONDUIT OR SCHEDULE 40/80 PVC CONDUIT. PROVIDE THE CONDUIT TYPE INDICATED IN THIS SPECIFICATION WHERE CONDUIT TYPE IS NOT NOTED ON THE DRAWINGS.

B. RIGID GALVANIZED STEEL (RGS) CONDUIT WITH THREADED FITTINGS SHALL BE PROVIDED ABOVE GROUND AT EXPOSED INTERIOR AND EXTERIOR LOCATIONS WHERE CONDUIT MAY BE SUBJECTED TO PHYSICAL DAMAGE FROM VEHICLES, MAINTENANCE EQUIPMENT, ETC. PROVIDE LARGE RADIUS SWEEP ELBOWS FOR RGS CONDUIT.

C. IMC CONDUIT WITH THREADED FITTINGS SHALL BE PROVIDED IN ABOVE GROUND, EXPOSED INTERIOR AND EXTERIOR LOCATIONS WHERE CONDUIT WILL NOT BE SUBJECTED TO PHYSICAL DAMAGE, BUT WILL BE EXPOSED TO RAIN WATER, HAZARDOUS CONDITIONS, ETC. THREADLESS FITTINGS FOR IMC IS NOT ACCEPTABLE.

D. EMT CONDUIT WITH SET SCREW FITTINGS SHALL BE PROVIDED IN ABOVE GROUND INTERIOR LOCATIONS WHERE CONDUIT WILL NOT BE SUBJECTED TO PHYSICAL DAMAGE AND WILL REMAIN COMPLETELY DRY DURING ALL WEATHER CONDITIONS.

E. EMT CONDUIT SHALL NOT BE USED IN LOCATIONS WHERE CONDUIT COULD BE EXPOSED TO DIRECT/INDIRECT RAINWATER/LIQUIDS, WIND DRIVEN RAIN, HOSE DOWN AREAS, OUTDOOR AIR CONDITIONING HOUSING (UNLESS CONDUIT WILL REMAIN COMPLETELY DRY DURING ALL WEATHER CONDITIONS) AND AREAS WHERE RAINWATER/LIQUIDS MIGHT DRIP OR RUN INTO CONDUIT, BACKBOXES OR DEVICES.

F. SCHEDULE 80 PVC CONDUIT SHALL BE USED FOR UNDERGROUND SERVICE ENTRANCE FEEDERS AND ALL CONDUIT BELOW SLAB/WAYS UNLESS OTHERWISE NOTED ON RISER DIAGRAMS AND/OR FLOOR PLANS. PROVIDE LARGE RADIUS RIGID GALVANIZED STEEL ELBOWS FOR SCHEDULE 80 PVC CONDUIT. PROVIDE PVC COATED RIGID STEEL ELBOWS WITH BLACK MASTIC.

G. SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR ALL UNDERGROUND FEEDERS AND WIRING EXCEPT FOR SERVICE ENTRANCE FEEDERS AND UNDER ROADWAYS. PROVIDE LARGE RADIUS RIGID GALVANIZED STEEL ELBOWS FOR SCHEDULE 40 PVC CONDUIT WHERE OVERALL CONDUIT RUN IS GREATER THAN 100 FEET. COAT RGS ELBOWS WITH BLACK MASTIC.

H. PVC CONDUIT SHALL NOT BE USED MORE THAN SIX INCHES ABOVE FINISHED GRADE IN EITHER INTERIOR OR EXTERIOR LOCATIONS. PVC CONDUIT SHALL TRANSITION TO METAL CONDUIT NO MORE THAN SIX INCHES ABOVE GRADE.

I. ALL PVC CONNECTIONS SHALL BE WATERTIGHT.

J. FLEXIBLE METAL CONDUIT SHALL BE USED TO CONNECT LIGHTING FIXTURES AND EQUIPMENT SUBJECT TO VIBRATION, INCLUDING A/C EQUIPMENT, MOTORS, TRANSFORMERS, ETC. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AND FITTINGS FOR EXTERIOR APPLICATIONS.

K. CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, OR CEILINGS IN FINISHED AREAS. CONDUIT SHALL NOT BE EXPOSED IN FINISHED AREAS EXCEPT WHEN ABSOLUTELY NECESSARY. CONDUIT SHALL BE STRAIGHT AND PARALLEL TO BUILDING LINES.

L. DURING CONSTRUCTION CONDUIT SHALL BE PROTECTED AGAINST DAMAGE AND ENTRANCE OF WATER, DIRT OR FOREIGN MATERIAL WITH WATERTIGHT CAPS. FIRE RATED ASSEMBLIES SHALL BE PROVIDED WHERE CONDUIT PASSES THROUGH FIRE RATED CONSTRUCTION. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF FIRE RATED CONSTRUCTION. REFER TO THE FIRE STOP PENETRATION DETAILS ON THE ELECTRICAL DRAWINGS.

M. INSULATING BUSHINGS WITH DOUBLE LOCK-NUTS SHALL BE USED WHERE CONDUIT 1-1/4" DIA OR LARGER ENTERS A BOX, PANEL, DISCONNECT OR ELECTRICAL EQUIPMENT.

N. CONDUIT SIZES SHOWN ON THE DRAWINGS AND SCHEDULES ARE THE MINIMUM SIZES REQUIRED. LARGER SIZE CONDUIT TO FACILITATE WIRE PULLS, ETC, IS PERMITTED.

2.07 CONDUCTORS

A. PROVIDE 75 DEGREE CELSIUS (167 DEGREE FAHRENHEIT) TYPE THHW, THW, THWN, OR XHHW INSULATED COPPER CONDUCTORS RATED AT 600V FOR POWER DISTRIBUTION WIRING. CONDUIT WIRE FILL SHOWN ON THE DRAWINGS AND FEEDER SCHEDULES ARE BASED ON TYPE THW WIRE UNLESS NOTED OTHERWISE.

B. CONDUCTORS UP TO AND INCLUDING NO. 10 AWG SHALL BE SOLID and CONDUCTORS NO. 8 AWG AND LARGER SHALL BE STRANDED. MINIMUM CONDUCTOR SIZE SHALL BE NO.12 AWG. CONDUCTORS SHALL BE CONTINUOUS BETWEEN EQUIPMENT AND DEVICES. SPLICES ARE TO BE MADE ONLY IN ACCESSIBLE JUNCTION OR OUTLET BOXES and SHOULD BE KEPT TO A MINIMUM. SPLICES ON NO.12 AND NO.10 WIRE SHALL BE MADE WITH PRESSURE CONNECTORS CAPABLE OF CARRYING FULL WIRE CAPACITY. SPLICES ON NO.8 WIRE AND LARGER SHALL BE MADE WITH SOLDERLESS LUGS WRAPPED WITH BOTH RUBBER AND PLASTIC ELECTRICAL TAPE. CONNECTIONS TO FIXED EQUIPMENT TERMINALS ARE TO BE MADE WITH SOLDERLESS LUGS.

C. ALL NEW CONDUIT USED FOR POWER DISTRIBUTION SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR. CONDUIT RACEWAY SHALL NOT BE USED IN PLACE OF A GROUNDING CONDUCTOR.

D. MC TYPE CABLE MAY BE UTILIZED IF ALLOWED BY THE AUTHORITY HAVING JURISDICTION.

2.08 WIRING DEVICES

A. THE EXTENT OF WIRING DEVICE WORK IS INDICATED ON THE DRAWINGS. WIRING DEVICES ARE DEFINED AS SINGLE DISCRETE UNITS OF ELECTRICAL DISTRIBUTION SYSTEMS THAT ARE INTENDED TO CARRY BUT NOT UTILIZE ELECTRIC ENERGY. TYPES OF WIRING DEVICES IN THIS SECTION INCLUDE:
- RECEPTACLES
- GROUND FAULT CIRCUIT INTERRUPTERS
- ARC FAULT CIRCUIT INTERRUPTERS
- LIGHT SWITCHES

B. PROVIDE WHITE COLORED WIRING DEVICES AND MATCHING THERMOPLASTIC COVERPLATES UNLESS NOTED OTHERWISE. FINAL COLOR SELECTION SHALL BE COORDINATED WITH OWNER/ARCHITECT PRIOR TO BID.

C. QUALITY ASSURANCE

1. NEC COMPLIANCE: COMPLY WITH NEC AS APPLICABLE TO INSTALLATION AND WIRING OF ELECTRICAL WIRING DEVICES.

2. UL COMPLIANCE: COMPLY WITH APPLICABLE REQUIREMENTS OF U.L. 20, 486A, 498 AND 943 PERTAINING TO INSTALLATION OF WIRING DEVICES. PROVIDE WIRING DEVICES WHICH ARE U.L. LISTED AND LABELED.

3. IEEE COMPLIANCE: COMPLY WITH APPLICABLE REQUIREMENTS OF IEEE STANDARD 241, "RECOMMENDED PRACTICE FOR ELECTRIC POWER SYSTEMS IN COMMERCIAL BUILDINGS", PERTAINING TO ELECTRICAL WIRING SYSTEMS.

4. NEMA COMPLIANCE: COMPLY WITH APPLICABLE PORTIONS OF NEMA STANDARDS PUBLICATION NUMBER WD-1, "GENERAL PURPOSE WIRING DEVICES", WD-2, "SEMICONDUCTOR DIMMERS FOR INCANDESCENT LAMPS", and WD-5, "SPECIFIC PURPOSE WIRING DEVICES".

D. RECEPTACLES

1. SIMPLEX: PROVIDE SPECIFICATION GRADE 20-AMPERE, 125 VOLT, HEAVY-DUTY, 2-POLE, 3-WIRE, RECEPTACLE WITH GREEN HEXAGONAL EQUIPMENT GROUND SCREW AND METAL PLASTER EARS DESIGNED FOR SIDE AND BACK WIRING WITH SPRING LOADED, SCREW ACTIVATED PRESSURE PLATE IN NEMA 5-20R CONFIGURATION UNLESS NOTED OTHERWISE. COORDINATE ALL "SPECIAL" RECEPTACLES WITH THE EQUIPMENT SERVED PRIOR TO ROUGH-IN. PROVIDE RECEPTACLE RATING and CONFIGURATION TO MATCH EQUIPMENT SERVED.

2. DUPLEX: PROVIDE SPECIFICATION GRADE 20-AMPERE, 125 VOLT, HEAVY-DUTY, 2-POLE, 3-WIRE, RECEPTACLE WITH GREEN HEXAGONAL EQUIPMENT GROUND SCREW and METAL PLASTER EARS DESIGNED FOR SIDE and BACK WIRING WITH SPRING LOADED, SCREW ACTIVATED PRESSURE PLATE IN NEMA 5-20R CONFIGURATION.

E. GROUND-FAULT CIRCUIT INTERRUPTERS

1. PROVIDE SPECIFICATION GRADE "FEED-THRU" TYPE GROUND-FAULT CIRCUIT INTERRUPTERS, WITH HEAVY-DUTY DUPLEX RECEPTACLES, CAPABLE OF PROTECTING CONNECTED DOWNSTREAM RECEPTACLES ON SINGLE CIRCUIT, AND OF BEING INSTALLED IN A 2-3/4" DEEP OUTLET BOX WITHOUT ADAPTER, GROUNDING TYPE U.L. RATED CLASS A, GROUP 1, RATED 20-AMPERES, 120-VOLTS, 60 HZ, WITH SOLID-STATE GROUND-FAULT SENSING and SIGNALING, WITH 5 MILLIAMPERES GROUND-FAULT TRIP LEVEL, EQUIP WITH NEMA 5-20R CONFIGURATION.

F. LIGHT SWITCHES

1. SINGLE and TWO POLE: PROVIDE HARD USE SPECIFICATION GRADE RECESS MOUNTED SINGLE and TWO-POLE QUIET TOGGLE SWITCHES, 20-AMPERE, 120/277 VOLTS AC. PROVIDE WITH MOUNTING YOKE INSULATED FROM MECHANISM, PLASTER EARS, SWITCH HANDLE, and SIDE-WIRED SCREW TERMINALS.

2. THREE and FOUR WAY: PROVIDE HARD USE SPECIFICATION GRADE RECESS MOUNTED 3 and 4-WAY AC QUIET SWITCHES, 20-AMPERES, 120/277 VOLTS PROVIDE WITH MOUNTING YOKE INSULATED FROM MECHANISM, PLASTER EARS, SWITCH HANDLE, SIDE-WIRED SCREW TERMINALS, WITH BREAK-OFF TAB FEATURES, WHICH ALLOWS WIRING WITH SEPARATE OR COMMON FEED.

