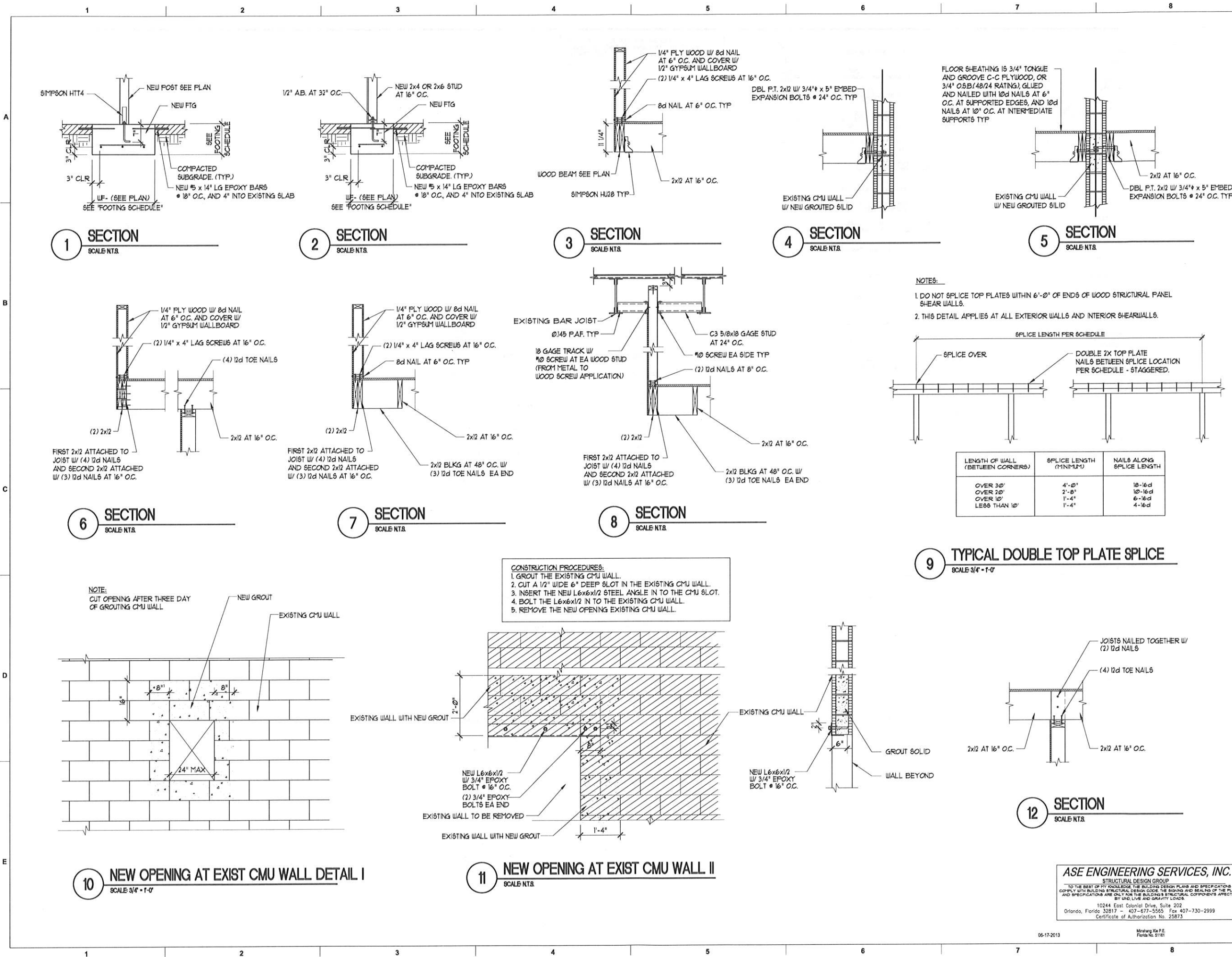




ABBREVIATIONS

ABV	ABOVE
ADJ	ADJUSTABLE
AF	AIRFLOW
AFI	ABOVE FINISHED FLOOR
AC	AIR CONDITIONER
ACU	AIR CONDITIONING UNIT
AMU	AIR HANDLING UNIT
AP	ACCESS PANEL
BAS	BUILDING AUTOMATION SYSTEM
B	BACKWARD
BIDS	BUILDING
BRP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNIT PER HOUR
CO	CONDENSATE
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CW	CHILLED WATER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CONC	CONCRETE
CONT	CONTINUOUS
CO	COEFFICIENT OF PERFORMANCE
CU	CONDENSING UNIT
DB	DRY Bulb
DMA	DOUBLE WIDTH, DOUBLE INLET
DMS	DRAWINGS
DX	DIRECT EXPANSION
EF	EXHAUST FAN
EXH	EXHAUST
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
ELECT	ELECTRICAL
EXT	EXTERNAL
EQ	EQUAL
ER	EXHAUST REGISTER
FC	FORWARD CURVED
FCU	FAN COIL UNIT
F	FEET
F/S	FEET PER SECOND
FLEX	FLEXIBLE CONNECTOR OR DUCT
FM	FEET PER MINUTE
GPM	GALLONS PER MINUTE
GALV	GALVANIZED
GA	GALLON
GA	GALVEY
F	DEGREES FAHRENHEIT
GA	GALVEY
HP	HORSEPOWER
HWR	HIGH TEMPERATURE HOT WATER RETURN
HMS	HIGH TEMPERATURE HOT WATER SUPPLY
HMR	HOT WATER RETURN
HMS	HOT WATER SUPPLY
HVC	HEATING VENTILATING AND AIR CONDITIONING
HV	HEATING AND VENTILATING
NW	INCHES WATER GAGE
KW	KILOWATTS
LAT	LEAKING AIR TEMPERATURE
LD	LINEAR DIFFUSER
LMT	LEAKING WATER TEMPERATURE
MAX	MAXIMUM
MGR	1000 X BTUH
MIN	MINIMUM
MDO	MULTI-ZONE
MZ	MULTI-ZONE
N.T.S.	NOT TO SCALE
OA	OUTSIDE AIR
OBMD	OPPOSED BLADE MANUAL VOLUME DAMPER
OPD	OPEN DRIP PROOF
PROP	PROPELLER
PCR	PRE-CONDITIONED AIR SYSTEM
PCS	PERCENT
PD	PRESSURE DROP
PERF. PL.	PERFORATED PLATE
PSM	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAGE
RA	RETURN AIR
RA	RETURN AIR DAMPER
REG	REGISTER
REQ'D	REQUIRED
RS	RETURN AIR GRIFF
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
RR	RETURN AIR REGISTER
RTU	ROOFTOP UNIT

GENERAL NOTES

1. INSTALL EQUIPMENT AND MATERIALS IN COMPLIANCE WITH MANUFACTURER'S MINIMUM CLEARANCE REQUIREMENTS AND RECOMMENDATIONS.
2. COMPLY WITH THE LATEST EDITION OF NFPA AND THE LATEST ADOPTED EDITION FLORIDA BUILDING CODE (MECHANICAL, PLUMBING AND GAS).
3. ALL MATERIALS SHALL FIT THE SPACE AVAILABLE. VERIFY DIMENSIONS AND CLEARANCES ON BUILDING PLANS PRIOR TO COMMENCING WORK.
4. CONTRACTOR IS RESPONSIBLE FOR TESTING AND BALANCING OF AIR SYSTEMS IN ACCORDANCE WITH APPROVAL.
5. PROVIDE 45 DEGREE BRANCH TAKE-OFF PER SMACNA FIG. 2-8 ON ALL RECTANGULAR DUCT TAKE-OFFS.
6. PROVIDE AND INSTALL DUCT MOUNTED HINGED ACCESS DOORS FOR ALL SMOKE AND/OR FIRE DAMPERS, TRANSFER OPENING ACCESSIBLE.
7. CONTRACTOR SHALL COORDINATE VOLTAGE AND PHASE OF EACH PIECE OF EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING AND SHALL COORDINATE WITH ALL OTHER TRADES PRIOR TO OR INSTALLING EQUIPMENT AND MATERIALS.
8. COORDINATE ALL HVAC SYSTEM DRAWINGS WITH EXISTING/NEW TRUSS TO AVOID INTERFERENCE BETWEEN MECHANICAL SYSTEMS AND ROOF STRUCTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH TRUSS INTERFERENCE THAT OCCURS IN THE FIELD DURING CONSTRUCTION. COORDINATE IN ADVANCE. DUCT SIZES MAY BE REVISED TO FIT TRUSS SYSTEM SO LONG AS THE EQUIVALENT INSIDE CROSS SECTIONAL AREA IS NOT DECREASED.
9. GAGES AND CONSTRUCTION FOR DUCTWORK SHALL CONFORM TO THE LATEST EDITION OF SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS.
10. TRANSITION RECTANGULAR DUCTWORK ON BOTTOM AND SIDES. MAINTAIN TOP OF DUCTWORK LEVEL AND HIGH AS POSSIBLE. FLEXIBLE DUCT RUN-OUTS TO CEILING DIFFUSERS SHALL BE AS STRAIGHT AS POSSIBLE AND FREE OF SAGS & KINKS. FLEX DUCT SHALL BE THE SAME SIZE AS THE DIFFUSER NECK IT SERVES.
11. ALL DUCT TRANSITIONS FROM SQUARE TO ROUND SHALL BE SMOOTH SQUARE TO ROUND TRANSITIONS. SPIN-IN FITTINGS AT THE END OF CAPPED DUCTS ARE NOT ACCEPTABLE. DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.
12. THE CONTRACTOR SHALL FULFILL ALL REQUIREMENTS OF THE DOCUMENTS AND SHALL COMPLETE THE WORK SHOWN ON THESE DRAWINGS. ALL SYSTEMS SHALL BE FINISHED, TESTED AND BALANCED, ADJUSTED, AND PROVEN TO BE FULLY OPERATIONAL AND USEABLE.
13. ADJUST ALL DIFFUSERS IN CORRIDORS OR WITHIN THREE (3) FEET OF A WALL TO PROVIDE 2-WAY OR 3-WAY BLOW AWAY FROM OR PAVELLED TO WALLS. ALL DIFFUSERS SHALL HAVE 4-WAY BLOW UNLESS NOTED OTHERWISE.
14. PORTIONS OF DUCTWORK VISIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK.
15. ALL DAMPERS IN AND ABOVE CEILING SHALL BE ACCESSIBLE. CONTRACTOR SHALL COORDINATE ALL ACCESS PANELS IN CEILING OR WALLS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND INTERIOR DRAWINGS FOR PROPER LOCATION.
16. MOUNT THERMOSTATS WHERE INDICATED ON PLANS 5'-0" A.F.F. UNLESS NOTED OTHERWISE. IN HANDICAPPED ACCESSIBLE AREAS, MOUNT CONTROLS AT 48" ABOVE FINISHED FLOOR.
17. COORDINATE DUCTWORK AND PIPING WITH PLUMBING, FIRE TRACES WITHOUT ANY ADDITIONAL EXPENSE TO OFFSETS AND TRANSITIONS TO COORDINATE WITH OTHER TRADES WITHOUT ANY ADDITIONAL EXPENSE TO THE CONTRACT.
18. SEAL ALL TRANSVERSE JOINTS AND FITTINGS WITH DUCT SEALER.
19. TRAP AND ROUTE CONDENSATE DRAINS LINES, FULL SIZE OF UNIT CONNECTION, AS INDICATED. SLOPE 1/8" PER FOOT.
20. ALTERNATE MANUFACTURERS AND MODELS WILL BE REVIEWED. THERE MAY BE ARCHITECTURAL, STRUCTURAL AND ELECTRICAL CHANGES RESULTING FROM THE ALTERNATES. THE COST OF IMPLEMENTING AND ENGINEERING THESE CHANGES SHALL BE BORNE BY THE MECHANICAL SUBCONTRACTOR.
21. PIPE AND DUCT ROUTING SHOWN IS SCHEMATIC. PROVIDE ANY ADDITIONAL OFFSETS AND FITTINGS INCLUDING DIVIDED DUCTS, REQUIRED FOR PROPER INSTALLATION AND TO MAINTAIN CLEARANCES AS ENCOUNTERED IN THE FIELD.
22. COORDINATE CEILING MOUNTED AIR DEVICE LOCATION WITH REFLECTED CEILING PLAN AND OTHER TRADES.
23. ALL CONTROL WIRING AND CONDUIT SHALL COMPLY WITH NEC DIVISION 16 SPECIFICATIONS.
24. PROVIDE MATERIALS WHICH HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORD WITH ASTM E84.
25. SLEEVE AND FIRE STOP PENETRATIONS THROUGH FIRE RATED SYSTEMS TO MAINTAIN RATING OF SYSTEM. USE MINIMUM GALVANIZED STEEL GAGE DUCT AS REQUIRED TO MAINTAIN RATING OF SYSTEM.
26. THE TAG SHALL BE EMPLOYED DIRECTLY BY THE GENERAL CONTRACTOR WHO SHALL BE SOLELY RESPONSIBLE FOR ITS PERFORMANCE AND THE TIMELY SCHEDULE OF ITS OPERATION.