2.09 LIGHTING FIXTURES

A. CONTRACTOR SHALL PROVIDE, WIRE and LAMP ALL LIGHTING FIXTURES SHOWN ON SITE PLAN, FLOOR PLANS and LIGHTING FIXTURE SCHEDULE. AT SUBSTANTIAL COMPLETION, CONTRACTOR SHALL CLEAN DUST, DEBRIS, FINGERPRINTS, ETC FROM ALL FIXTURE LENSES, LOUVERS, and REFLECTORS and SHALL REPLACE ALL LAMPS, BALLASTS, ETC THAT ARE NOT WORKING.

B. CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS (SECTIONS, ELEVATIONS, DETAILS, ETC.) FOR LIGHTING FIXTURES WHICH MAY BE SHOWN and SHALL NOTIFY THE ARCHITECT/ ENGINEER PRIOR TO BID IF FIXTURES APPEAR ON THE ARCHITECTURAL DRAWINGS THAT DO NOT APPEAR ON THE ELECTRICAL DRAWINGS.

2.10 LIGHTING CONTROLS

A. INTERIOR. PROVIDE A COMPLETE, FLORIDA BUILDING CODE COMPLIANT, AUTOMATIC LIGHTING CONTROLS SYSTEM TO SHUT OFF INTERIOR LIGHTING IN BUILDINGS LARGER THAN 5,000 SQUARE FEET. THE SYSTEM SHALL FUNCTION ON EITHER OF THE FOLLOWING:

1. A SCHEDULED BASIS THAT TURNS LIGHTING OFF AT A PROGRAMMED TIME OF DAY. PROVIDE INDICATION 5 MINUTES PRIOR TO TURNING LIGHTING OFF TO ALLOW OCCUPANTS TO MANUALLY OVERRIDE SCHEDULE.

2. AN OCCUPANCY SENSOR THAT SHALL TURN LIGHTING OFF WITHIN 30 MINUTES OF AN OCCUPANT VACATING THE SPACE.

3. A SIGNAL FROM ANOTHER CONTROL OR ALARM SYSTEM THAT INDICATES THE AREA IS UNOCCOPIED.

B. EXTERIOR. PROVIDE TIMECLOCK(S) FOR EXTERIOR LIGHTING CONTROL. TIME CLOCKS SHALL BE 7-DAY, 24-HOUR MECHANICAL OR ELECTRONIC WITH CARRYOVER PROVISIONS FOR A MINIMUM OF 16 HOURS. PROVIDE PHOTOCELL FOR AUTOMATIC FIXTURE SWITCHING WHERE INDICATED ON SITE AND FLOOR PLANS. PHOTOCELL SHALL BE RATED FOR REQUIRED LOAD AND VOLTAGE WITH BUILT-IN DELAY FOR TRANSIENT LIGHT FLASHES AND LIGHT LEVEL ADJUSTMENT.

2.11 EQUIPMENT FURNISHED BY OTHERS

A. CONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE TO EQUIPMENT PROVIDED BY OTHERS INCLUDING, BUT NOT LIMITED TO, CIRCUIT BREAKERS, CONDUIT, WIRE, DISCONNECT SWITCHES, ETC AS REQUIRED BY OTHERS.

2.12 MOTOR CONTROLLERS

A. PROVIDE FULL-VOLTAGE, NON-REVERSING, ACROSS-THE-LINE, MAGNETIC MOTOR CONTROLLER(S). COORDINATE THE FEATURES OF EACH MOTOR CONTROLLER WITH THE RATINGS AND CHARACTERISTICS OF THE SUPPLY CIRCUIT, THE MOTOR, THE REQUIRED CONTROL SEQUENCE, THE DUTY CYCLE OF THE MOTOR, DRIVE, AND LOAD, AND THE PILOT DEVICE, AND CONTROL CIRCUIT INTERFACING CONTROLLER FUNCTIONS. PROVIDE CONTROLLERS THAT ARE HORSEPOWER RATED TO SUIT THE MOTOR CONTROLLED.

B. CONTACTS SHALL OPEN EACH UNGROUNDED CONNECTION TO THE MOTOR.

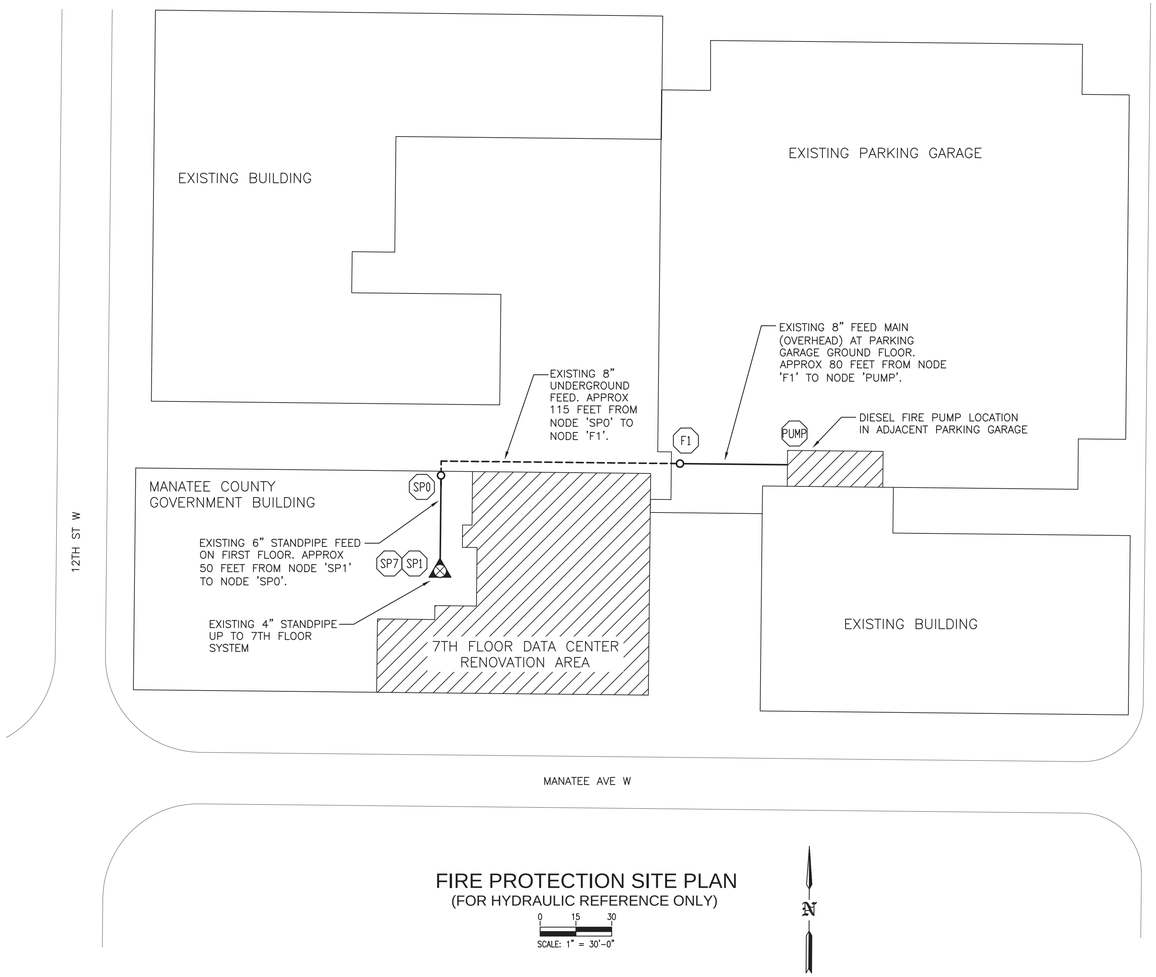
C. OVERLOAD RELAYS: AMBIENT-COMPENSATED TYPE WITH INVERSE-TIME-CURRENT CHARACTERISTIC. PROVIDE WITH HEATERS OR SENSORS IN EACH PHASE MATCHED TO NAMEPLATE FULL-LOAD CURRENT OF THE SPECIFIC MOTOR TO WHICH CONNECTED WITH APPROPRIATE ADJUSTMENT FOR DUTY CYCLE.

D. ENCLOSURES: FOR INDIVIDUALLY MOUNTED MOTOR CONTROLLERS AND CONTROL DEVICES, COMPLY WITH NEMA STANDARD 250, "ENCLOSURES FOR ELECTRICAL EQUIPMENT (1000 VOLTS MAXIMUM)." PROVIDE ENCLOSURES SUITABLE FOR THE ENVIRONMENTAL CONDITIONS AT THE CONTROLLER LOCATION.

E. PROVIDE CONTROL POWER TRANSFORMER INTEGRAL WITH CONTROLLER WHERE NO OTHER SUPPLY OF CONTROL POWER TO CONTROLLER IS INDICATED. PROVIDE CONTROL POWER TRANSFORMER WITH ADEQUATE CAPACITY TO OPERATE CONNECTED PILOT, INDICATING AND CONTROL DEVIC

FIRE PUMP TEST RESULTS

DATE OF TEST	PUMP MAKE/MODEL	PUMP TYPE	RATED GPM	RATED PSI	RATED RPM	MISC. NOTES:		
08/10/2013	PATTERSON 6X5 MAA	ELECTRIC	1250 GPM	125 PSI	3600 RPM			
PITOT	PITOT	PITOT	PITOT	TOTAL FLOW	DISCHARGE PSI	SUCTION PSI	NET PSI	PUMP R.P.M.
0 PSI	–	–	–	0 GPM	200 PSI	47 PSI	153 PSI	–
14 PSI	–	–	–	625 GPM	174 PSI	37 PSI	137 PSI	–
32 PSI	–	–	–	1250 GPM	160 PSI	33 PSI	127 PSI	–
32 PSI	–	–	–	1875 GPM	127 PSI	35 PSI	92 PSI	–



FIRE PROTECTION SITE PLAN
(FOR HYDRAULIC REFERENCE ONLY)

0 15 30
SCALE: 1" = 30'-0"

N

FIRE SPRINKLER DRAWING LEGEND

SYMBOL	DESCRIPTION
4" / 10'-0"	PIPE SIZE / PIPE LENGTH IN FEET–INCHES
	INDICATES PITCHED PIPE (ARROW POINTS TOWARD LOWER ELEVATION)
(22)	HYDRAULIC REFERENCE POINT
[24 BFS]	ELEVATION BELOW TOP OF STEEL (INCHES)
[10-6]	ELEVATION ABOVE FINISHED FLOOR (FEET–INCHES)
(10-0)	CEILING HEIGHT (FEET–INCHES)
	HANGER LOCATION
	TRAPEZE HANGER LOCATION
	DENOTES PIPE RISE UP OR DOWN
	STANDARD GROOVED COUPLING
	'FIRELOCK' GROOVED COUPLING
	PIPING CAP
	PIPING PLUG
	FIRE SPRINKLER RISER LOCATION
# L01	LINE TAG (ONLY IF STOCKLISTED)
A5	MAIN TAG (ONLY IF STOCKLISTED)

BASIC PIPE AND FITTING MATERIAL REQUIREMENTS:

MINIMUM PIPE SCHEDULE FOR WELD/GROOVED/PLAIN END PIPING:

- ☐ SCH. 7 (DYNAFLOW, ETC.)
- ☑ SCH. 10
- ☐ SCH. 40
- ☐ SCH. 80
- ☐ CPVC
- ☑ BLACK STEEL PIPE
- ☐ GALVANIZED PIPE
- ☐ "SEAMLESS"
- ☐ SHOP PAINTED

MINIMUM PIPE SCHEDULE FOR THREADED PIPING:

- ☐ "THREADABLE" LIGHTWALL
- ☑ SCH. 40
- ☐ SCH. 80
- ☐ _____
- ☑ BLACK STEEL PIPE
- ☐ GALVANIZED PIPE
- ☐ "SEAMLESS"
- ☐ SHOP PAINTED

FITTINGS UTILIZED ON THIS PROJECT:

- ☑ GROOVED (STANDARD TAKEOUT)
- ☑ *GROOVED (SHORT RADIUS)
- ☑ GROOVED COUPLINGS (RIGID)
- ☑ GROOVED COUPLINGS (FLEXIBLE)
- ☑ WELDED OUTLETS
- ☑ MECHANICAL TEES
- ☑ C.I. SCREWED
- ☑ D.I. SCREWED
- ☐ M.I. SCREWED (BLK)
- ☐ M.I. SCREWED (GALV)
- ☑ *FLANGED 125#
- ☐ FLANGED 250#
- ☐ CPVC

* = SEE MISCELLANEOUS NOTES

MISCELLANEOUS MATERIAL REQUIREMENTS:

- ☐ DOMESTIC MATERIAL ONLY
- ☑ DOMESTIC OR FOREIGN MATERIAL ACCEPTABLE
- ☑ MATERIAL TO MEET THE MINIMUM REQUIREMENTS OF NFPA 13
- ☑ MATERIAL TO BE UL LISTED AT A MINIMUM
- ☐ MATERIAL TO BE UL LISTED & FM APPROVED
- ☐ DRAIN PIPE & FITTINGS TO BE "GALVANIZED"
- ☑ GALVANIZED PIPE & FITTINGS REQUIRED FOR EXTERIOR WALL PENETRATIONS & EXTERIOR PIPING RUNS.

HANGER MATERIAL

- ☑ STANDARD LOOP HANGER RINGS
- ☐ CLEVIS HANGERS REQUIRED
- ☐ ALL THREAD ROD TO BE 'BLACK'
- ☑ ALL THREAD ROD TO BE 'CAD PLATED'
- ☐ "STAINLESS" HANGER MATERIAL REQUIRED

MISCELLANEOUS NOTES:

1. All short radius fittings are called out on the plans (when used).
2. Flanged fittings only used at the riser stub–up.

FIRE SPRINKLER DRAWING LEGEND

SHEET #	DESCRIPTION
FP1.0	FIRE PROTECTION SITE PLAN & GENERAL NOTES
FP1.1	FIRE SPRINKLER DETAILS
FP2.0	EXISTING CONDITIONS / DEMO FIRE SPRINKLER PLAN
FP2.1	NEW WORK FIRE SPRINKLER PLAN
FX1.0	FIRE SUPPRESSION SYSTEM GENERAL NOTES & DETAILS
FX2.0	FIRE SUPPRESSION SYSTEM PLAN

FLORIDA ADMINISTRATIVE CODE
CHAPTER 61G15–32 REQUIREMENTS – FIRE SPRINKLER

THE FOLLOWING IS AN OUTLINE OF THE MINIMUM DESIGN PARAMETERS ASSOCIATED WITH THE DESIGN OF THE WATER–BASED FIRE PROTECTION SYSTEM ON THIS PROJECT. THE OUTLINE OF THESE PARAMETERS FOLLOWS THE MINIMUM REQUIREMENTS AS PROVIDED IN THE FLORIDA ADMINISTRATIVE CODE, CHAPTER 61G15–32.

61G15–32.003 COMMON REQUIREMENTS TO ALL FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS

32.003(1) THIS FIRE PROTECTION ENGINEERING DOCUMENT PROVIDES THE ENGINEERING REQUIREMENTS TO BE USED IN THE PREPARATION OF THE FIRE PROTECTION SYSTEM LAYOUT DOCUMENTS FOR THE FOLLOWING SYSTEMS:

a. WET–PIPE FIRE SPRINKLER SYSTEM MODIFICATIONS.

32.003(2) THE ACCEPTANCE TESTING OF THE FIRE PROTECTION SYSTEM AND COMPONENTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN NFPA 13, 2007 EDITION, CHAPTERS 10 AND 24. THE APPROPRIATE CONTRACTOR'S MATERIAL AND TEST CERTIFICATE(S) SHALL BE COMPLETED AND SIGNED:

NFPA 13, 2007 EDITION, SECTION 24.1(3) & FIGURE 24.1, "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING"
NFPA 13, 2007 EDITION, SECTION 10.10.1(3) & FIGURE 10.10.1, "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING"

32.003(3) SEE 32.004(2)(C) AND 32.004(2)(D) FOR OCCUPANCY DESIGN CRITERIA.
32.003(4) SEE 32.004(2)(B) FOR APPLICABLE STANDARDS.

32.003(5) THE FIRE PROTECTION SYSTEM FOR THIS PROJECT MAY CONTRIBUTE 3 POUNDS PER SQUARE FOOT TO THE DEAD LOAD OF THIS BUILDING'S STRUCTURAL SUPPORT SYSTEM. IT IS THE CONTENTION OF THE ENGINEER OF RECORD FOR THE FIRE PROTECTION SYSTEM THAT THE BUILDING WILL ADEQUATELY SUPPORT THE FIRE PROTECTION SYSTEM. THIS HAS BEEN CONFIRMED WITH THE STRUCTURAL ENGINEER.

61G15–32.004 DESIGN OF WATER–BASED FIRE PROTECTION SYSTEMS.

32.004(2)(A) THE POINT–OF–SERVICE FOR THIS BUILDING'S FIRE PROTECTION WATER SUPPLY, AS DEFINED BY 633.021(18) F.S., IS EXISTING AND SHALL REMAIN AS–IS. NO UNDERGROUND WORK IS EXPECTED ON THIS PROJECT.

32.004(2)(B) THE APPLICABLE STANDARDS TO BE APPLIED IN THE DESIGN OF THIS PROJECT ARE:

FLORIDA BUILDING CODE (2010)
FLORIDA FIRE PREVENTION CODE (2010)
NFPA 13 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS (2007 EDITION)

32.004(2)(C) CLASSIFICATION OF HAZARD OCCUPANCY FOR EACH ROOM OR AREA:

LIGHT HAZARD OCCUPANCIES: OFFICE AREAS, CORRIDORS
ORDINARY HAZARD OCCUPANCIES (GROUP 1): LAB AREA, SMALL STORAGE ROOM

32.004(2)(D) DESIGN APPROACH FOR EACH SEPARATE HAZARD OCCUPANCY, OR SYSTEM, AS PER NFPA 13, 2007 ED:

LIGHT HAZARD OCCUPANCIES:

WET PIPE SYSTEM, 0.10 GPM/FT2, 155'F HEADS, 225 FT2 MAX SPACING – FOR STANDARD COVERAGE HEADS ONLY. EXTENDED COVERAGE HEADS SHALL BE PERMITTED WHEN VERIFIED WITH THE HYDRAULIC CALCULATIONS, AND WHEN THE HEAD UL LISTING IS APPLICABLE TO THE TYPE OF CONSTRUCTION. THE BASE DESIGN AREA FOR THIS HAZARD IS 1,500 SQ.FT., HOWEVER, A REDUCTION IN THE DESIGN AREA, IN ACCORDANCE WITH NFPA 13, SECTION 11.2.3.2.3, SHALL BE PERMITTED.

ORDINARY HAZARD OCCUPANCIES (GROUP 1):

WET PIPE SYSTEM, 0.15 GPM/FT2, 155'F HEADS, 130 FT2 MAX SPACING – FOR STANDARD COVERAGE HEADS ONLY. THE BASE DESIGN AREA FOR THIS HAZARD IS 1,500 SQ.FT., HOWEVER, A REDUCTION IN THE DESIGN AREA, IN ACCORDANCE WITH NFPA 13, SECTION 11.2.3.2.3, SHALL BE PERMITTED.

32.004(2)(E)(F) SEE THE FIRE PROTECTION SITE PLAN SHOWN ON THIS SHEET FOR WATER SUPPLY SPECIFICS. THIS SITE PLAN IS TO BE USED FOR HYDRAULIC REFERENCE ONLY.

32.004(2)(G) VALVES AND ALARMS SPECIFIC TO THE FIRE PROTECTION SYSTEM USED ON THIS PROJECT SHALL BE U.L. LISTED & FM APPROVED FOR FIRE PROTECTION SERVICE. ALL VALVES CONTROLLING CONNECTIONS TO WATER SUPPLIES AND TO SUPPLY PIPES TO SPRINKLERS, INCLUDING BACKFLOW PREVENTION ASSEMBLIES, SHALL BE LISTED INDICATING VALVES AND PROVIDED WITH TAMPER AND/OR FLOW SWITCHES WITH CONNECTIONS TO LOCAL AUDIBLE ALARMS AND OFF SITE MONITORING.

32.004(2)(H) IN ACCORDANCE WITH DISCUSSIONS WITH THE LOCAL WATER PURVEYOR AND FIRE MARSHAL, AND FAMILIARITY WITH CONDITIONS IN THE AREA, MICROBIAL INDUCED CORROSION (MIC) IS NOT KNOWN TO BE PRESENT IN THE WATER SUPPLY.

32.004(2)(I) BACKFLOW PREVENTION REQUIREMENTS (AS APPLICABLE), INCLUDING ANTICIPATED PRESSURE LOSS, ARE INDICATED ON THE FIRE PROTECTION SITE PLAN.

32.004(2)(J) ALL YARD AND INTERIOR FIRE PROTECTION COMPONENTS SHALL BE U.L. LISTED & FM APPROVED FOR FIRE PROTECTION SERVICE AND/OR STATED PURPOSE.

FIRE SPRINKLER SPECIFICATIONS AND GENERAL NOTES

1. GENERAL PROJECT SCOPE:

   THIS PROJECT CONCERNS BASIC MODIFICATIONS TO AN EXISTING WET–PIPE FIRE SPRINKLER SYSTEM. BASED ON 7TH FLOOR REMODEL, ADD/RELOCATE HEADS AS SHOWN ON THE FIRE PROTECTION PLAN. AN EXISTING CLEAN AGENT FIRE SUPPRESSION SYSTEM SHALL BE REUSED AND MODIFIED FOR THE NEW DATA CENTER AREA (SEE SHEETS FX1.0 & FX2.0).

   THE AREAS PROTECTED ARE:
   WET PIPE SPRINKLER SYSTEM – APPROXIMATELY 5,700 SQ. FT.
   CLEAN AGENT FIRE SUPPRESSION SYSTEM – APPROXIMATELY 1,800 SQ. FT.

2. DESIGN PARAMETERS:

   A. SEE THE 61G15 PARAMETERS ON THIS SHEET FOR DESIGN CRITERIA.

   B. HANGER SPACING AND LOCATIONS SHALL BE IN ACCORDANCE WITH NFPA 13.

   C. ALL UNDERGROUND WORK IS EXISTING AND TO REMAIN AS–IS. NO NEW UNDERGROUND WORK IS REQUIRED.

3. MATERIALS:

   A. ALL FIRE PROTECTION EQUIPMENT AND MATERIALS SHALL BE U.L. LISTED OR FM APPROVED (WHEN APPLICABLE).
   B. ALL THREADED FITTINGS ARE TO BE GALVANIZED – CLASS 125 CAST IRON OR CLASS 150 MALLEABLE IRON.
   C. GROOVED FITTINGS ARE TO BE GALVANIZED – UL LISTED AND IN ACCORDANCE WITH THE LATEST EDITION OF NFPA 13.
   D. SEE THE 'BASIC PIPE AND FITTING MATERIAL REQUIREMENTS' TABLE ON THIS SHEET FOR MATERIAL SPECIFICATIONS.

4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AS–BUILTS.

5. ALL PENETRATIONS THRU RATED WALLS/FLOORS SHALL BE FIRE STOPPED/WATERPROOFED TO MATCH THE RATING OF THE WALL/FLOOR.

6. AUXILIARY DRAIN VALVES ARE TO BE PROVIDED WHERE PORTIONS OF THE SYSTEM ARE INSTALLED "TRAPPED", IN ACCORDANCE WITH NFPA 13.

7. HEADS SHALL NOT BE PAINTED AND SHALL BE TEMPORARILY PROTECTED FROM OVERSPRAY WITH PAPER BAGS OR ALUMINUM FOIL. CARE SHALL BE TAKEN AT ALL TIMES NOT TO DAMAGE THE SPRINKLER HEAD'S FRANGIBLE BULB.

8. THE FIRE DEPARTMENT CONNECTION IS EXISTING AND SHALL REMAIN AS–IS.

9. THE FIRE SPRINKLER CONTRACTOR SHALL PREPARE A SHOP DRAWING SUBMITTAL AND EQUIPMENT CUTSHEET PACKAGE SUBMITTAL, AND SUBMIT TO THE ENGINEER AND AUTHORITY HAVING JURISDICTION, FOR APPROVAL. APPROVAL OF SHOP DRAWINGS AND EQUIPMENT SHALL BE OBTAIN PRIOR TO STARTING WORK. THE ENGINEER OF RECORD SHALL FURNISH THE FIRE SPRINKLER CONTRACTOR WITH AUTOCAD DRAWINGS, PREPARED WITH HYDRACAD SPRINKLER DESIGN SOFTWARE, FOR USE IN PREPARING SHOP DRAWINGS AND AS–BUILTS.

10. THIS IS A CENTER–OF–TILE INSTALLATION. IN ALL COMMON ACCESS AREAS, SPRINKLER HEADS SHALL BE INSTALLED WITHIN 1" OF THE CENTER–OF–TILE (OR QUARTER TILE) AS INDICATED ON THESE PLANS. IN STORAGE AND MECHANICAL ROOMS IT WILL NOT BE NECESSARY TO CENTER HEADS IN THE CEILING GRID.