NOTE:
GENERAL NOTES ON THIS MECHANICAL SHEET ARE FOR GENERAL REFERENCE PURPOSES ONLY. ALL OF THESE NOTES MAY NOT BE USED FOR THIS PROJECT.

LEGEND

	SUPPLY DIFFUSER (4-WAY)
	RETURN OR OUTDOOR AIR GRILLE
	EXHAUST GRILLE
	SUPPLY DUCT UP SECTION (RECTANGULAR)
	RETURN DUCT UP SECTION (RECTANGULAR)
	SUPPLY DUCT DOWN SECTION (RECTANGULAR)
	RETURN DUCT DOWN SECTION (RECTANGULAR)
	EXHAUST DUCT DOWN SECTION (RECTANGULAR)
	HEATING WATER RETURN PIPING
	HEATING WATER SUPPLY PIPING
	CHILLED WATER RETURN PIPING
	CHILLED WATER SUPPLY PIPING
	BUILDING CONDENSER WATER RETURN PIPING
	BUILDING CONDENSER WATER SUPPLY PIPING
	CONDENSER WATER RETURN PIPING
	CONDENSER WATER SUPPLY PIPING
	POINT OF DISCONNECT
	INDICATES POINT OF CONNECTION BETWEEN NEW AND EXISTING
	FLOW DIRECTION
	REFERENCE NOTE - MULTI-DISCIPLINE SHEETS
	REFERENCE NOTE
	FLOW SENSOR
	STATIC PRESSURE TRANSMITTER ASSEMBLY
	ROUND DUCTWORK
	CONICAL FITTING WITH DAMPER ON BRANCH
	RECTANGULAR BRANCH DUCT CONNECTION (PROVIDE DAMPER IN LOW PRESSURE DUCTWORK ONLY)
	TEE (PLAN, UP, DOWN)
	ELBOW (PLAN, UP, DOWN)
	VALVE
	TWO WAY MOTORIZED CONTROL VALVE
	THREE WAY MOTORIZED CONTROL VALVE
	PRESSURE REDUCING VALVE
	FLOW CONTROL VALVE
	BALL VALVE FOR PIPING 2-1/2 INCHES AND SMALLER
	CHECK VALVE
	STRAINER
	BYPASS VALVE WITH INTEGRAL TAPS FOR CONNECTION HAVE MANUALLY INDICATING WATER FLOW RATE VERSUS VALVE PRESSURE DROP
	AUTOMATIC FLOW CONTROL VALVE WITH INTEGRAL TEMPERATURE AND PRESSURE TEST PORTS
	UNION
	VENTURI FLOW METER
	PRESSURE AND/OR TEMPERATURE PORT
	THERMOMETER
	FLEXIBLE CONNECTION
	PRESSURE RELIEF VALVE
	MOTORIZED ACTUATOR
	OPENING IN WALL ABOVE CEILING
	EQUIPMENT TAG

	SUPPLY DIFFUSER (4-WAY)
	RETURN OR OUTDOOR AIR GRILLE
	EXHAUST GRILLE
	SUPPLY DUCT UP SECTION (RECTANGULAR)
	RETURN DUCT UP SECTION (RECTANGULAR)
	SUPPLY DUCT DOWN SECTION (RECTANGULAR)
	RETURN DUCT DOWN SECTION (RECTANGULAR)
	EXHAUST DUCT DOWN SECTION (RECTANGULAR)
	HEATING WATER RETURN PIPING
	HEATING WATER SUPPLY PIPING
	CHILLED WATER RETURN PIPING
	CHILLED WATER SUPPLY PIPING
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	SUPPLY DUCT DOWN SECTION (RECTANGULAR)
	RETURN DUCT DOWN SECTION (RECTANGULAR)
	EXHAUST DUCT DOWN SECTION (RECTANGULAR)
	HEATING WATER RETURN PIPING
	HEATING WATER SUPPLY PIPING
	CHILLED WATER RETURN PIPING
	CHILLED WATER SUPPLY PIPING
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	SUPPLY DUCT DOWN SECTION (RECTANGULAR)
	RETURN DUCT DOWN SECTION (RECTANGULAR)
	EXHAUST DUCT DOWN SECTION (RECTANGULAR)
	HEATING WATER RETURN PIPING
	HEATING WATER SUPPLY PIPING
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	CHILLED WATER SUPPLY PIPING
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	SUPPLY DUCT DOWN SECTION (RECTANGULAR)
	RETURN DUCT DOWN SECTION (RECTANGULAR)
	EXHAUST DUCT DOWN SECTION (RECTANGULAR)
	HEATING WATER RETURN PIPING
	HEATING WATER SUPPLY PIPING
	CHILLED WATER RETURN PIPING
	CHILLED WATER SUPPLY PIPING
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	RETURN DUCT DOWN SECTION (RECTANGULAR)
	EXHAUST DUCT DOWN SECTION (RECTANGULAR)
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	HEATING WATER SUPPLY PIPING
	CHILLED WATER RETURN PIPING
	CHILLED WATER SUPPLY PIPING
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	OPENING IN WALL ABOVE CEILING
	EQUIPMENT TAG

	SUPPLY DIFFUSER (4-WAY)
	RETURN

NOTE:
SYMBOLS SHOWN ON THIS MECHANICAL LEGEND ARE FOR REFERENCE PURPOSES ONLY. ALL OF THESE SYMBOLS MAY NOT BE USED FOR THIS PROJECT.

DATE
06-14-13

PROJECT NUMBER
JLC13.0064.00

DRAWING NUMBER
M0.1

SYMBOL LEGEND AND GENERAL NOTES

REAL THREAD WORLD HEADQUARTERS
400 Pittman Street, Orlando, FL 32801

BY
Adam Joseph Barney

DATE
P.E. # 59174

REVISIONS

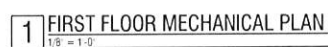
DESCRIPTION

DATE

BY

Joseph Lawrence & Co
Consulting Engineers

115 GUNN ROAD, SUITE 100
ALAMONTIC SPRINGS, FLORIDA 32709
TEL: 217.771.4466
FAX: 217.771.4467
CA. NO. 28130



① ROUTE 12" METAL EXHAUST DUCT UP FROM INTEGRAL SHIRT DRYER EXHAUST FAN. SEE SHEET M2.2 FOR CONTINUATION.

② ROUTE 8" METAL EXHAUST DUCT UP FROM DRYER HOOD. SEE SHEET M2.2 FOR CONTINUATION.

③ 24x24 ROOF PENETRATION UP TO GRAVITY VENTILATOR.

Rev	Date	Description	By
1	08/1/13	City Review Comments	JBR

JLIC 13.0064.00

Adam Joseph Barney
P.E. #: 69124

Joseph. Lawrence & Co
Consulting Engineers



**REAL THREAD WORLD
HEADQUARTERS**
400 Pittman Street, Orlando, FL 32801

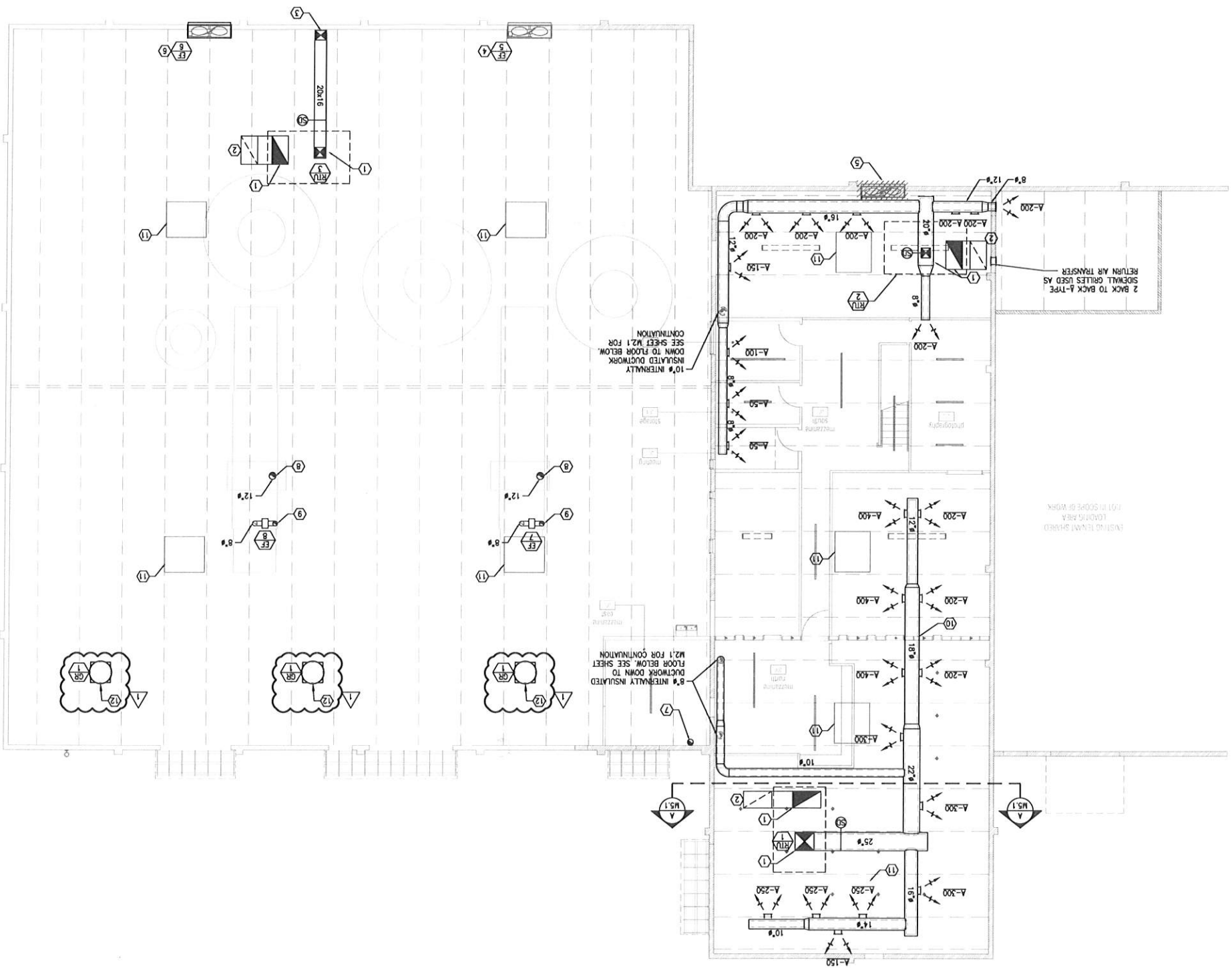
FLOOR PLANS - MECHANICAL

DRAWN	CHECKED
SJM	AJB
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PROJECT NUMBER	JLC13.0064.00
DRAWING NUMBER	

M2.1

DATE
06-14-13



1. MECHANICAL CONTRACTOR TO COORDINATE INSTALLATION OF CITYSCAPES-EMSOR RTU ROOF SCREEN SYSTEM WITH GENERAL CONTRACTOR AND ARCHITECTURAL PLANS.

GENERAL NOTES:

1. ROUTE SUPPLY AND RETURN DUCTWORK DOWN THRU ROOF FROM NEW ROOF TOP UNIT. TRANSMISSION DUCTWORK IN VERTICAL DROP AS REQUIRED. FIELD COORDINATE EXACT RTU LOCATION TO AVOID ROOF STRUCTURE.
2. ROUTE FULL SIZE UNIT OVER AND TURN UP TOWARD CEILING. SEE RETURN DUCT DETAIL.
3. ROUTE 20"x16" SUPPLY DUCT DOWN FROM LEVEL AND THRU CEILING DECK BELOW. SEE FIRST FLOOR PLAN FOR CONTINUATION.
4. EXISTING SIDEWALL PRODUCTION AREA EXHAUST FAN TO REMAIN. CONTRACTOR TO INSPECT EXISTING FAN AND REPLACE BELTS.
5. REMOVE EXISTING SIDEWALL EXHAUST FAN FROM WALL AND REPLACE WITH WINDOW. COORDINATE WITH ARCHITECTURAL PLANS. SIDEWALL FAN TO BE RELOCATED TO PRODUCTION AREA.
6. INSTALL NEW SIDEWALL FAN IN EXISTING WALL OPENING AT LOCATION SHOWN.
7. ROUTE NEW 10" EXHAUST DUCT UP THRU ROOF. PROVIDE ROOF EXHAUST GOOSENECK PER DETAIL.
8. ROUTE 12" METAL EXHAUST DUCT UP FROM INTEGRAL SHIRT DRYER EXHAUST FAN THRU ROOF. PROVIDE ROOF EXHAUST GOOSENECK PER DETAIL.
9. EXHAUST GOOSENECK PER DETAIL.
10. MECHANICAL CONTRACTOR TO COORDINATE DUCT PENETRATION THRU DECORATIVE GLASS WALL WITH GENERAL CONTRACTOR.
11. FIELD COORDINATE DUCTWORK TO AVOID OBSTRUCTION OF LIGHT COMING THRU SKYLIGHTS.
12. MECHANICAL CONTRACTOR TO COORDINATE GRAVITY VENTILATOR LOCATION AND PENETRATION THROUGH ROOF. - GREENCHECK W/GRSI-24

REFERENCE NOTES: (X)

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REAL THREAD WORLD
HEADQUARTERS
400 Pittman Street, Orlando, FL 32801

MEZZANINE PLAN - MECHANICAL

Joseph Lawrence & Co
Consulting Engineers
115 GAUSS ROAD, SUITE 200
ALAMONT, NEW YORK 11986
TEL: 315.777.4466
FAX: 315.777.4466
CL NO. 28739

JLC 13.0064.00

Adam Joseph Barney
P.E. # 691724

By	Date	Description
1	08/1/13	City Review Comments: JBR

OUTSIDE AIR CALCULATIONS							
CLASSIFICATION	OCC. FACTOR OCCUPANCY/ 1000 SQFT. (PERSONS)	ASHRAE 62 VALUES PER TABLE 6-1		SPACE AREA (SQFT)	SPACE LOAD (PERSONS)	OUTDOOR AIR REQUIRED (CFM)	OUTDOOR AIR SUPPLIED (CFM)
		Rp	Ro				
OFFICES	5	5	0.06	5,043	25	927	1,000
NOTE: REQUIRED OUTDOOR VENTILATION AIR VALUES TAKEN FROM ASHRAE 62, TABLE 6-1. VENTILATION BREATHING ZONE FORMULA: $Vbz = Rp * Pz + Ro * Az$ $Pz = OCCUPANCY FACTOR * SPACE AREA$							

AIR BALANCE		
OFFICE SPACE		
EXHAUST:		
EF-1	100	CFM
EF-2	100	CFM
EXHAUST TOTAL:	200	CFM
MAKEUP AIR:		
RTU-1	600	CFM
RTU-2	400	CFM
MAKEUP TOTAL:	1,000	CFM
OFFICE PRESSURE = +800 (WITH ALL OFFICE FANS ACTIVATED)		

AIR DEVICE SCHEDULE						
MARK	DESCRIPTION	FACE SIZE	NECK	MATERIAL	MANUFACTURER & MODEL NO.	NOTES
A	SPIRAL DUCT SUPPLY REGISTER	16"x8"	SEE PLAN	ALUMINUM	PRICE SOG AL	1. & 2.
B	SIDEWALL SUPPLY REGISTER	14"x8"	SEE PLAN	ALUMINUM	PRICE 620	1. & 2.
C	CEILING LOUVERED FACE SUPPLY DIFFUSER	12"x12"	SEE PLAN	ALUMINUM	PRICE ASCO	1. & 2.
NOTES: 1. COORDINATE SURFACE FINISHES WITH ARCHITECTURAL DRAWINGS. 2. PROVIDE OPTIONAL ADJUSTABLE FACE DAMPER.						

FAN SCHEDULE										
MARK	AREA SERVED	TYPE	CFM	T.S.P.	HP/WATTS	R.P.M.	VOLTS/PH	WEIGHT	MANUFACTURE. & MODEL NO.	NOTES
EF-1	RESTROOM - OFFICE	CABINET	100	0.20	56.7 W	1,000	120/1#	15	COOK GC-142	1, 2
EF-2	RESTROOM - OFFICE	CABINET	100	0.20	56.7 W	1,000	120/1#	15	COOK GC-142	1, 2
EF-3	RESTROOM - PROD.	CABINET	100	0.20	56.7 W	1,000	120/1#	15	COOK GC-142	1, 2
EF-4	RESTROOM - PROD.	CABINET	100	0.20	56.7 W	1,000	120/1#	15	COOK GC-142	1, 2
EF-5	PRODUCTION	SIDEWALL	-	-	14A	-	240/1#	-	EXISTING FAN	2, 3
EF-6	PRODUCTION	SIDEWALL	-	-	14A	-	240/1#	-	EXISTING FAN	2, 3
EF-7	SHIRT DRYER	INTEGRAL	1,000	2305	.25 HP	859	120/1#	53	COOK DB-8	4
EF-8	SHIRT DRYER	INTEGRAL	1,000	2305	.25 HP	859	120/1#	53	COOK DB-8	4
NOTES: 1. FAN TO BE CONTROLLED BY RESTROOM LIGHT SWITCH. COORDINATE WITH DIV.16 PLANS AND CONTRACTOR. SEE DIV. 16 PLANS. 2. PROVIDE FAN WITH SINGLE POINT WIRING AND ELECTRICAL DISCONNECT. 3. FAN TO BE CONTROLLED BY SWITCH IN PRODUCTION AREA. SEE DIV. 16 PLANS. 4. INTERLOCKED WITH DRYER. SEE DIV. 16 PLANS.										

FLEX DUCT SCHEDULE	
CFM	FLEX SIZE
51 - 100	6"
101 - 200	8"
201 - 400	10"
401 - 600	12"
601 - 900	14"
901 - 1,300	16"
1,300 - 1,700	18"

ROOF TOP UNIT SCHEDULE																						
PLAN MARK	EVAPORATOR SECTION								HEATER		CONDENSER SECTION				ELECTRICAL REQUIREMENTS			UNIT WEIGHT (LBS.)	UNIT EFF. (EER)	MANUFACTURER AND MODEL NUMBER	NOTES	
	SUPPLY AIRFLOW (CFM)	OUTSIDE AIRFLOW (CFM)	E.A.T. (DB/WB)	L.A.T. (DB/WB)	TOTAL COOLING (MBH)	SENSIBLE COOLING (MBH)	E.S.P. (IN. OF WG.)	H.P.	R.P.M.	HEATER (KW)	HEATER STAGES	NO. COMPRESSOR	COMPRESSOR RLA (EACH)	NO. CONDENSER FANS	CONDENSER FAN FLA (EA.)	ELECTRICAL REQUIREMENTS						
																V/#	M.C.A.					M.O.C.P.
RTU-1	4,000	600	80.0/66.7	56.0/55.0	119.0	92.7	0.8	3.75	1,100	18	1	2	16.0	1	4.0	240/3	64.8	70	960	11.3	TRANE – TSC120F3	1. & 2.
RTU-2	2,000	400	78.6/65.5	56.0/55.0	61.8	35.8	0.8	1	1,750	6.0	1	1	15.9	1	2.5	240/3	29.5	45	561	11.0	TRANE – TSC080E3	1. & 2.
RTU-3	2,000	200	78.6/65.5	56.0/55.0	61.8	35.8	0.8	1	1,750	6.0	1	1	15.9	1	2.5	240/3	29.5	45	561	11.0	TRANE – TSC080E3	1. & 2.
NOTES: 1. PROVIDE COMPLETE WITH DISCONNECT SWITCH, FACTORY MOUNTED MICROPROCESSOR CONTROLS, SLOPED ROOF CURB, THRU THE BASE ELECTRICAL CONNECTION AND UNIT MOUNTED SERVICE RECEPTACLE. ROUTE FULL SIZE CONDENSATE TO NEAREST ROOF DRAIN. 2. PROVIDE MOTORIZED OUTSIDE AIR DAMPER. OUTSIDE AIR DAMPER SHALL CLOSE WHEN COMPRESSOR IS OFF.																						