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ENGINEER OF RECORD

NATHANIEL JACE HATCHER LICENSE NO. 59350 STATE OF FLORIDA PROFESSIONAL ENGINEER

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PLOT: 09\12\14

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7TH FLOOR DATA CENTER RENOVATION
1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

FIRE PROTECTION SITE PLAN & GENERAL NOTES

Project No.	2013019.02
Drawn By	RWL
Checked By	NJH
Date	09.09.14

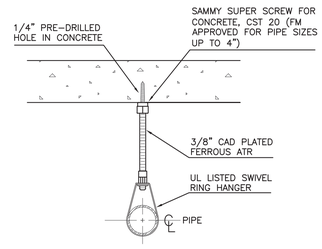
Revisions:

CONSTRUCTION DOCUMENTS

FP1.0

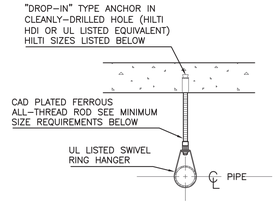
Originals printed @ 24" x 36" scale as required

PIPE SUPPORT - TYPE C09
SAMMY SUPER SCREW FOR CONCRETE W/ RING HANGER
(NOT TO SCALE)



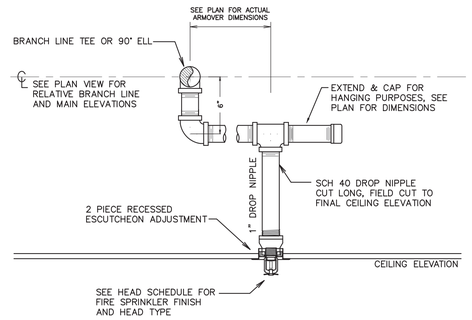
ALL THREAD ROD SIZES
PIPE SIZES 1" – 4" -- ROD SIZE = 3/8"

PIPE SUPPORT - TYPE C01
DROP-IN ANCHOR W/ RING HANGER
(NOT TO SCALE)

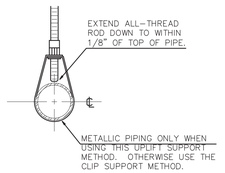


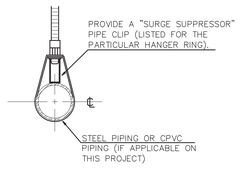
ALL THREAD ROD SIZES
PIPE SIZES 1" – 4" -- ROD SIZE = 3/8"
PIPE SIZES 5" – 8" -- ROD SIZE = 1/2"

TYP. SINGLE HEAD RELOCATION
(NOT TO SCALE)



END-HEAD UPLIFT SUPPORT REQUIREMENTS FOR SYSTEM WORKING PRESSURES OVER 100 PSI.
(FOR PIPE SUPPLYING PENDENT HEADS BELOW A CEILING)





INSTALLATION NOTE:

THIS DETAIL ONLY APPLIES WHEN THE PIPING SUPPLIES PENDENT HEADS BELOW A CEILING. FOR UPRIGHT HEADS AND PENDENT HEADS IN EXPOSED STRUCTURE AREAS, THE STANDARD HANGING METHODS APPLY.

PER NFPA 13, 2007 ED.

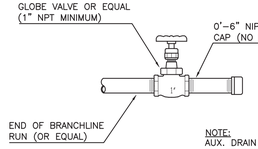
9.2.3.4.4.1 WHEN THE MAXIMUM STATIC OR FLOWING PRESSURE, WHICHEVER IS GREATER AT THE SPRINKLER, APPLIED OTHER THAN THROUGH THE FIRE DEPARTMENT CONNECTION, EXCEEDS 100 PSI (6.9 BAR) AND A BRANCH LINE ABOVE A CEILING SUPPLIES SPRINKLERS IN A PENDENT POSITION BELOW THE CEILING, THE HANGER ASSEMBLY SUPPORTING THE PIPE SUPPLYING AN END SPRINKLER IN A PENDENT POSITION SHALL BE OF A TYPE THAT PREVENTS UPWARD MOVEMENT OF THE PIPE.

9.2.3.4.4.2 THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER IN A PENDENT POSITION OR DROP NIPPLE AND THE LAST HANGER ON THE BRANCH LINE SHALL NOT BE GREATER THAN 12 IN. (305 MM) FOR STEEL PIPE OR 6 IN. (152 MM) FOR COPPER PIPE.

9.2.3.5.2.1 WHERE THE MAXIMUM STATIC OR FLOWING PRESSURE, WHICHEVER IS GREATER AT THE SPRINKLER, APPLIED OTHER THAN THROUGH THE FIRE DEPARTMENT CONNECTION, EXCEEDS 100 PSI (6.9 BAR) AND A BRANCH LINE ABOVE A CEILING SUPPLIES SPRINKLERS IN A PENDENT POSITION BELOW THE CEILING, THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMOVER TO A SPRINKLER OR SPRINKLER DROP SHALL NOT EXCEED 12 IN. (305 MM) FOR STEEL PIPE AND 6 IN. (152 MM) FOR COPPER TUBE.

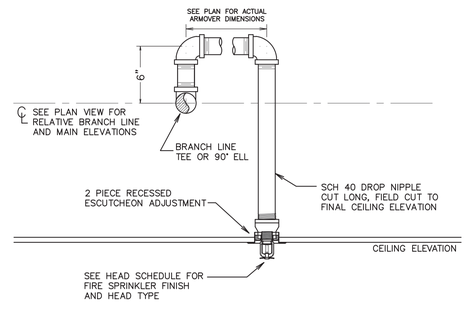
NTS

AUXILIARY DRAIN VALVE
(NOT TO SCALE)

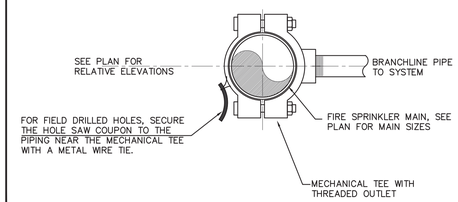


NOTE:
AUX. DRAIN VALVES TO BE PROVIDED ON 'TRAPPED' PIPING SECTIONS CONTAINING MORE THAN 5 GALLONS OF WATER. (PER NFPA 13)

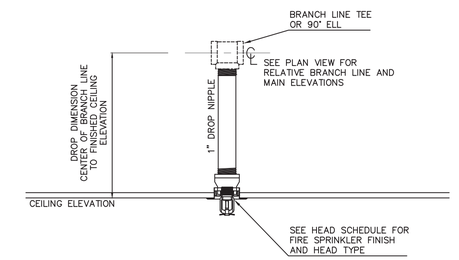
TYP. SINGLE HEAD RELOCATION
(NOT TO SCALE)



MECHANICAL TEE CONNECTION DETAIL
(NOT TO SCALE)



TYPICAL RECESSED PENDENT
(NOT TO SCALE)



MINIMUM DESIGN AREA - PER NFPA 13

CALC ID	MAXIMUM CEILING HEIGHT	INITIAL DESIGN AREA	REDUCTION IN DESIGN AREA -3√2 + 55 X = CEILING HEIGHT (PER FIGURE 11.2.3.2.3.1)	DESIGN AREA REDUCTION (SQ.FT.)	INCREASE FOR SLOPES OVER 2:12 (PER SECTION 11.2.3.2.4)	INCREASE FOR DRY PIPE SYSTEMS (PER SECTION 11.2.3.2.5)	DESIGN AREA INCREASE (SQ.FT.)	MINIMUM ALLOWABLE COMBINED DESIGN AREA (PER SECTION 11.2.3.2.7)
0633-A	9'-6"	1,500 SQ.FT.	– 40.0%	– 600 SQ.FT.	+ 0%	+ 0%	+ 0 SQ.FT.	900 SQ.FT.

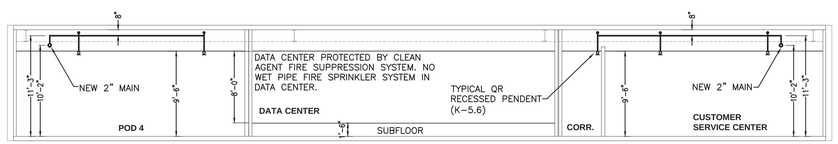
HYDRAULIC DESIGN DATA

CALC ID	SPECIFIC AREA PROTECTED	DENSITY (GPM/SQ.FT.)	DESIGN AREA (SQ. FT.)	HOSE ALLOW. (GPM) INSIDE/OUTSIDE	NUMBER OF HEADS CALCULATED	OCCUPANCY CLASSIFICATION	COMMODITY CLASSIFICATION	MAX. STORAGE HEIGHT	WATER DEMAND AT NODE 'PUMP' INCLUDING HOSE DEMAND (GPM @ PSI)	WATER DEMAND AT FLOOR CONTROL VALVE (GPM @ PSI)	SAFETY FACTOR (PSI)
0633-A	OFFICE AREA	0.10	934	0 / 100	8	LIGHT HAZARD	N/A	N/A	244.3 GPM @ 82.7 PSI	144.3 GPM @ 31.4 PSI	67.5 PSI

SPRINKLER HEADS AND LEGEND - BASIS OF DESIGN

MAKE	MODEL	TYPE	RESPONSE	"K"	NPT	TEMP	FINISH – HD/ESC	SPRK ID#	SYMBOL	TOTAL	COMMENTS	SPARE HEAD COUNT BY TYPE
RELIABLE	F1FR56	RECESSED PENDENT	QUICK	5.6	½"	155°F	WHITE / WHITE	RA1414	⊙	51	RECESSED PENDENT INSTALLED CENTER-OF-TILE	6
									⊗		EXISTING PENDENT (TO REMAIN)	
								TOTAL HEADS		51	TOTAL DOES NOT INCLUDE SPARE HEAD COUNT	

THE SPRINKLER HEAD COUNT SHOWN ON THIS PLAN SHALL BE CONSIDERED APPROXIMATE UNTIL VERIFIED BY THE CONTRACTOR. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ENGINEER'S ATTENTION.



A / FP1.1 FIRE SPRINKLER SIMPLE SECTION
SCALE: 1/8" = 1'-0"

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

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ENGINEER OF RECORD
NATHANIEL J. HATCHER, #59350
PLOT: 09\12\14

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MANATEE COUNTY GOVERNMENT
7TH FLOOR DATA CENTER RENOVATION
1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

FIRE SPRINKLER DETAILS

Project No.	2013019.02
Drawn By	RWL
Checked By	NJH
Date	09.09.14

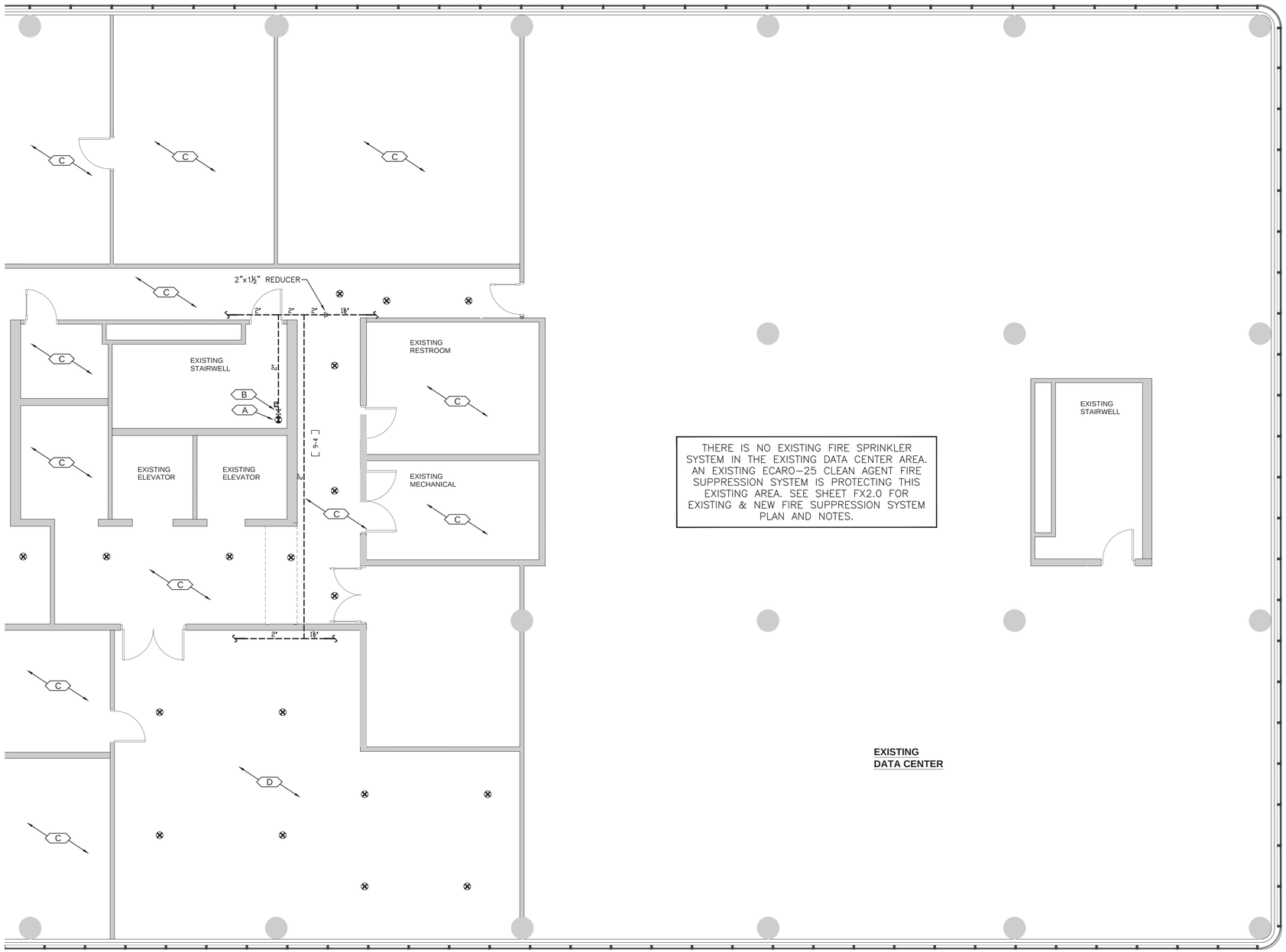
Revisions:

#1 - 9/9/14. Revised Area

CONSTRUCTION DOCUMENTS

FP1.1

Originals printed @ 24" x 36" scale as required



THERE IS NO EXISTING FIRE SPRINKLER SYSTEM IN THE EXISTING DATA CENTER AREA. AN EXISTING ECARO-25 CLEAN AGENT FIRE SUPPRESSION SYSTEM IS PROTECTING THIS EXISTING AREA. SEE SHEET FX2.0 FOR EXISTING & NEW FIRE SUPPRESSION SYSTEM PLAN AND NOTES.

EXISTING CONDITIONS / DEMO FIRE SPRINKLER PLAN 1

3/16" = 1'-0"

XX KEY NOTE DENOTED BY THIS SYMBOL. SEE PLAN.

DEMO KEY NOTE LEGEND (THIS SHEET):

A. EXISTING 4" FIRE SPRINKLER STANDPIPE. TO REMAIN AS-IS.

B. EXISTING 2" FLOOR CONTROL VALVE & FLOW SWITCH FOR 7TH FLOOR FIRE SPRINKLER SYSTEM.

C. SPRINKLER HEADS AND PIPING IN THIS AREA ARE EXISTING AND SHALL REMAIN AS-IS. NO WORK, THIS AREA.

D. REMOVE ALL EXISTING BRANCHLINE PIPING FEEDING THE HEADS IN THIS AREA. PLUG/CAP UNUSED OUTLETS AT MAIN.

FIRE SPRINKLER DRAWING LEGEND

SYMBOL	DESCRIPTION
4" / 10-0	PIPE SIZE / PIPE LENGTH IN FEET-INCHES / INDICATES PITCHED PIPE (ARROW POINTS TOWARD LOWER ELEVATION)
(22)	HYDRAULIC REFERENCE POINT
[24 BTS]	ELEVATION BELOW TOP OF STEEL (INCHES)
[10-6]	ELEVATION ABOVE FINISHED FLOOR (FEET-INCHES)
10-0	CEILING HEIGHT (FEET-INCHES)
	HANGER LOCATION
	TRAPEZE HANGER LOCATION
D	DENOTES PIPE RISE UP OR DOWN
	STANDARD GROOVED COUPLING
	'FIRELOCK' GROOVED COUPLING
	PIPING CAP
	PIPING PLUG
	FIRE SPRINKLER RISER LOCATION
# L01	LINE TAG (ONLY IF STOCKLISTED)
A5	MAIN TAG (ONLY IF STOCKLISTED)

PIPING LEGEND

X" / X-X	SOLID LINE REPRESENTS NEW PIPING TO BE ADDED. SEE FLOOR PLAN FOR SIZES.
X"	DASHED LINE REPRESENTS EXISTING PIPING TO REMAIN AS-IS. SEE FLOOR PLAN FOR EXISTING SIZES.
	'X' LINE REPRESENTS EXISTING PIPING TO BE REMOVED.
•	REPRESENTS EXISTING SPRINKLER & DROP OR SPRIG TO BE REMOVED WITH 1" OUTLET TO REMAIN FOR NEW SPRINKLER HEAD SUPPLY. CONNECT NEW 1" SPRINKLER DROP OR PLUG EXISTING 1" OUTLET AS INDICATED ON FLOOR PLAN.

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EXISTING CONDITIONS / DEMO FIRE SPRINKLER PLAN

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Revisions:

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FP2.0

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ENGINEER OF RECORD

NATHANIEL J. HATCHER LICENSE NO. 59350 STATE OF FLORIDA PROFESSIONAL ENGINEER

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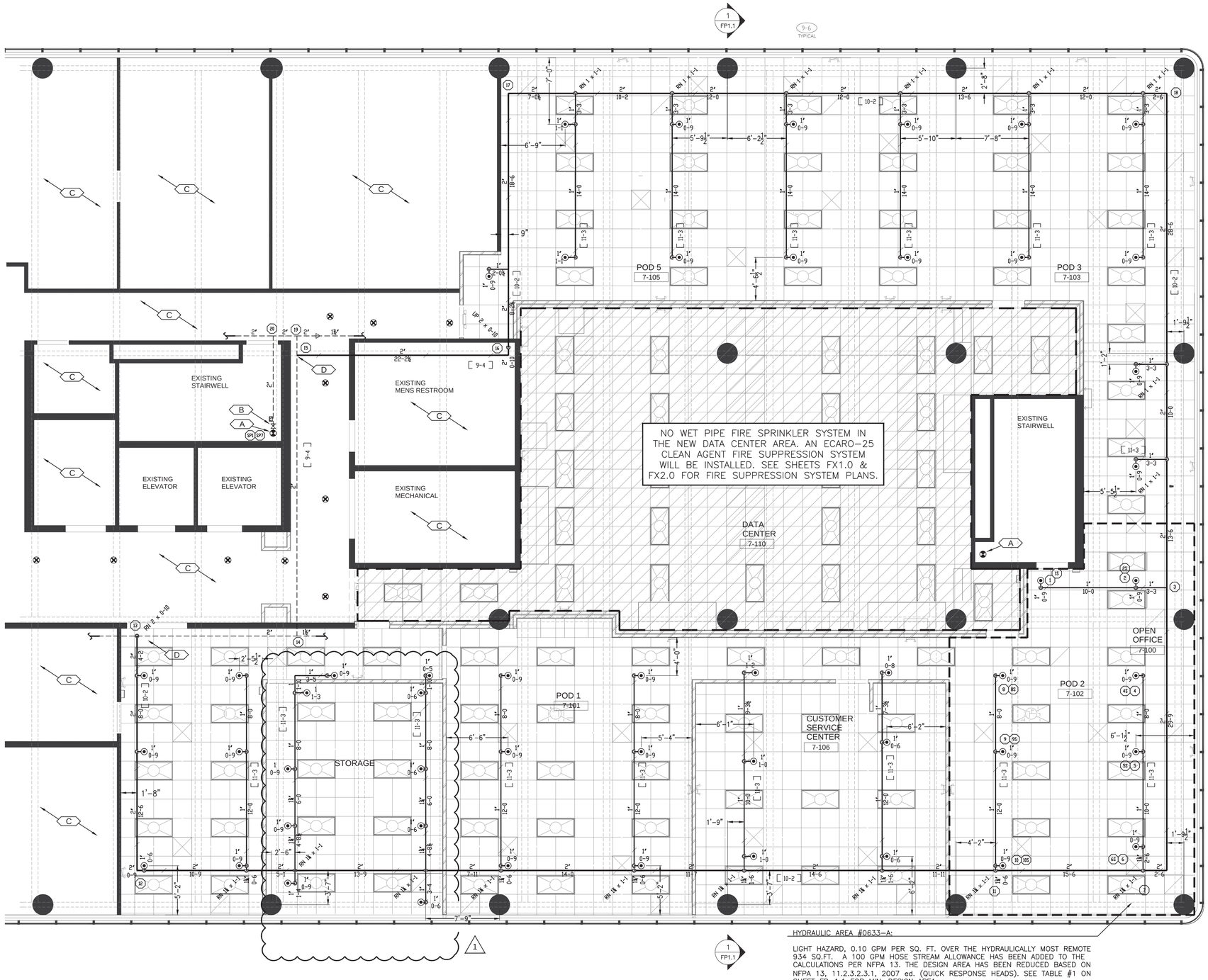
2014.09.12 13:07:07 -04'00'

PLOT: 09\12\14

NATHANIEL J. HATCHER, #59350



HYDRAULIC AREA #0633-A:

LIGHT HAZARD, 0.10 GPM PER SQ. FT. OVER THE HYDRAULICALLY MOST REMOTE 934 SQ.FT. A 100 GPM HOSE STREAM ALLOWANCE HAS BEEN ADDED TO THE CALCULATIONS PER NFPA 13. THE DESIGN AREA HAS BEEN REDUCED BASED ON NFPA 13, 11.2.3.2.3.1, 2007 ed. (QUICK RESPONSE HEADS). SEE TABLE #1 ON SHEET FP-1.1 FOR MIN. DESIGN AREA.

NEW WORK FIRE SPRINKLER PLAN 1

3/16" = 1'-0"

XX KEY NOTE DENOTED BY THIS SYMBOL. SEE PLAN.

KEY NOTE LEGEND (THIS SHEET):

A. EXISTING 4" FIRE SPRINKLER STANDPIPE. TO REMAIN AS-IS.

B. EXISTING 2" FLOOR CONTROL VALVE & FLOW SWITCH FOR 7TH FLOOR FIRE SPRINKLER SYSTEM.

C. SPRINKLER HEADS AND PIPING IN THIS AREA ARE EXISTING AND SHALL REMAIN AS-IS. NO WORK, THIS AREA.

D. CUT-IN NEW 2" TEE AT THIS LOCATION AND INSTALL NEW 2" FEED AS SHOWN.

PIPE DIMENSIONS SHOWN ON THIS PLAN ARE CENTER-TO-CENTER, AS DESCRIBED BELOW:

1). WHEN GROOVED ELLS AND TEES ARE SHOWN CUT-IN ON THE MAINS AND/OR BRANCH LINES, THE GROOVED FITTING TAKE-OUT HAS BEEN REMOVED FROM THE ADJACENT PIPING DIMENSION TAG.

2). ALL ELEVATION CHANGES INDICATED BY A RISER NIPPLE, OR RISE UP/DN, ARE CENTER-TO-CENTER DIMENSIONS UNLESS CUT-LENGTH DIMENSIONS ARE SPECIFICALLY SHOWN. IN OTHER WORDS, NO TAKE-OUTS HAVE BEEN REMOVED FROM THE RISER NIPPLES OR RISERS (UP OR DOWN). THIS INCLUDES BOTH THREADED AND GROOVED PIPING ELEVATION CHANGES.

3). ALL THREADED PIPING DIMENSIONS ARE CENTER-TO-CENTER.

4). IF HANGER LENGTHS ARE SHOWN, THEY ARE CENTER-TO-CENTER.

FIRE SPRINKLER DRAWING LEGEND

SYMBOL	DESCRIPTION
4"	PIPE SIZE
10-0	PIPE LENGTH IN FEET-INCHES
	INDICATES PITCHED PIPE (ARROW POINTS TOWARD LOWER ELEVATION)
(22)	HYDRAULIC REFERENCE POINT
[24 BFS]	ELEVATION BELOW TOP OF STEEL (INCHES)
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PIPING LEGEND

X" / X-X	SOLID LINE REPRESENTS NEW PIPING TO BE ADDED. SEE FLOOR PLAN FOR SIZES.
X"	DASHED LINE REPRESENTS EXISTING PIPING TO REMAIN AS-IS. SEE FLOOR PLAN FOR EXISTING SIZES.
	'X' LINE REPRESENTS EXISTING PIPING TO BE REMOVED.
•	REPRESENTS EXISTING SPRINKLER & DROP OR SPRIG TO BE REMOVED WITH 1" OUTLET TO REMAIN FOR NEW SPRINKLER HEAD SUPPLY. CONNECT NEW 1" SPRINKLER DROP OR PLUG EXISTING 1" OUTLET AS INDICATED ON FLOOR PLAN.