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E: JLC@JLCE.COM

Adam Joseph Barney
P.E. # 89124

By

Description

Date

Rev

REAL THREAD WORLD
HEADQUARTERS
400 Pittman Street, Orlando, FL 32801

MECHANICAL SCHEDULE

DRAWN
SJM

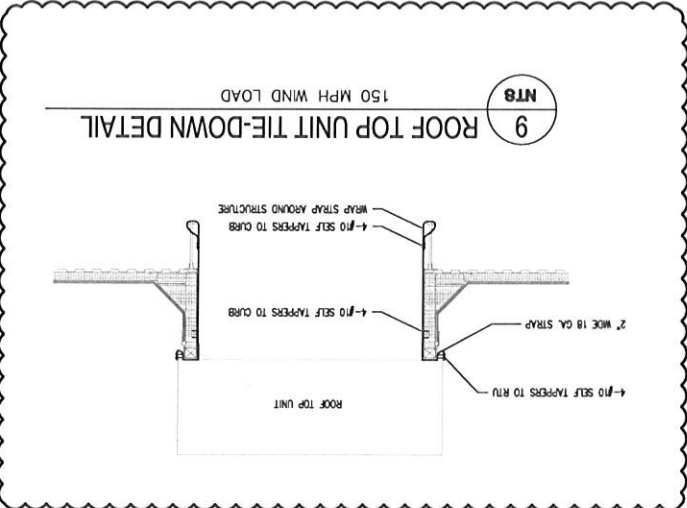
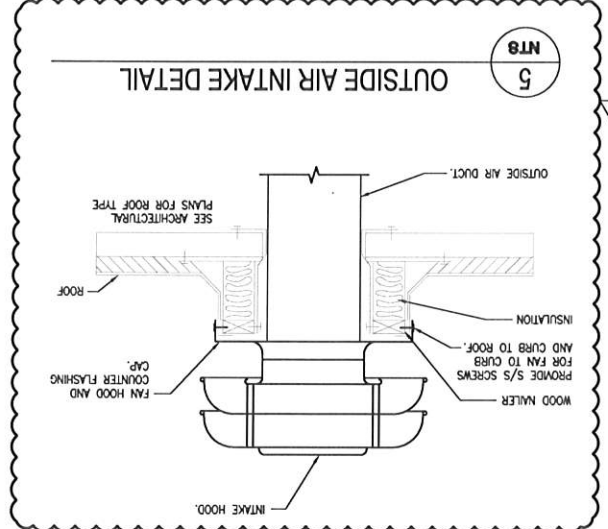
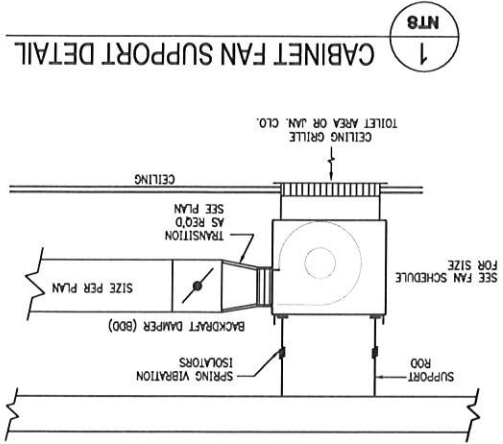
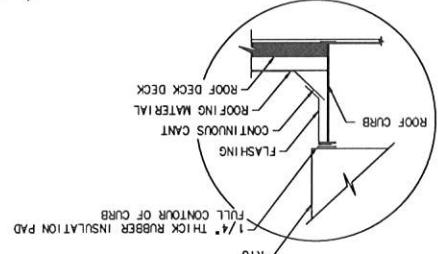
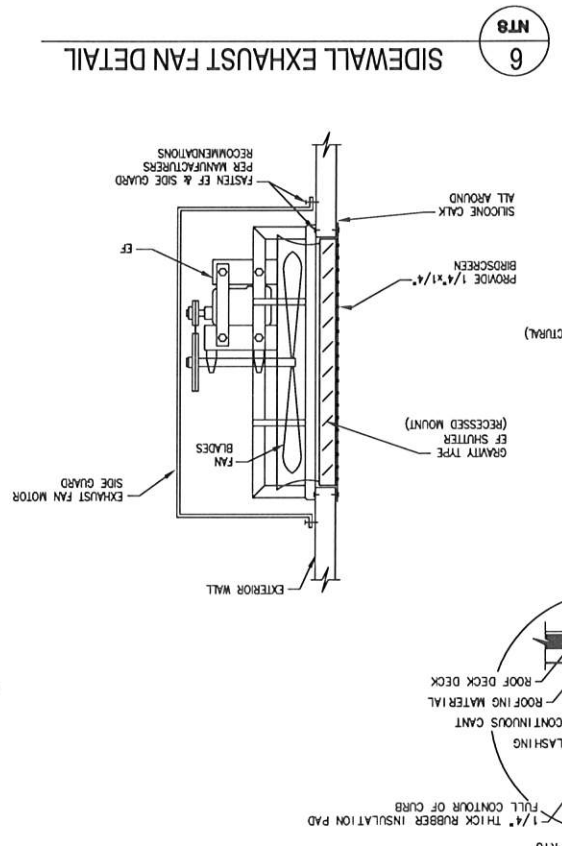
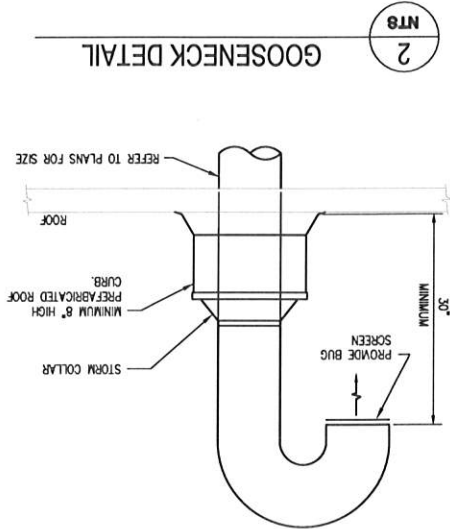
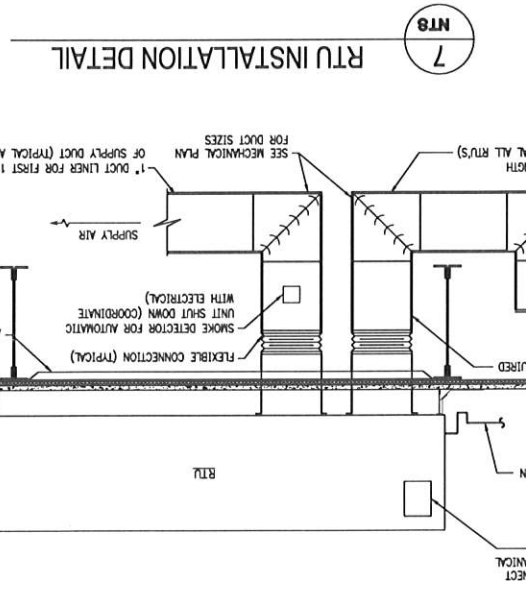
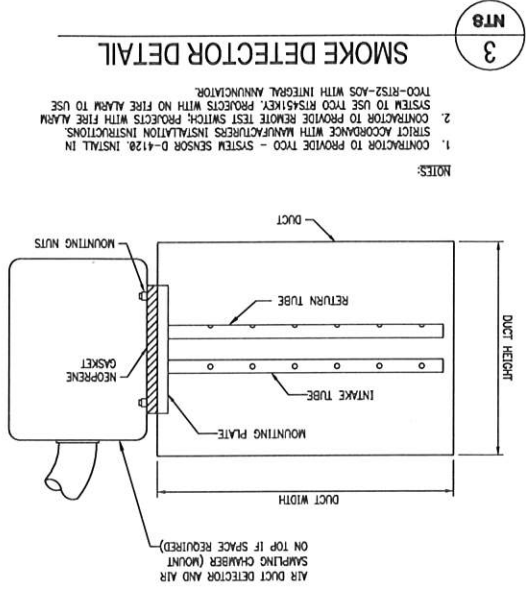
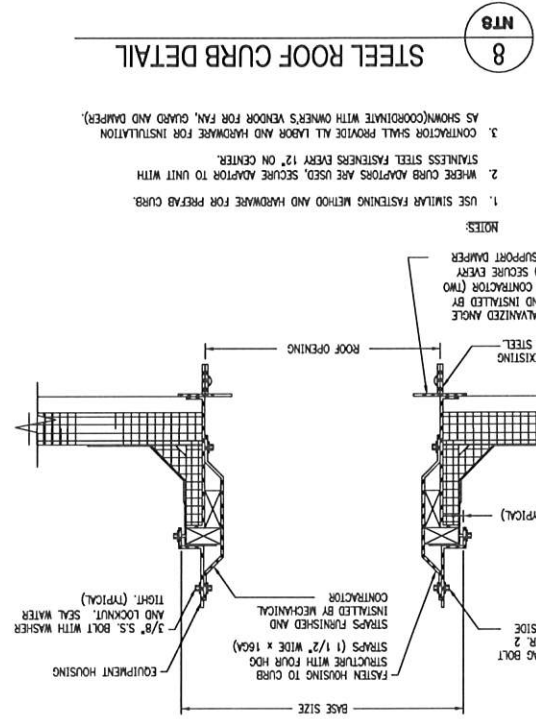
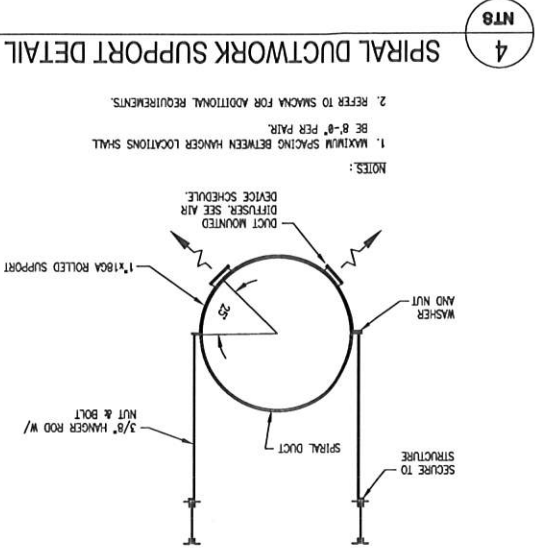
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ELECTRICAL LEGEND

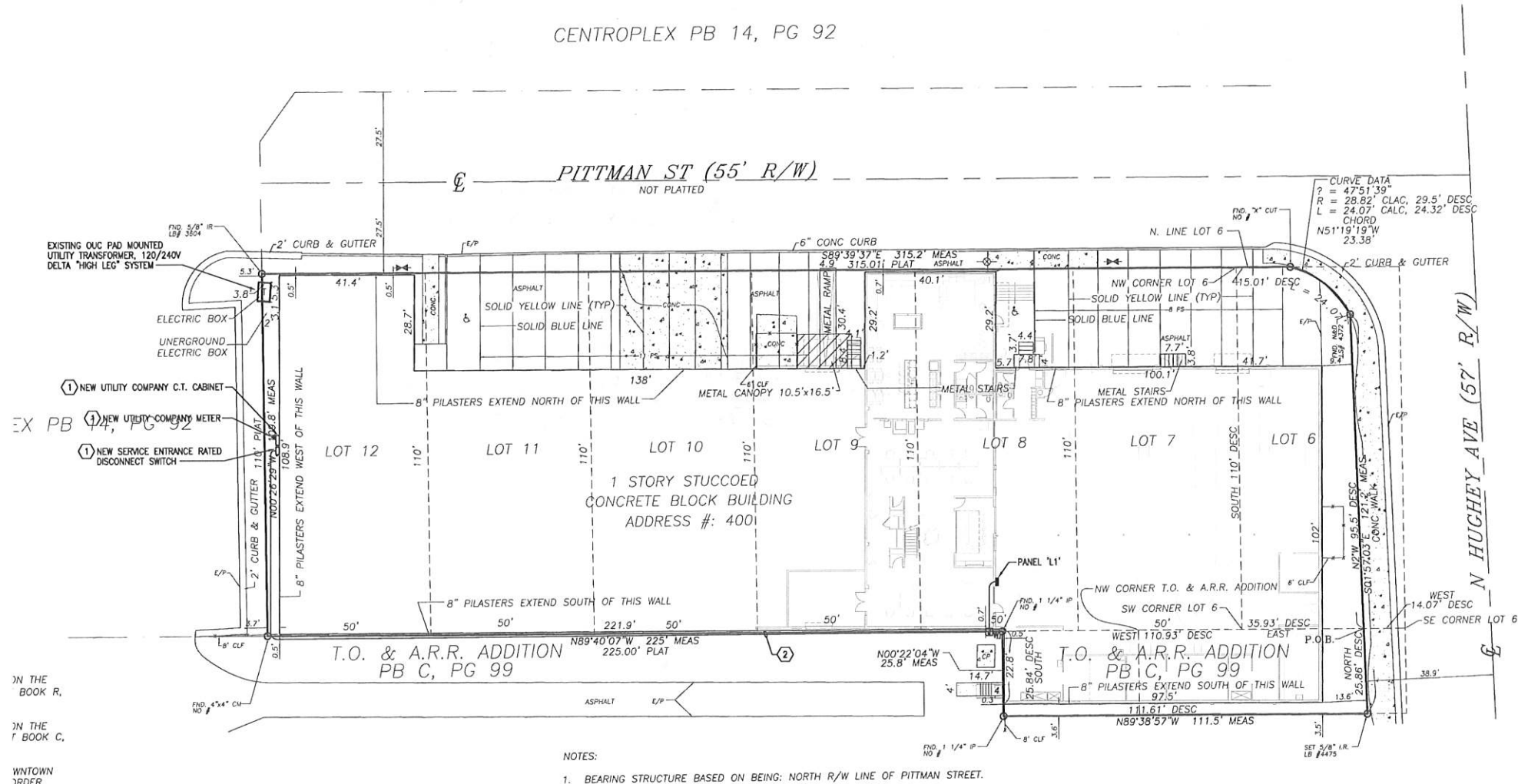
WIRING AND POWER	
	SWITCH
	(ONE) SINGLE POLE TOGGLE SWITCH
	TWO POLE TOGGLE SWITCH
	THREE WAY TOGGLE SWITCH
	SINGLE POLE WEATHERPROOF SWITCH
	SINGLE POLE KEYED SWITCH
	MANUAL MOTOR CONTROLLER W/O OVERLOADS
LOWER CASE LETTERS INDICATES SWITCHING DESIGNATIONS, QUANTITY OF LETTERS EQUAL QUANTITY OF GANGED SWITCHES	
	SINGLE RECEPTACLE
	GROUND FAULT CIRCUIT INTERRUPTER
	WEATHERPROOF GROUND
	ISOLATED GROUND
	COUNTER HEIGHT (ABOVE COUNTER OR 42" AFF)
	DUPLEX RECEPTACLE
	GROUND FAULT CIRCUIT INTERRUPTER
	WEATHERPROOF GROUND
	ISOLATED GROUND
	COUNTER HEIGHT (ABOVE COUNTER OR 42" AFF)
	SPECIAL RECEPTACLE
	TYPE X (SEE RECEPTACLE SCHEDULE)
	COUNTER HEIGHT
	POWER POLE
	RECESSED FLOOR MOUNTED DUPLEX RECEPTACLE
	SURFACE-MOUNTED FLOOR DUPLEX RECEPTACLE
	CEILING-MOUNTED DUPLEX RECEPTACLE
	PLUG MOLD
	COUNTER HEIGHT
	JUNCTION BOX
	DISCONNECT SWITCH
	DISCONNECT SWITCH - WEATHERPROOF (NEMA 3R)
	FUSED DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER
	MAGNETIC STARTER DISCONNECT
	HVA START/STOP
	MANUAL STARTER
	COMBINATION VARIABLE SPEED DRIVE AND DISCONNECT
	VARIABLE SPEED DRIVE
	MOTOR WITH DESIGNATOR
	TIME CLOCK
	WATER HEATER
	BRANCH CIRCUIT HOME RUN WITH PANEL NAME AND CIRCUIT NUMBER, QUANTITY OF BRANCHES DENOTES QUANTITY OF BRANCH CIRCUITS
	BRANCH CIRCUIT WIRING, PROVIDE QUANTITIES OF CONDUCTORS REQUIRED FOR CIRCUITING AND SWITCHING INDICATED
	POWER LEG ONLY (NO SWITCH LEG BETWEEN ROOMS)
	MUSHROOM HEAD PUSH BUTTON
	RELAY
	GROUND ROD
	TRANSFORMER
	TYPE X TRANSFORMER
	ELECTRIC UNIT HEATER
(FURNISHED UNDER DV 15 UNLESS NOTED OTHERWISE)	

PANELS

	NEW ELECTRICAL PANEL
	MAIN DISTRIBUTION PANEL (SEE PANEL SCHEDULE)
	TRANSIENT VOLTAGE SURGE SUPPRESSION
	AUTOMATIC TRANSFER SWITCH
	ELECTRICAL SYSTEMS PANEL
	SECURITY ALARM CONTROL PANEL
	FIRE ALARM ANNUNCIATOR PANEL
	PUBLIC ADDRESS CONTROL PANEL
	MASTER CLOCK CONTROL PANEL
	FIRE ALARM CONTROL PANEL
	ENCLOSED CIRCUIT BREAKER
	ELECTRICAL
	EMERGENCY
	ENERGY MANAGEMENT SYSTEM
	ELECTRICAL METALLIC TUBING
	EXHAUST FAN
	ELECTRIC WATER COOLER
	EXHAUSTING TO REMAIN
	FIRE ALARM
	FIRE ALARM CONTROL PANEL
	GROUND FAULT INTERRUPTER
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	HIGH INTENSITY DISCHARGE
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	GROUND FAULT INTERRUPTER
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	GROUND FAULT INTERRUPTER
	GROUND
	HIGH INTENSITY DISCHARGE
	GALVANIZED RIGID CONDUIT
	GROUND
	GROUND FAULT INTERRUPTER
	GROUND FAULT INTERRUPTER
	GROUND
	FLOOR POWER AND LIGHT
	FIRE ALARM
	FIRE ALARM CONTROL PANEL
	EXHAUSTING TO REMAIN
	ELECTRIC WATER COOLER
	EXHA

- GENERAL NOTES:
- A. DO NOT SCALE ELECTRICAL DRAWING FOR ANY DIMENSIONS.
 - B. ALL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE, NATIONAL, STATE AND LOCAL CODES. PROVIDE GROUNDING AND BONDING PER NEC 250.
 - C. SEE SINGLE LINE DIAGRAM FOR FEEDER WIRE AND CONDUIT SIZE. ALL CIRCUITS NOT SIZED ON DRAWING SHALL BE INSTALLED TO MEET MINIMUM SIZE REQUIRED BY NEC. ALL CONDUCTORS SHALL HAVE AN EQUIPMENT GROUND WIRE SIZED PER NEC.
 - D. FIELD VERIFY EXACT LOCATION OF ALL DEVICES AND EQUIPMENT PRIOR TO ROUGH IN.
 - E. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ROUTING OF NEW SECONDARY SERVICE CONDUCTORS WITH TENANT AND BUILDING OWNER PRIOR TO ROUGH-IN.

- REFERENCE NOTES: (X)
- (1) REFER TO POWER RISER DIAGRAM, SHEET E4.1 FOR ADDITIONAL INFORMATION.
 - (2) ROUTE NEW SECONDARY SERVICE CONDUCTORS EXPOSED ON EXTERIOR SIDE OF EXISTING WALL AS HIGH AS POSSIBLE. COORDINATE ROUTING WITH OWNER PRIOR TO ROUGH-IN. ELECTRICAL CONTRACTOR SHALL WEATHERSEAL ALL PENETRATIONS IN EXTERIOR AS REQUIRED.



1 SITE PLAN - ELECTRICAL

By	
Description	
Date	
Rev	

JLC 13.0064.00

Blake Lawrence Suddeth
P.E. # 60060

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SITE PLAN - ELECTRICAL

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PROJECT NUMBER
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E1.1

DATE
06-14-13



REFERENCE NOTES:

- DISCONNECT PROVIDED BY DIVISION 15 CONTRACTOR, INSTALLED AND WIRED BY DIVISION 16 CONTRACTOR. FUSE PER MANUFACTURERS RECOMMENDATIONS.

- 11 SURFACE MOUNT OUTLET BOX WITH 120V RECEPTACLE ON EXISTING COLUMN AT 48" AFF.

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CHECKED	DRAWN

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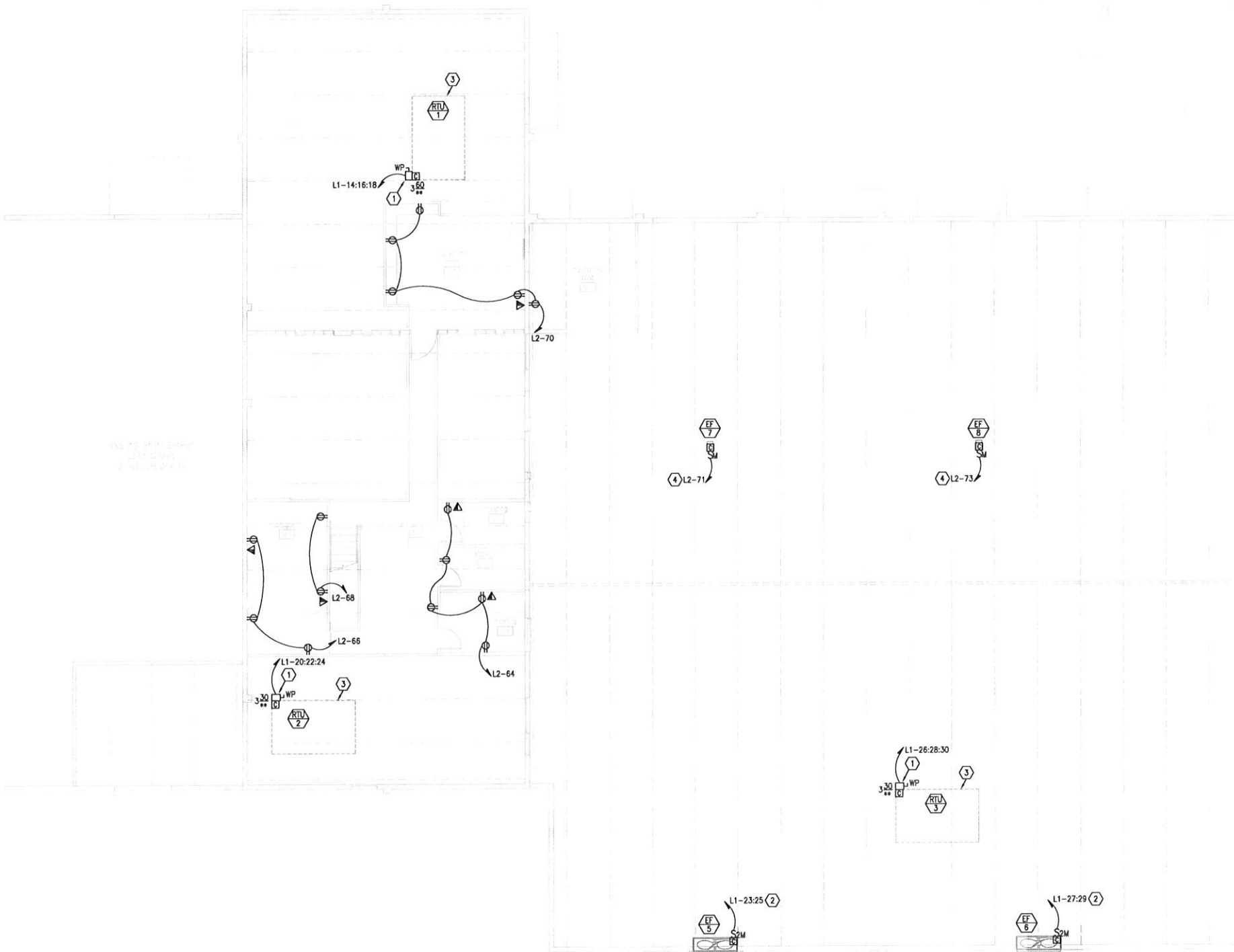
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DATE 06-14-13

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1 MEZZANINE PLAN - POWER AND SYSTEMS
1/8" = 1'-0"



GENERAL NOTES:

- DO NOT SCALE ELECTRICAL DRAWING FOR ANY DIMENSIONS.
- ALL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE, NATIONAL, STATE AND LOCAL CODES. PROVIDE GROUNDING AND BONDING PER NEC 250.
- SEE SINGLE LINE DIAGRAM FOR FEEDER WIRE AND CONDUIT SIZE. ALL CIRCUITS NOT SIZED ON DRAWING SHALL BE INSTALLED TO MEET MINIMUM SIZE REQUIRED BY NEC. ALL CONDUCTORS SHALL HAVE AN EQUIPMENT GROUND WIRE SIZED PER NEC.
- FIELD VERIFY EXACT LOCATION OF ALL DEVICES AND EQUIPMENT PRIOR TO ROUGH IN.