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NEW WORK FIRE SPRINKLER PLAN

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Revisions:

#1 9/9/14: Floor Plan Mod

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ENGINEER OF RECORD

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PLOT: 09\12\14

NATHANIEL J. HATCHER, #59350

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CONSTRUCTION DOCUMENTS

FP2.1

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FIRE SUPPRESSION SYSTEM NOTES & SPECIFICATIONS

SECTION 1 - GENERAL

1.0 SCOPE

THIS SPECIFICATION OUTLINES THE REQUIREMENTS FOR AN HFC-125 (ECARO-25) FIRE SUPPRESSION SYSTEM WITH AUTOMATIC DETECTION AND CONTROL. THE WORK DESCRIBED IN THIS SPECIFICATION INCLUDES ALL DESIGN, LABOR, MATERIALS, EQUIPMENT, AND SERVICE NECESSARY, AND REQUIRED, TO COMPLETE AND TEST THE SUPPRESSION SYSTEM. A NEW HFC-125 FIRE SUPPRESSION SYSTEM (BASED ON THE EXISTING SYSTEM) SHALL BE INSTALLED IN THE DATA CENTER. AGENT DISTRIBUTION PIPING WILL BE INSTALLED IN ORDER TO PROPERLY DISTRIBUTE THE AGENT INTO THE ROOM.

THE EXISTING ECARO-25 & RELATED SUPPRESSION SYSTEM HARDWARE/EQUIPMENT SHALL BE SALVAGED & REUSED/RELOCATED TO THE EXTENT POSSIBLE. DAMAGED OR DEFECTIVE EQUIPMENT SHALL BE REPLACED WITH NEW.

2.0 APPLICABLE STANDARDS AND PUBLICATIONS

2.1 THE DESIGN, EQUIPMENT, INSTALLATION, TESTING, AND MAINTENANCE OF THE CLEAN-AGENT FIRE SUPPRESSION SYSTEM SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS SET FORTH IN THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS:

2.1.1 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS:

NFPA 2001, CLEAN-AGENT FIRE EXTINGUISHING SYSTEMS

NFPA 70, NATIONAL ELECTRIC CODE

NFPA 72, NATIONAL FIRE ALARM CODE

2.1.2 UNDERWRITERS LABORATORIES, INC. (UL) PUBLICATION: FIRE PROTECTION EQUIPMENT DIRECTORY WITH QUARTERLY SUPPLEMENTS

3.0 REQUIREMENTS

THE SUPPRESSION SYSTEM INSTALLATION SHALL BE MADE IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS, AND APPLICABLE STANDARDS. SHOULD A CONFLICT OCCUR BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR SHALL REQUEST CLARIFICATION PRIOR TO BIDDING THE PROJECT.

4.0 NOT USED.

5.0 QUALITY ASSURANCE

5.1 MANUFACTURER:

5.1.1 THE MANUFACTURER OF THE SUPPRESSION SYSTEM HARDWARE AND DETECTION COMPONENTS SHALL BE ISO 001 REGISTERED.

5.1.2 THE NAME OF THE MANUFACTURER SHALL APPEAR ON ALL MAJOR COMPONENTS.

5.1.3 ALL DEVICES, COMPONENTS, AND EQUIPMENT SHALL BE THE PRODUCTS OF THE SAME MANUFACTURER, OR SUPPLIED BY THE SAME MANUFACTURER, FOR AN INTEGRATED, COMPLETE, SYSTEM.

5.1.4 ALL DEVICES, COMPONENTS, AND EQUIPMENT SHALL BE NEW, STANDARD PRODUCTS OF THE MANUFACTURER'S LATEST DESIGN AND SUITABLE TO PERFORM THE FUNCTIONS INTENDED.

5.1.5 ALL DEVICES AND EQUIPMENT SHALL BE UL LISTED AND/OR FM APPROVED.

5.2 INSTALLER

5.2.1 THE INSTALLING CONTRACTOR SHALL BE TRAINED BY THE SUPPLIER TO DESIGN, INSTALL, TEST AND MAINTAIN FIRE SUPPRESSION SYSTEMS.

5.2.2 THE INSTALLING CONTRACTOR SHALL BE AN EXPERIENCED FIRM REGULARLY ENGAGED IN THE INSTALLATION OF AUTOMATIC CLEAN-AGENT OR SIMILAR FIRE SUPPRESSION SYSTEMS IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS.

5.2.3 THE INSTALLING CONTRACTOR SHALL SHOW EVIDENCE THAT HIS COMPANY CARRIES MINIMUM $1,000,000.00 LIABILITY AND COMPLETED OPERATIONS INSURANCE POLICY. THESE LIMITS SHALL SUPERSEDE LIMITS REQUIRED IN THE GENERAL CONDITIONS OF THE SPECIFICATIONS.

5.2.4 THE INSTALLING CONTRACTOR SHALL BE AN AUTHORIZED STOCKING DISTRIBUTOR OF THE CLEAN-AGENT SYSTEM EQUIPMENT SO THAT IMMEDIATE REPLACEMENT PARTS ARE AVAILABLE FROM INVENTORY.

5.2.5 THE INSTALLING CONTRACTOR SHALL SHOW PROOF OF EMERGENCY SERVICE AVAILABLE ON A TWENTY-FOUR (24) HOUR, SEVEN (7) DAY-A-WEEK BASIS UPON REQUEST.

SECTION 2 - SYSTEM REQUIREMENTS

6.0 SYSTEM DESCRIPTION AND OPERATION

6.1 THE NEW SYSTEM SHALL MATCH THE EXISTING SYSTEM, WHICH SHALL BE A TOTAL FLOODING HFC-125 (ECARO-25) FIRE SUPPRESSION SYSTEM.

6.2 THE SYSTEM SHALL PROVIDE A MINIMUM DESIGN CONCENTRATION OF 8 PERCENT BY VOLUME FOR ALL AREAS AND/OR PROTECTED SPACES AT THE MINIMUM ANTICIPATED TEMPERATURE WITHIN THE PROTECTED AREA. SYSTEM DESIGN SHALL NOT EXCEED 10 PERCENT FOR NORMALLY OCCUPIED SPACES, ADJUSTED FOR MAXIMUM SPACE TEMPERATURE ANTICIPATED, WITH PROVISIONS FOR ROOM EVACUATION BEFORE AGENT RELEASE.

6.3 THE SYSTEM SHALL BE COMPLETE IN ALL WAYS. IT SHALL INCLUDE A MECHANICAL AND ELECTRICAL INSTALLATION, ALL DETECTION AND CONTROL EQUIPMENT, AGENT STORAGE CONTAINERS, HFC-125 AGENT, DISCHARGE NOZZLES, PIPE AND FITTINGS, MANUAL RELEASE AND ABORT STATIONS, AUDIBLE AND VISUAL ALARM DEVICES, AUXILIARY DEVICES AND CONTROLS, SHUTDOWNS, ALARM INTERFACE, ADVISORY SIGNS, FUNCTIONAL CHECKOUT AND TESTING, TRAINING, AND ANY OTHER OPERATIONS NECESSARY FOR A FUNCTIONAL UL LISTED FIRE SUPPRESSION SYSTEM.

6.4 THE SYSTEM SHALL BE ACTUATED BY A COMBINATION OF (2) PHOTOELECTRIC DETECTORS INSTALLED FOR MAXIMUM AREA COVERAGE OF 144 SQ.FT. (12FT. BY 12FT. MAX.) PER DETECTOR. NFPA 72 SHALL BE REFERENCED FOR CONFIGURATIONS &/OR CONDITIONS THAT DEVIATE FROM SMOOTH FLAT CEILINGS AND NORMAL AIR FLOW RATES.

6.5 DETECTORS SHALL BE CROSS-ZONED DETECTION REQUIRING TWO (2) DETECTORS TO BE IN ALARM BEFORE RELEASE.

6.6 SEE THE CONTROL MATRIX ON THIS SHEET FOR PROPOSED SYSTEM OPERATION.

7.0 MATERIAL AND EQUIPMENT

7.1 GENERAL REQUIREMENTS:

7.1.1 THE CLEAN-AGENT FIRE SUPPRESSION SYSTEM MATERIALS AND EQUIPMENT SHALL BE STANDARD PRODUCTS OF THE SUPPLIER'S LATEST DESIGN AND SUITABLE TO PERFORM ALL FUNCTIONS INTENDED. WHEN ONE (1) OR MORE PIECES OF EQUIPMENT MUST PERFORM THE SAME FUNCTION(S), THEY SHALL BE DUPLICATES PRODUCED BY ONE MANUFACTURER.

7.1.2 ALL DEVICES AND EQUIPMENT SHALL BE UL LISTED AND/OR FM APPROVED.

7.1.3 EACH SYSTEM SHALL HAVE ITS OWN SUPPLY OF CLEAN-AGENT.

7.1.4 THE SYSTEM DESIGN CAN BE MODULAR, CENTRAL STORAGE, OR A COMBINATION OF BOTH DESIGN CRITERIA.

7.1.5 SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES.

7.1.6 EACH SUPPLY SHALL BE LOCATED WITHIN THE HAZARD AREA, OR AS NEAR AS POSSIBLE, TO REDUCE THE AMOUNT OF PIPE AND FITTINGS REQUIRED TO INSTALL THE SYSTEM.

7.1.7 THE CLEAN-AGENT SHALL BE STORED IN CLEAN-AGENT FIRE SUPPRESSION SYSTEM STORAGE TANKS. TANKS SHALL BE OF HIGH-STRENGTH, LOW ALLOY STEEL CONSTRUCTION AND CONFORMING TO NFPA 2001.

7.1.8 TANK (MASTER) SHALL BE ACTUATED BY A RE-SETTABLE ELECTRIC ACTUATOR.

7.1.9 TANKS SHALL HAVE A PRESSURE-RELIEF PROVISION.

7.1.10 DISTRIBUTION PIPING AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS, NFPA 2001, AND APPROVED PIPING STANDARDS AND GUIDELINES. ALL DISTRIBUTION PIPING SHALL BE INSTALLED BY QUALIFIED INDIVIDUALS USING ACCEPTED PRACTICES AND QUALITY PROCEDURES. ALL PIPING SHALL BE ADEQUATELY SUPPORTED AND ANCHORED AT ALL DIRECTIONAL CHANGES AND NOZZLE LOCATIONS.

7.1.10.1 ALL PIPING SHALL BE REAMED, BLOWN CLEAR, AND SWABBED WITH SUITABLE SOLVENTS TO REMOVE BURRS, MILL VARNISH, AND CUTTING OILS BEFORE ASSEMBLY.

7.1.10.2 ALL PIPE THREADS SHALL BE SEALED WITH TEFLON TAPE PIPE SEALANT APPLIED TO THE MALE THREAD ONLY.

7.2 AGENT:

7.2.1 THE FIRE SUPPRESSION AGENT SHALL BE HFC-125 (ECARO-25) TO MATCH THE EXISTING SYSTEM.

7.3 CONTROL PANEL:

7.3.1 THE CONTROL PANEL SHALL BE INSTALLED WHERE SHOWN ON THE PLAN.

7.3.2 THE CONTROL SYSTEM SHALL INCLUDE BATTERY STANDBY POWER TO SUPPORT TWENTY-FOUR (24) HOURS IN STANDBY AND FIFTEEN (15) MINUTES IN ALARM.

7.4 DETECTORS

7.4.1 THE DETECTORS SHALL BE SPACED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS & THE GUIDELINES OF NFPA 72.

7.4.2 DETECTORS SHALL BE IONIZATION &/OR PHOTOELECTRIC TYPE, DEPENDING ON THE APPLICATION.

7.5 MANUAL RELEASE (ELECTRIC):

7.5.1 A NEW MANUAL RELEASE STATION SHALL BE INSTALLED WHERE SHOWN ON THE PLAN.

7.6 ABORT STATION:

7.6.1 NEW ABORT STATIONS SHALL BE INSTALLED WHERE SHOWN ON THE PLAN.

7.7 MAINTENANCE SWITCH:

7.7.1 A NEW MAINTENANCE SWITCH SHALL BE INSTALLED WHERE SHOWN ON THE PLAN.

7.8 AUDIBLE AND VISUAL ALARMS:

7.8.1 NEW ALARM AUDIBLE AND VISUAL SIGNAL DEVICES SHALL BE INSTALLED WHERE SHOWN ON THE PLAN.

7.9 CAUTION AND ADVISORY SIGNS:

SIGNS SHALL BE PROVIDED TO COMPLY WITH NFPA 2001 AND THE RECOMMENDATIONS OF THE EQUIPMENT PROVIDER. SEE DETAIL 4 ON THIS SHEET FOR EXISTING SIGNAGE, TO BE REUSED.