REFERENCE NOTES: (1)

- DISCONNECT PROVIDED BY DIVISION 15 CONTRACTOR, INSTALLED AND WIRED BY DIVISION 16 CONTRACTOR. FUSE PER MANUFACTURERS RECOMMENDATIONS.
- CONNECT WALL MOUNTED EXHAUST VIA CONTROL SWITCH LOCATED ON LOWER LEVEL. REFER TO SHEET E2.1 FOR SWITCH LOCATION.
- MECHANICAL ROOF TOP UNIT TO BE PROVIDED WITH INTEGRAL 120V SERVICE RECEPTACLE. COORDINATE CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR.
- ELECTRICAL CONTRACTOR TO PROVIDE INTERCONNECTION BETWEEN MECHANICAL EXHAUST FAN AND DRYER UNIT. FAN SHALL OPERATE SIMULTANEOUSLY WITH PRINTING EQUIPMENT SERVED. COORDINATE REQUIREMENTS WITH OWNER AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED.

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JLC 13.0064.00
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MEZZANINE PLAN - POWER & SYSTEMS

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MJR

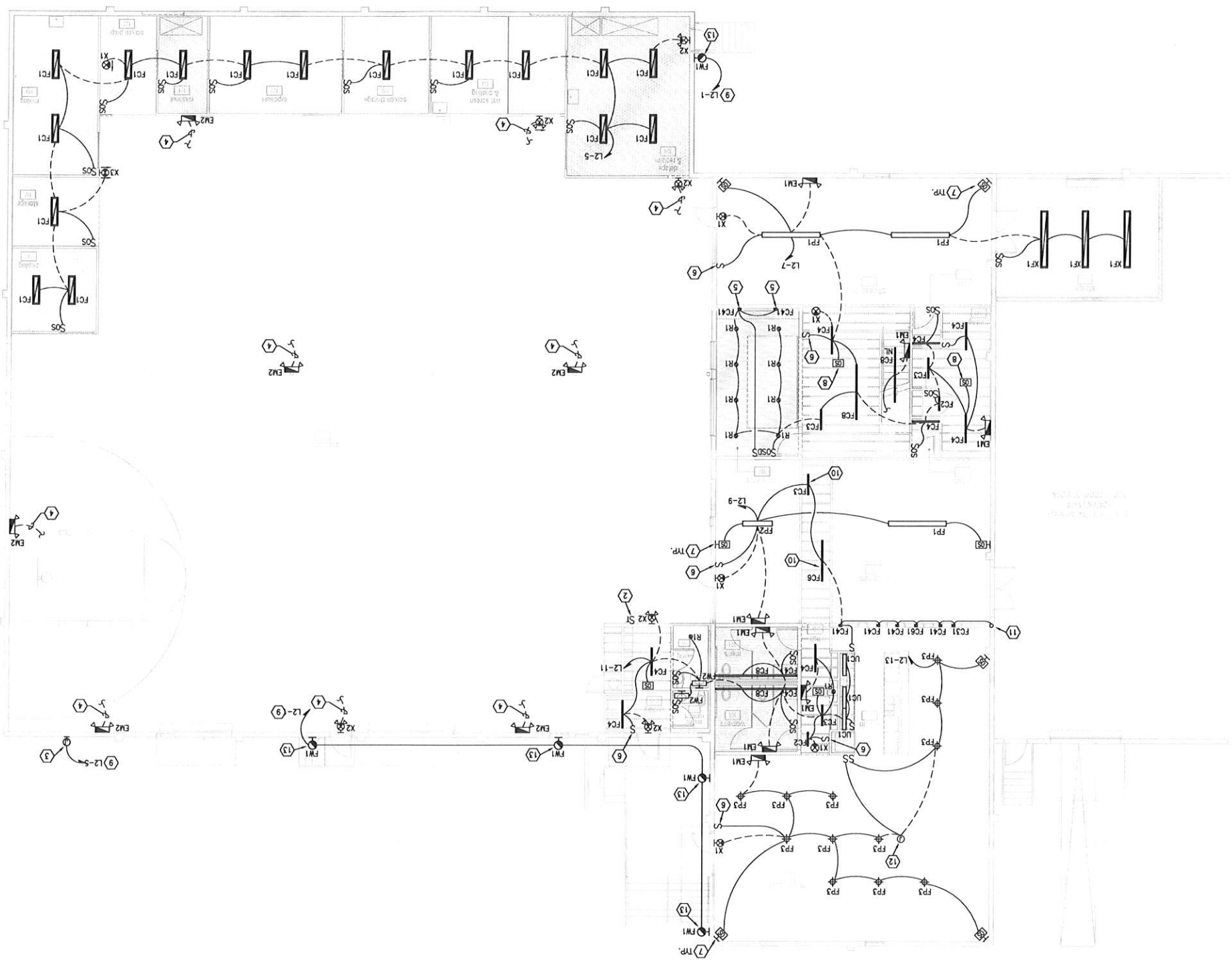
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PROJECT NUMBER
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DATE
06-14-13



- 1) FLUORESCENT FIXTURE TO BE MOUNTED VERTICALLY IN ARCHITECTURAL WALL NICHE. COORDINATE LOCATION/HEIGHT, MOUNTING REQUIREMENTS AND CONDUIT ROUTING IN WALL WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
- 2) PROVIDE SPRING WOUND THREE SWITCH FOR OVERSIDE OF LIGHTING CONTACTOR, 'LC1' FOR NO MORE THAN 4 HOURS. COORDINATE SWITCH LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- 3) PROVIDE WEATHERPROOF JUNCTION BOX FOR CONNECTION OF FUTURE SIGNAGE BY OTHERS. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- 4) CONNECT EXIT SIGN/EMERGENCY LIGHT TO LOCAL LIGHTING CIRCUIT AHEAD OF ALL CONTROLS AS REQUIRED.
- 5) FLUORESCENT FIXTURE TO BE MOUNTED VERTICALLY IN ARCHITECTURAL CONE. COORDINATE LOCATION/HEIGHT AND MOUNTING REQUIREMENTS WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
- 6) PROVIDE WALL MOUNTED SWITCH AS REQUIRED TO COMPLY WITH FBC 505.2.2.1 (2010 ed.). COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- 7) PROVIDE WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR FOR CONTROL OF ROOM LIGHTING. LOCATE AS REQUIRED BY MANUFACTURER TO PROVIDE COMPLETE COVERAGE OF SPACE. PROVIDE ADDITIONAL SENSORS, POWER PACKS, CONTROL WIRING, ETC. AS REQUIRED.
- 8) PROVIDE CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR FOR CONTROL OF ROOM LIGHTING. LOCATE AS REQUIRED BY MANUFACTURER TO PROVIDE COMPLETE COVERAGE OF SPACE. PROVIDE ADDITIONAL SENSORS, POWER PACKS, CONTROL WIRING, ETC. AS REQUIRED.
- 9) CONNECT TO LIGHTING CONTACTOR 'LC1' FOR CONTROL OF EXTERIOR LIGHTING. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
- 10) FIXTURES TO BE MOUNTED TO UNDERSIDE OF BRIDGE. COORDINATE LOCATION WITH CONDITIONS IN FIELD.
- 11) UP TO FIXTURES IN WALL ABOVE.
- 12) PROVIDE JUNCTION BOX FOR FUTURE FIXTURE ABOVE POOL TABLE. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- 13) COORDINATE MOUNTING HEIGHT OF FIXTURE WITH OWNER PRIOR TO ROUGH-IN.

REFERENCE NOTES: (X)

- A. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT FIXTURE LOCATIONS AND ORIENTATIONS.
- B. MOUNTING DETAILS AND INFORMATION.
- C. ALL EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS SHALL BE CONNECTED "HOT" TO THE INDICATED LOCAL LIGHTING CIRCUIT.
- D. VERIFY ALL MOUNTING HEIGHTS AND PENDANT LENGTHS WITH ARCHITECT AND ENGINEER PRIOR TO ORDERING FIXTURES.
- E. EMERGENCY ILLUMINATION SHALL BE PROVIDED FOR A PERIOD OF 90 MINUTES IN THE EVENT OF FAILURE OF NORMAL LIGHTING. EMERGENCY LIGHTING SHALL BE ARRANGED TO PROVIDE MINIMUM INITIAL ILLUMINATION THAT IS AT LEAST AN AVERAGE OF 1 FOOTCANDLE (10 LUX) AND A MINIMUM AT ANY POINT OF 0.1 FOOTCANDLE (1 LUX) WEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL. ILLUMINATION LEVELS SHALL BE PERMITTED TO DECLINE TO 0.6 FOOTCANDLE (6 LUX) AVERAGE AND A MINIMUM AT ANY POINT OF 0.06 FOOTCANDLE (0.6 LUX) AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM 10-1 MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40:1 SHALL NOT BE EXCEEDED.
- F. "NL" NEXT TO LIGHT FIXTURE DENOTES FIXTURE TO BE USED AS "NIGHT LIGHT". CONNECT TO LIGHTING CIRCUIT AHEAD OF ALL SWITCHES AND CONTROLS FOR 24 HOUR OPERATION.

GENERAL NOTES:

DATE
06-14-13

E3.1

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FIRST FLOOR PLAN - LIGHTING

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Rev	Date	Description	By



DATE
06-14-13

REAL THREAD WORLD HEADQUARTERS 400 Pittman Street, Orlando, FL 32801 RISER DIAGRAMS & ELECT. SCHEM.	DWG NO. MUR	CAD FILE BLS	PROJECT NUMBER JLC13.0064.00	DRAWING NUMBER E4.1	DATE 06-14-13
	JLC 13.0064.00				



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Blake Lawrence, Student

By	Description	Date	Rev
JBR	City Review Comments	08/1/13	1

GENERAL NOTES:

- B. ALL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE, NATIONAL, STATE AND LOCAL CODES. PROVIDE GROUNDING AND BONDING PER NEC 250.
- C. COORDINATE ALL WORK WITH LOCAL UTILITY COMPANY.
- D. ELECTRICAL CONTRACTOR SHALL PROVIDE PERMANENTLY AFFIXED PHENOLIC LABELS ON ALL PANELBOARDS AND EQUIPMENT AS REQUIRED BY NEC 408.3.
- E. ELECTRICAL CONTRACTOR SHALL PROVIDE DURABLE AND PERMANENT ORANGE MARKINGS ON ALL HIGH VOLT CONDUCTORS AS REQUIRED BY NEC 110.15 & 230.56

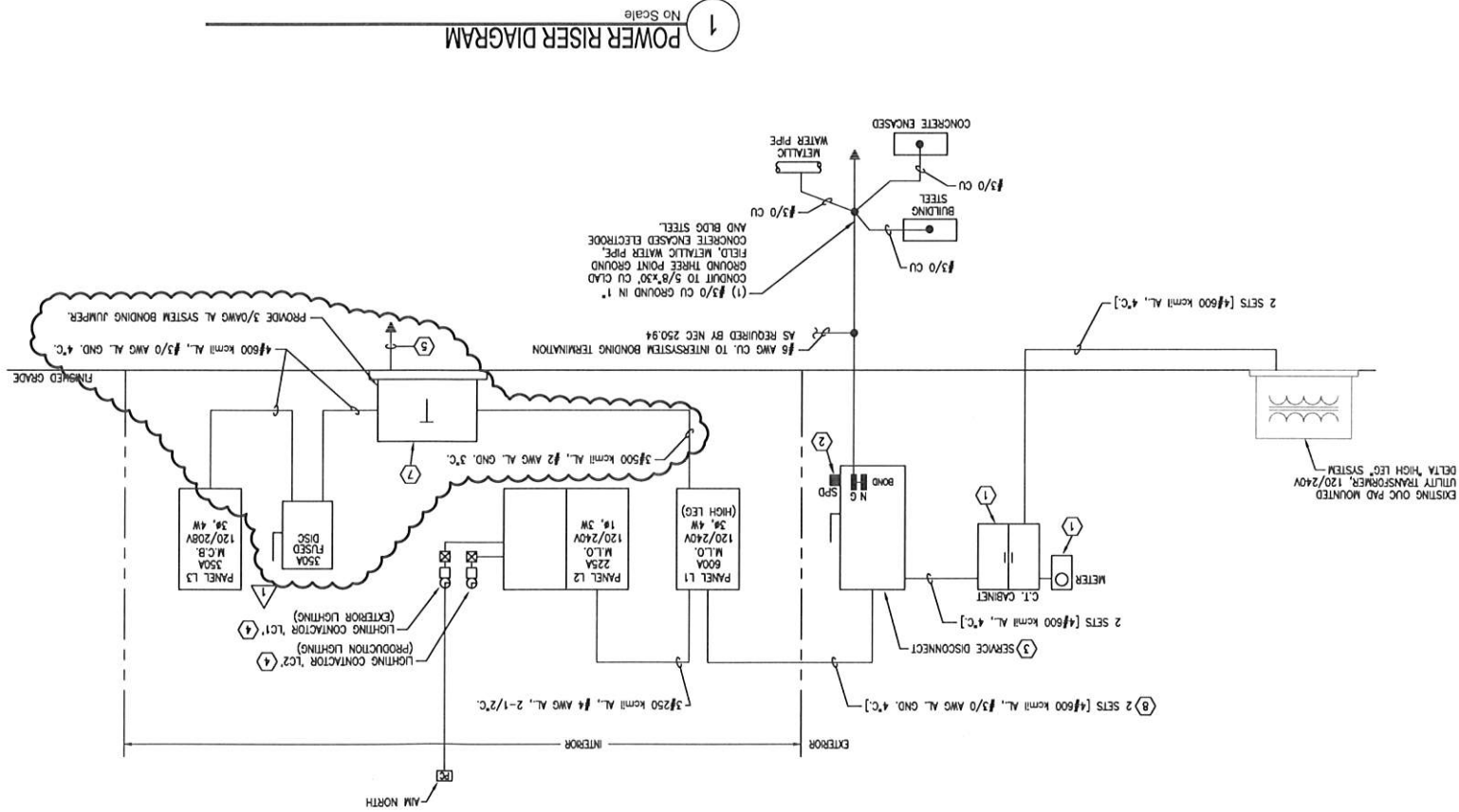
REFERENCE NOTES:

- 1) COORDINATE ALL CONNECTION REQUIREMENTS OF NEW SERVICE WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED.
- 2) PROVIDE WASH WIRED SURGE PROTECTIVE DEVICE OF SAME MANUFACTURER AS DISCONNECT SWITCH.
- 3) PROVIDE 600A, 600V, 3P, 3W, NEMA 3R SERVICE ENTRANCE RATED DISCONNECT COMPANY PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED.
- 4) REFER TO DETAILS FOR ADDITIONAL INFORMATION ABOUT LIGHTING CONNECTOR.
- 5) PROVIDE 3/8" N. G. TO BUILDING STEEL AND COLD WATER WIPING PER MEC.
- 6) PROVIDE 100A, 600V, 3P, 4W DISCONNECT SWITCH FOR TRANSFORMER PRIMARY DISCONNECT. SWITCH SHALL BE USED AT 100A. COORDINATE WITH MANUFACTURER.
- 7) PRIMARY AND 208Y/120V SECONDARY WINDINGS.
- 8) EXISTING NEW SECONDARY SERVICE CONDUCTORS EXPOSED ON EXTERIOR SIDE TO ROUGH-IN. ELECTRICAL CONTRACTOR SHALL WEATHERSEAL ALL PENETRATIONS IN EXTERIOR AS REQUIRED.

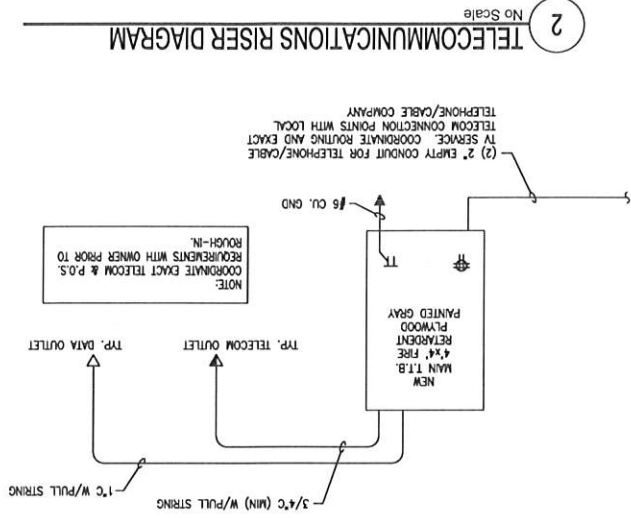
NOTE:
FEEDERS ARE DESIGNED FOR A MAXIMUM VOLTAGE DROP OF 2% AT DESIGN LOAD.
BRANCH CIRCUITS ARE DESIGNED FOR A MAXIMUM VOLTAGE DROP OF 3% AT DESIGN LOAD.

GENERAL NOTES:

4. DO NOT SCALE ELECTRICAL DRAWINGS FOR ANY DIMENSIONS
5. TALK WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRICAL CODE, NATIONAL, STATE AND LOCAL CODES. PROVIDE GROUNDING AND BONDING PER NEC 250.
6. COORDINATE TALK WORK WITH LOCAL TELEPHONE/TELEVISION SERVICE PROVIDER
7. COORDINATE EXACT TELECOMMUNICATIONS REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.



POWER RISER DIAGRAM No Scale



TELECOMMUNICATIONS RISER DIAGRAM

PANEL L2 (SECTION #1)																		
LOCATION: PRODUCTION #116			VOLTAGE: 120/240 3Ø 3W			MIN. AIC RATING: 22 KAC			NOTES: PROVIDE TYPED WRITTEN DIRECTORY PROVIDE GROUND & NEUTRAL BUS									
TYPE: SQUARE "D" - TYPE NQ			MAINS: 200A ☒ MLO ☐ MCB			MOUNTING: SURFACE												
FED FROM: SERVICE DISCONNECT #1			LUGS: ☐ SUB-FEED ☐ FEED-THRU			ENCLOSURE: NEMA 1												
NO.	CIRCUIT DESCRIPTION	NOTES	BRANCH CIRCUIT #	NEUT	GND	COND	BKR	LOAD KVA	PHASE #	LOAD KVA	BKR	BRANCH CIRCUIT #	NEUT	GND	COND	CIRCUIT DESCRIPTION	NO.	
1	LIGHTS - EXTERIOR		12	12	12	1/2"	20/1	0.32	A	0.20	20/1	12	12	12	1/2"	1	EXISTING FACP	2
3	SIGNAGE		12	12	12	1/2"	20/1	1.20	B	0.18	20/1	12	12	12	1/2"	3	RECEPTACLES - SEWING	4
5	LIGHTS - PRODUCTION AREA		12	12	12	1/2"	20/1	1.03	A	0.18	20/1	12	12	12	1/2"	5	RECEPTACLES - SEWING	6
7	LIGHTS - SOUTH OFFICES		12	12	12	1/2"	20/1	1.66	B	0.18	20/1	12	12	12	1/2"	7	RECEPTACLES - SEWING	8
9	LIGHTS - NORTH OFFICES		12	12	12	1/2"	20/1	1.37	A	0.18	20/1	12	12	12	1/2"	9	RECEPTACLES - SEWING	10
11	LIGHTS - RESTROOMS/HALLWAY		12	12	12	1/2"	20/1	0.77	B	0.18	20/1	12	12	12	1/2"	11	RECEPTACLES - PUMP MIXING	12
13	LIGHTS - MULTIPURPOSE		12	12	12	1/2"	20/1	0.66	A	-	20/1	12	12	12	1/2"	13	SPARE	14
15	LIGHTS - SECOND FLOOR		12	12	12	1/2"	20/1	1.31	B	0.72	20/1	12	12	12	1/2"	15	RECEPTACLES - MIXING	16
17	LIGHTS - PRODUCTION HIGH BAYS		12	12	12	1/2"	20/1	1.66	A	0.54	20/1	12	12	12	1/2"	17	RECEPTACLES - MIXING	18
19	LIGHTS - PRODUCTION HIGH BAYS		12	12	12	1/2"	20/1	1.66	B	0.54	20/1	12	12	12	1/2"	19	RECEPTACLES - EXPOSURE	20
21	LIGHTS - PRODUCTION HIGH BAYS		12	12	12	1/2"	20/1	1.66	A	0.72	20/1	12	12	12	1/2"	21	RECEPTACLES - WASHOUT	22
23	LIGHTS - PRODUCTION HIGH BAYS		12	12	12	1/2"	20/1	1.66	B	0.36	20/1	12	12	12	1/2"	23	RECEPTACLES - WET SCREEN	24
25	RECEPTACLES - DETAPE		12	12	12	1/2"	20/1	0.90	A	0.18	20/1	12	12	12	1/2"	25	RECEPTACLES - PUMP PRODUCTION	26
27	RECEPTACLES - DETAPE		12	12	12	1/2"	20/1	0.36	B	0.18	20/1	12	12	12	1/2"	27	RECEPTACLES - PUMP WET SCREEN	28
29	RECEPTACLES - DETAPE		12	12	12	1/2"	20/1	0.54	A	0.18	20/1	12	12	12	1/2"	29	RECEPTACLES - PUMP DETAPE	30
31	RECEPTACLES - OFFICE SOUTH		12	12	12	1/2"	20/1	0.90	B	0.36	20/1	12	12	12	1/2"	31	RECEPTACLES - FLOOR BOX	32
33	RECEPTACLES - OFFICE SOUTH		12	12	12	1/2"	20/1	1.08	A	0.36	20/1	12	12	12	1/2"	33	RECEPTACLES - FLOOR BOX	34
35	RECEPTACLES - FLOOR BOX		12	12	12	1/2"	20/1	0.36	B	0.36	20/1	12	12	12	1/2"	35	RECEPTACLES - FLOOR BOX	36
37	RECEPTACLES - FLOOR BOX		12	12	12	1/2"	20/1	0.36	A	0.36	20/1	12	12	12	1/2"	37	RECEPTACLES - FLOOR BOX	38
39	RECEPTACLES - FLOOR BOX		12	12	12	1/2"	20/1	0.36	B	0.36	20/1	12	12	12	1/2"	39	RECEPTACLES - FLOOR BOX	40
41	RECEPTACLES - FLOOR BOX		12	12	12	1/2"	20/1	0.36	A	0.36	20/1	12	12	12	1/2"	41	RECEPTACLES - PRODUCTION	42
EQUIPMENT SERVED			CONN. LOAD			L.F. D.F. DEMAND LOAD												
LIGHTING			14.96 KVA			125% 18.70 KVA												
RECEPTACLES - GENERAL			11.90 KVA			** 10.95 KVA (PER NEC 220.44)												
SECTION #2			15.78 KVA			100% 15.78 KVA												
NOTES:																		
1) PROVIDE RED BREAKER WITH LOCKING HANDLE.																		