7.10 SYSTEM AND CONTROL WIRING:

7.10.1 ALL SYSTEM WIRING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

7.10.2 ALL WIRING SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING (EMT) OR CONDUIT, AND MUST BE INSTALLED AND KEPT SEPARATE FROM ALL OTHER BUILDING WIRING. (RIDGED WILL BE USED IN ANY EXPLOSIVE MATERIAL ENVIRONMENT).

7.10.3 ALL SYSTEM COMPONENTS SHALL BE SECURELY SUPPORTED INDEPENDENT OF THE WIRING. RUNS OF CONDUIT AND WIRING SHALL BE STRAIGHT, NEATLY ARRANGED, PROPERLY SUPPORTED, AND INSTALLED PARALLEL AND PERPENDICULAR TO WALLS AND PARTITIONS.

7.10.4 THE SIZES OF THE CONDUCTORS SHALL BE THOSE SPECIFIED BY THE MANUFACTURER. COLOR-CODED WIRE SHALL BE USED. ALL WIRES SHALL BE TAGGED AT ALL JUNCTION POINTS AND SHALL BE FREE FROM SHORTS, EARTH CONNECTIONS (UNLESS SO NOTED ON THE SYSTEM DRAWINGS), AND CROSSES BETWEEN CONDUCTORS. FINAL TERMINATIONS BETWEEN THE CONTROL PANEL AND THE SYSTEM FIELD WIRING SHALL BE MADE UNDER THE DIRECT SUPERVISION OF A FACTORY-TRAINED REPRESENTATIVE.

7.10.5 ALL WIRING SHALL BE INSTALLED BY QUALIFIED INDIVIDUALS, IN A NEAT AND WORKMANLIKE MANNER, TO CONFORM TO THE NATIONAL ELECTRIC CODE, ARTICLE 725 AND ARTICLE 760, EXCEPT AS OTHERWISE PERMITTED FOR LIMITED ENERGY CIRCUITS, AS DESCRIBED IN NFPA 72. WIRING INSTALLATION SHALL MEET ALL LOCAL, STATE, PROVINCE AND/OR COUNTRY CODES.

7.10.6 THE COMPLETE SYSTEM ELECTRICAL INSTALLATION AND ALL AUXILIARY COMPONENTS SHALL BE CONNECTED TO EARTH GROUND IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.

SECTION 3 - TESTING AND DOCUMENTATION

8.0 SYSTEM INSPECTION AND CHECKOUT

AFTER THE SYSTEM INSTALLATION HAS BEEN COMPLETED, THE ENTIRE SYSTEM SHALL BE CHECKED OUT, INSPECTED, AND FUNCTIONALLY TESTED BY QUALIFIED, TRAINED PERSONNEL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES AND NFPA STANDARDS:

8.1 ALL CONTAINERS AND DISTRIBUTION PIPING SHALL BE CHECKED FOR PROPER MOUNTING AND INSTALLATION.

8.2 ALL ELECTRICAL WIRING SHALL BE TESTED FOR PROPER CONNECTION, CONTINUITY AND RESISTANCE TO EARTH GROUNDS.

8.3 THE COMPLETE SYSTEM SHALL BE FUNCTIONALLY TESTED IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE.

8.4 EACH DETECTOR SHALL BE TESTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES AND TEST VALUES RECORDED.

8.5 ALL SYSTEM AND EQUIPMENT INTERLOCKS, SUCH AS DOOR RELEASE DEVICES, AUDIBLE AND VISUAL DEVICES, EQUIPMENT SHUTDOWNS, LOCAL AND REMOTE ALARMS, ETC., SHALL FUNCTION AS REQUIRED AND DESIGNED.

8.6 EACH CONTROL PANEL CIRCUIT SHALL BE TESTED FOR TROUBLE BY INDUCING A TROUBLE CONDITION INTO THE SYSTEM.

9.0 TRAINING REQUIREMENTS

PRIOR TO FINAL ACCEPTANCE, THE INSTALLING CONTRACTOR SHALL PROVIDE OPERATIONAL TRAINING OF THE OWNER'S PERSONNEL. THE TRAINING SESSION SHALL INCLUDE CONTROL PANEL OPERATION, MANUAL AND ABORT FUNCTIONS, TROUBLE PROCEDURES, SUPERVISORY PROCEDURES, AUXILIARY FUNCTIONS, AND EMERGENCY PROCEDURES.

10.0 OPERATION AND MAINTENANCE

PRIOR TO FINAL ACCEPTANCE, THE INSTALLING CONTRACTOR SHALL PROVIDE FOUR (4) COMPLETE OPERATION AND MAINTENANCE INSTRUCTION MANUALS TO THE OWNER. ALL ASPECTS OF SYSTEM OPERATION AND MAINTENANCE SHALL BE DETAILED, INCLUDING PIPING ISOMETRICS, WIRING DIAGRAM OF ALL CIRCUITS, A WRITTEN DESCRIPTION OF THE SYSTEM DESIGN, AND SEQUENCE OF OPERATION AND DRAWING(S) ILLUSTRATING CONTROL LOGIC AND EQUIPMENT USED IN THE SYSTEM. CHECKLISTS AND PROCEDURES FOR EMERGENCY SITUATIONS, TROUBLESHOOTING TECHNIQUES, MAINTENANCE OPERATIONS, AND PROCEDURES SHALL BE INCLUDED IN THE MANUAL.

11.0 ACCEPTANCE TEST

THE TESTS SHALL DEMONSTRATE THAT THE ENTIRE CONTROL SYSTEM FUNCTIONS AS DESIGNED AND INTENDED. ALL CIRCUITS SHALL BE TESTED: AUTOMATIC ACTUATION AND MANUAL ACTUATION, HVAC AND POWER SHUTDOWNS, AUDIBLE AND VISUAL ALARM DEVICES, AND MANUAL OVERRIDE OF ABORT FUNCTIONS. SUPERVISION OF ALL PANEL CIRCUITS, INCLUDING AC POWER AND BATTERY POWER SUPPLIES, SHALL BE TESTED AND QUALIFIED. PERFORM ONE ENCLOSURE INTEGRITY TEST USING A LISTED INFILTROMETER "DOOR FAN" FOR EACH HAZARD AREA. ANY SEALING OF THE ROOM TO PASS THE DOOR FAN TEST IS BY THE GENERAL CONTRACTOR.

12.0 WARRANTY

ALL NEW SYSTEM COMPONENTS FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE WARRANTED AGAINST DEFECTS IN THE DESIGN, MATERIALS, AND WORKMANSHIP FOR THE FULL WARRANTY PERIOD, WHICH IS STANDARD WITH THE MANUFACTURER, BUT IN NO CASE LESS THAN ONE (1) YEAR FROM THE DATE OF SYSTEM ACCEPTANCE.

#1 - INSIDE PROTECTED AREA

#2 - OUTSIDE PROTECTED AREA

4 PERSONNEL WARNING SIGNAGE

SCALE: NO SCALE

PROPOSED FIRE SUPPRESSION SYSTEM CONTROL MATRIX

OUTPUTS

INPUTS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	A	ACTIVATE ALARM NOTIFICATION	ACTIVATE SECOND ALARM (HORNS/STROBES)	ACTIVATE DISCHARGE NOTIFICATION (HORNS/STROBES)				ALARM ANNUNCIATION	TROUBLE ANNUNCIATION	SUPERVISORY ANNUNCIATION		INITIATE DISCHARGE COUNTDOWN	DISCHARGE AGENT	RESET & HOLD DISCHARGE COUNTDOWN		STATUS SIGNAL SENT TO BUILDING FACP		SHUTDOWN AIR HANDLERS ASSOCIATED WITH DATA EQUIP ROOM			
SMOKE DETECTOR (PRIMARY)	B	X						X								X						
SMOKE DETECTOR (SECONDARY)	C		X	X								X				X		X				
MANUAL RELEASE STATION	D			X				X				X				X		X				
DISCHARGE COUNTDOWN COMPLETED	E												X									
ABORT INPUT (ALARM)	F													X								
ABORT INPUT (NON-ALARM)	G								X													
BYPASS TEST SWITCH	H								X							X						
TROUBLE INPUT	I								X							X						
SUPERVISORY INPUT	J									X						X						
	K																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

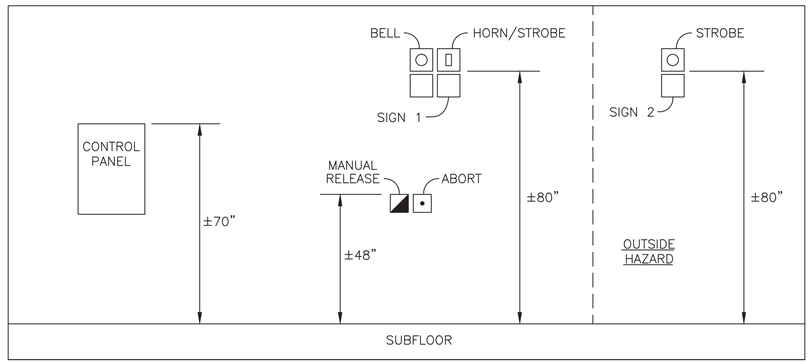
TIME DELAY: 0 [30sec.] 60sec.

PROJECT SPECIFIC NOTES:

1. THIS CHART IS TO BE USED AS A BASIC PROGRAMMING GUIDE ONLY. ALL OTHER PANEL PROGRAMMING FEATURES SHALL COMPLY WITH NFPA 72 AND THE MANUFACTURER'S INSTRUCTIONS.

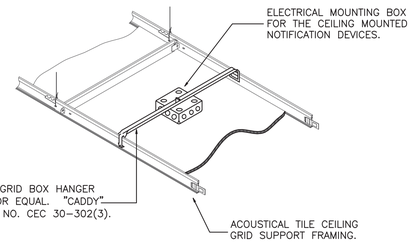
FIRE SUPPRESSION SYSTEM DEVICE LEGEND

SYMBOL	QTY	DEVICE DESCRIPTION	MAKE / MODEL	DEVICE SPECIFIC NOTES
FSCP		FIRE SUPPRESSION CONTROL PANEL	EXISTING FIKE CHEETAH	
A		ABORT SWITCH	--	
		STROBE (WALL MOUNTED)	--	
		HORN/STROBE (WALL MOUNTED)	--	
P		MANUAL RELEASE STATION	--	
2P		PHOTOELECTRIC SMOKE DETECTOR	--	
1F		HEAT DETECTOR	--	
		NOZZLE		



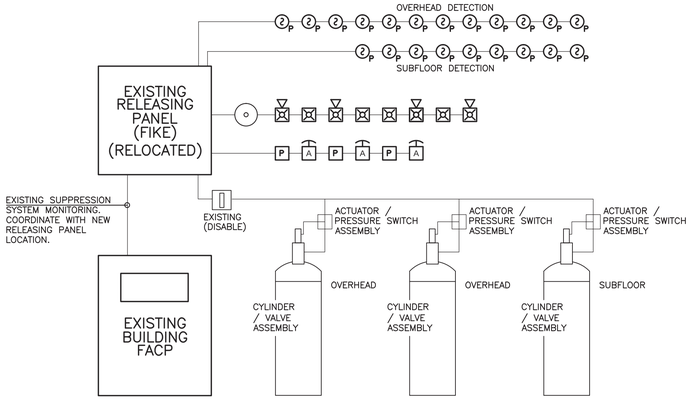
3 HEIGHT OF DEVICES DETAIL (CLEAN AGENT)

SCALE: NO SCALE



2 CEILING GRID ELECTRICAL BACK-BOX ATTACHMENT

SCALE: NO SCALE



1 FIRE SUPPRESSION RISER DIAGRAM

SCALE: NO SCALE

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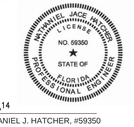

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PLOT: 09\12\14

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7TH FLOOR DATA CENTER RENOVATION
1112 MANATEE AVENUE WEST, BRADENTON, FL 34205

FIRE SUPPRESSION SYSTEM GENERAL NOTES & DETAILS

Project No.	2013019.02
Drawn By	RWL
Checked By	NJH
Date	09.09.14

Revisions:

CONSTRUCTION DOCUMENTS

FX1.0

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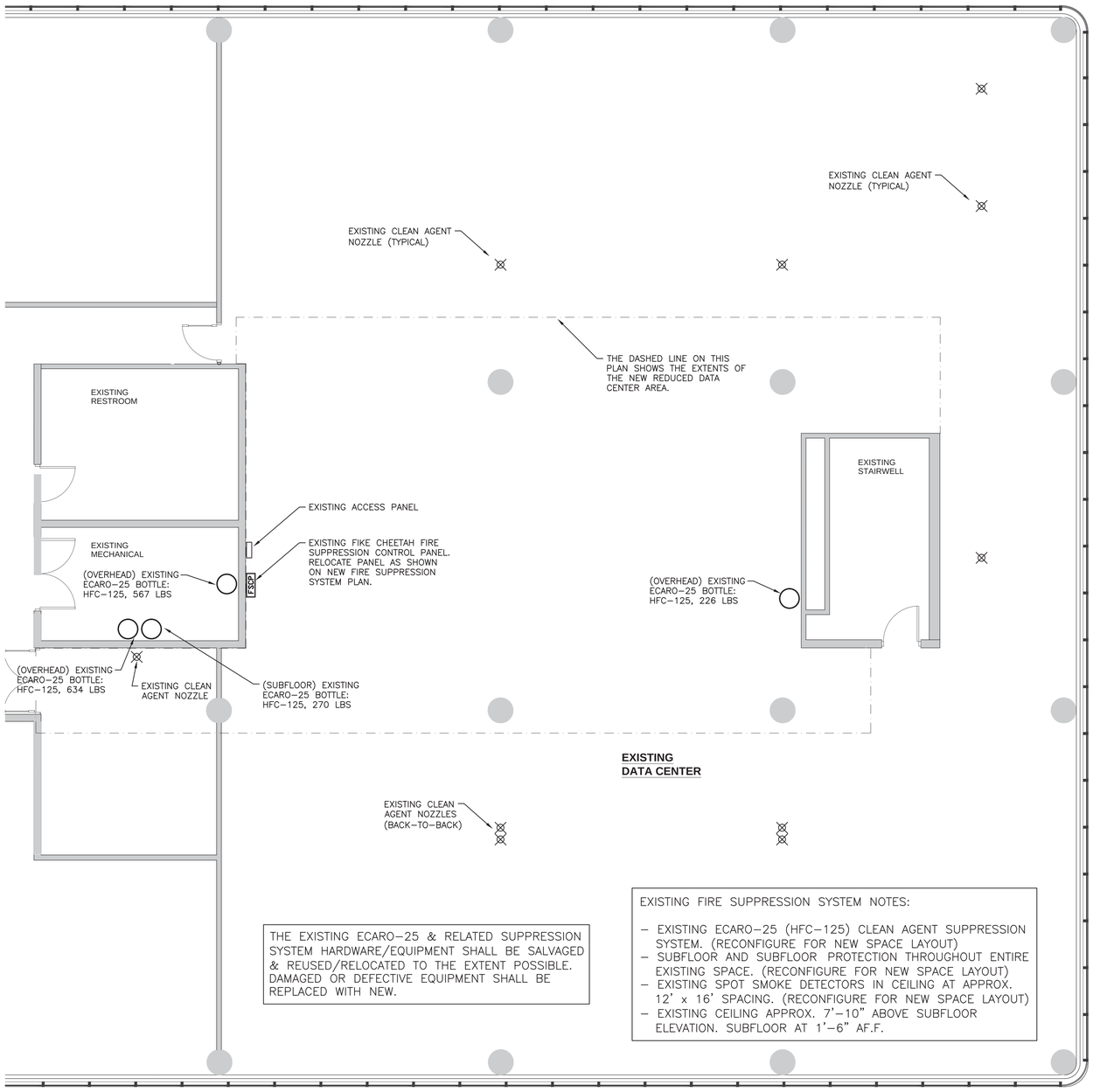


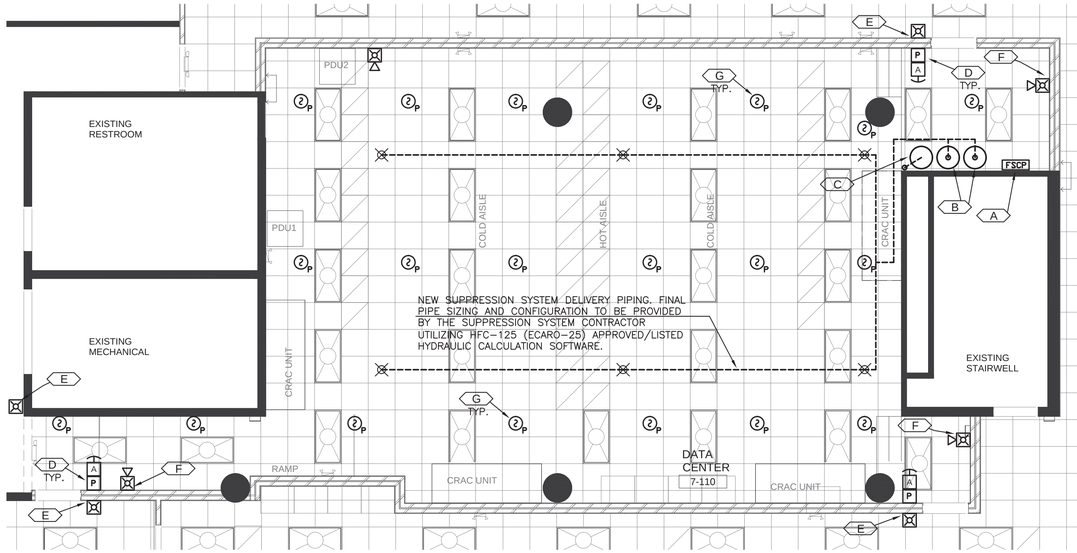
THE EXISTING ECARO-25 & RELATED SUPPRESSION SYSTEM HARDWARE/EQUIPMENT SHALL BE SALVAGED & REUSED/RELOCATED TO THE EXTENT POSSIBLE. DAMAGED OR DEFECTIVE EQUIPMENT SHALL BE REPLACED WITH NEW.

EXISTING FIRE SUPPRESSION SYSTEM NOTES:

- EXISTING ECARO-25 (HFC-125) CLEAN AGENT SUPPRESSION SYSTEM. (RECONFIGURE FOR NEW SPACE LAYOUT)
- SUBFLOOR AND SUBFLOOR PROTECTION THROUGHOUT ENTIRE EXISTING SPACE. (RECONFIGURE FOR NEW SPACE LAYOUT)
- EXISTING SPOT SMOKE DETECTORS IN CEILING AT APPROX. 12' x 16' SPACING. (RECONFIGURE FOR NEW SPACE LAYOUT)
- EXISTING CEILING APPROX. 7'-10" ABOVE SUBFLOOR ELEVATION. SUBFLOOR AT 1'-6" AF.F.

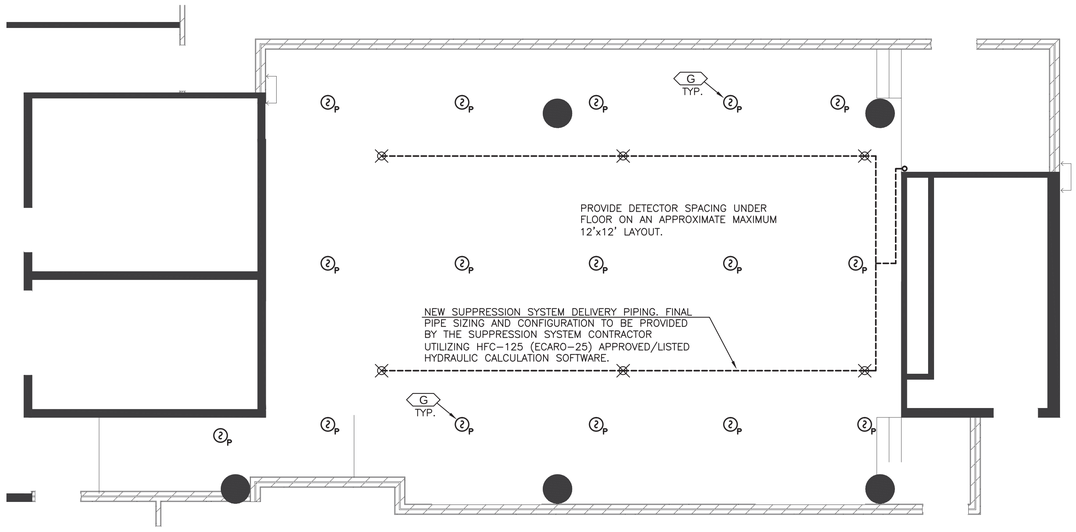
EXISTING FIRE SUPPRESSION SYSTEM PLAN 1

3/16" = 1'-0"



NEW FIRE SUPPRESSION SYSTEM PLAN 2

3/16" = 1'-0"



NEW FIRE SUPPRESSION SYSTEM PLAN - UNDER SUBFLOOR 3

3/16" = 1'-0"

XX KEY NOTE DENOTED BY THIS SYMBOL. SEE PLAN.

NEW FIRE SUPPRESSION SSYSTEM KEY NOTE LEGEND (THIS SHEET):

A. NEW LOCATION OF EXISTING FIKE CHEETAH FIRE SUPPRESSION CONTROL PANEL.

B. NEW OVERHEAD ECARO-25 BOTTLES (AS REQUIRED).

C. NEW SUBFLOOR ECARO-25 BOTTLE LOCATION (1). ROUTE PIPING DOWN TO BELOW. SEE 'UNDER SUBFLOOR' PLAN ON THIS SHEET FOR CONTINUATION.

D. RELOCATED MANUAL RELEASE PULL STATION AND ABORT SWITCH. TYPICAL.

E. RELOCATED WALL MOUNTED FIRE ALARM STROBE OUTSIDE PROTECTED ROOM. STROBE ACTIVATED WHEN CLEAN AGENT IS RELEASED. INSTALL SIGN #2 AT THIS LOCATION (SEE DETAIL 4 – EXISTING SIGNAGE ON SHEET FX1.0 FOR REFERENCE).

F. RELOCATED WALL MOUNTED FIRE ALARM HORN/STROBE INSIDE PROTECTED ROOM. INSTALL SIGN #1 AT THIS LOCATION (SEE DETAIL 4 – EXISTING SIGNAGE ON SHEET FX1.0 FOR REFERENCE).

G. NEW/RELOCATED CEILING MOUNTED SPOT SMOKE DETECTOR. (TYPICAL)

FIRE SUPPRESSION SYSTEM DEVICE LEGEND

SYMBOL	QTY	DEVICE DESCRIPTION	MAKE / MODEL	DEVICE SPECIFIC NOTES
FSCP		FIRE SUPPRESSION CONTROL PANEL	EXISTING FIKE CHEETAH	
A		ABORT SWITCH	--	
		STROBE (WALL MOUNTED)	--	
		HORN/STROBE (WALL MOUNTED)	--	
P		MANUAL RELEASE STATION	--	
2P		PHOTOELECTRIC SMOKE DETECTOR	--	
1F		HEAT DETECTOR	--	
		NOZZLE		

DATA CENTER OVERHEAD

Minimum HFC-125 Agent Calculation

Inputs:	
Area of Protected Space	1810 sq.ft.
Ceiling Height of Space	8 ft.
Design Concentration	8%
Minimum Ambient Temp	72 °F
k1 (constant)	2.7208
k2 (constant)	0.0064
Outputs / Calculations:	
Volume of Protected Space	14480 cu.ft.
Specific Volume Calc	3.1816 cu.ft./lb
Specific Weight of Agent Req.	396 lbs.

*Final supply piping and agent quantity calculations shall be provided by the Suppression system Contractor.

DATA CENTER SUBFLOOR

Minimum HFC-125 Agent Calculation

Inputs:	
Area of Protected Space	1575 sq.ft.
Ceiling Height of Space	1.5 ft.
Design Concentration	8%
Minimum Ambient Temp	72 °F
k1 (constant)	2.7208
k2 (constant)	0.0064
Outputs / Calculations:	
Volume of Protected Space	2362.5 cu.ft.
Specific Volume Calc	3.1816 cu.ft./lb
Specific Weight of Agent Req.	65 lbs.

*Final supply piping and agent quantity calculations shall be provided by the Suppression system Contractor.

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ENGINEER OF RECORD

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FIRE SUPPRESSION SYSTEM PLAN

Project No.	2013019.02
Drawn By	RWL
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Date	09.09.14

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