MARK	DESCRIPTION	MANUFACTURER	MODEL	VOLTS	LAMP		QTY	WATTS	MODEL	WATTS
XH1	EXISTING HIGH BAY FIXTURE TO BE CLEANED AND RELAMPED AS REQUIRED	EXISTING	-	120			1	400	WH	425
XH1	EXISTING INDUSTRIAL FLUORESCENT STRIP LIGHT WITH REFLECTORS TO BE CLEANED AND RELAMPED AS REQUIRED	EXISTING	-	120				96	7B	192
FW1	WALL MOUNTED EXTERIOR LUMINAIRE WITH ALUMINUM HOUSING, FROSTED OPAL LENS AND INTEGRAL BATTERY BACKUP	ECLIPSE	SK-M-C-TT1/2/3Z-4K-120/EL2-SGR-RF	120			2	32	CFL	64
FW2	BATHROOM VANITY LIGHT MOUNT ABOVE MIRROR	KECA	600WGRON	120			1	13	75	13
FC1	4" SURFACE MOUNTED INDUSTRIAL FLUORESCENT LUMINAIRE WITH WHITE SYMMETRICAL REFLECTOR	LITHONIA	L-2-32-120-CEB10S-QALV	120			2	32	7B	64
FC2	2' FLUORESCENT STRIP LIGHT WITH 2 LAMPS, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	Z-2-17-120-CEB10S-QALV	120			2	17	7B	34
FC21	2' FLUORESCENT STRIP LIGHT WITH 1 LAMP, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	Z-1-17-120-CEB10S-QALV	120			1	17	7B	17
FC3	3' FLUORESCENT STRIP LIGHT WITH 2 LAMPS, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	Z-2-25-120-CEB10S-QALV	120			2	25	7B	50
FC31	3' FLUORESCENT STRIP LIGHT WITH 1 LAMP, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	Z-1-25-120-CEB10S-QALV	120			1	25	7B	25
FC4	4' FLUORESCENT STRIP LIGHT WITH 2 LAMPS, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	Z-2-32-120-CEB10S-QALV	120			2	32	7B	64
FC41	4' FLUORESCENT STRIP LIGHT WITH 1 LAMP, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	Z-1-32-120-CEB10S-QALV	120			1	32	7B	32
FC6	6' FLUORESCENT STRIP LIGHT WITH 2 LAMPS, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	TZ-2-25-120-CEB10S-QALV	120			4	25	7B	100
FC61	6' FLUORESCENT STRIP LIGHT WITH 1 LAMP, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	TZ-1-25-120-CEB10S-QALV	120			2	25	7B	50
FC8	8' FLUORESCENT STRIP LIGHT WITH 2 LAMPS, ELECTRONIC BALLAST AND GALVANIZED FINISH HOUSING	LITHONIA	TZ-2-32-120-CEB10S-QALV	120			4	32	7B	128
FP1	8" SUSPENDED LINEAR FLUORESCENT WITH WHITE FINISH, ACRYLIC LENS AND ELECTRONIC BALLAST	PEERLESS	SPW9 2 32 WHR RFT R8 120 GEB10 SCT L/P F44/96 C032	120			4	32	7B	128
FP2	4" SUSPENDED LINEAR FLUORESCENT WITH WHITE FINISH, ACRYLIC LENS AND ELECTRONIC BALLAST	PEERLESS	SPW9 2 32 WHR RFT R4 120 GEB10 SCT L/P F44/96 C032	120			2	32	7B	64
FP3	4" VERTICALLY SUSPENDED LINEAR FLUORESCENT WITH ACRYLIC LENS AND ELECTRONIC BALLAST	WALDMANN LIGHTING	RL70E-1-32-X-120-S-30-E-4-VP	120			1	32	7B	32
R1	4" RECESSED LED OPEN DOWNLIGHT WITH 1000 LUMEN OUTPUT AND SELF-FLAUGED REFLECTOR	GOTHAM LIGHTING	EVO 30/10 4KR 120	120			1	21	LED	21
R2	6" RECESSED LED SHOWER DOWNLIGHT WITH 1000 LUMEN OUTPUT AND ACRYLIC FACEPLATE	GOTHAM LIGHTING	EVO 30/10 6KR 120	120			1	22	LED	22
UC1	3" FLUORESCENT UNDERCABINET LIGHT WITH STEEL HOUSING AND ACRYLIC WHITE DIFFUSER	LITHONIA	UC50-21-120-LB	120			1	21	75	21
EU1	WALL MOUNTED EMERGENCY LIGHT WITH TWIN HEADS, WHITE THERMOPLASTIC HOUSING AND BATTERY BACKUP	LITHONIA	ELM2-50	120			2	5.4	KRYPTON	11
EU2	WALL MOUNTED EMERGENCY HIGH OUTPUT LIGHT WITH TWIN HEADS, THERMOPLASTIC HOUSING AND BATTERY BACKUP	LITHONIA	ELM618-N	120			2	9	HALOGEN	18
X1	SINGLE FACE EDGE-UP LED EXIT SIGN WITH ALUMINUM HOUSING, UNIVERSAL MOUNTING AND BATTERY BACKUP	MULE LIGHTING	CEL-1-B-6C-BA-U-SD	120			-	-	LED	5
X2	SINGLE/DOUBLE FACE EXIT SIGN WITH TWIN EMERGENCY LIGHTS, GREEN LETTERS AND BATTERY BACKUP	LITHONIA	EC6-LED-H0-M6	120			-	-	LED	3.2
X3	DOUBLE FACE EXIT SIGN WITH GREEN LETTERS AND BATTERY BACKUP	LITHONIA	EXG-LED-EL-M6	120			-	-	LED	3.2

LIGHTING FIXTURE SCHEDULE

LIGHTING FIXTURE SCHEDULE

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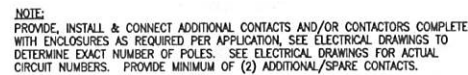
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ELECTRICAL SCHEDULES

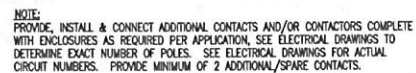
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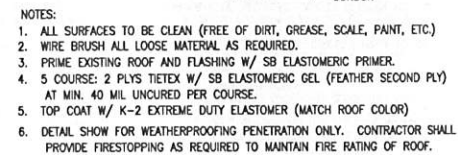
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SCALE: NT8

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SCALE: NT8

**REAL THREAD WORLD
HEADQUARTERS**
400 Pittman Street, Orlando, FL 32801
ELECTRICAL DETAILS

ELECTRICAL SPECIFICATIONS

[illegible][illegible][illegible]

THIS SECTION DEALS WITH THE GROUNDING OF SERVICE EQUIPMENT, TRANSFORMERS, NON-CURRENT CARRYING CONDUCTIVE SURFACES OF EQUIPMENT, METAL BUILDING STRUCTURES AND OTHER EQUIPMENT.

ALL GROUNDING CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES AND REQUIREMENTS. SUCH CODES SHALL BE CONSIDERED MINIMUM REQUIREMENTS AND THE INSTALLATION OF THE GROUNDING SYSTEMS SHALL INSURE PROTECTION FROM OVERVOLTAGE, SHORT CIRCUIT EXPOSURE AND SHALL PROVIDE A LOW IMPEDANCE GROUND FULT PATH TO PERMIT PREPARATION OF DISCONNECT AND GROUND FAULT PROTECTIVE DEVICES.

ALL SERVICE AND EQUIPMENT GROUNDING CONDUCTORS, AND BONDING JUNCTIONS SHALL BE INSULATED COPPER, AND SHALL BE SIZED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS (OTHERWISE) AND SHALL BE SIZED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF ARTICLES 250 AND 317 OF THE NATIONAL ELECTRICAL CODE. GROUNDING CONDUCTORS #6 AWG AND SMALLER SHALL HAVE A GREEN COLOR INSULATION. ALL GROUNDING CONDUCTORS #6 AWG AND LARGER SHALL BE ACCURATELY IDENTIFIED WITH A GREEN TRACER AND/OR GREEN COLORED TAPE AT EACH END OF THE GROUNDING CONDUCTOR AND AT EACH PULLBOX OR OTHER ACCESSIBLE LOCATION.

D. THE MAIN SERVICE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF THE FOLLOWING ITEMS BOND TOGETHER BY THE GROUNDING ELECTRODE CONDUCTORS IN ACCORDANCE WITH NEC ARTICLE 250, PART II:

1. THE MAIN UNDERGROUND COLD WATER PIPE, PFC, METAL, NEC 250-81(A)
2. METAL FRAME OF BUILDING WHERE AVAILABLE, NEC 250-81(B)
3. CONCRETE ENCASED ELECTRODE, NEC 250-81(C)
4. THE BUILDING LIGHTNING PROTECTION SYSTEM, NEC 250-81(D)

E. THE CENTRAL CONDUCTOR SYSTEM SHALL BE GROUNDED AT THE SERVICE ENTRANCE MAIN DISCONNECT, AND AT EACH SEPARATELY DERIVED SYSTEM ONLY PER NEC ARTICLE 250.

F. A #14 INSULATED COPPER CONDUCTOR INSTALLED IN 3/4" CONCRETE CONCRETE SHALL BE CONNECTED FROM THE BUILDING GROUNDING ELECTRODE SYSTEM TO EACH BUILDING TELEPHONE TERMINAL/MAIN OR TELEPHONE BOARDS, OR CABINETS, PER ALARM CONTROL CABINETS, COV SYSTEMS CABINETS, EMS CABINETS, AND SECURITY SYSTEMS.

G. THE BUILDING LIGHTNING PROTECTION SYSTEM (B) OR TERMINAL BOARDS, GROUNDING BUS LOCATED WITHIN CABINET OR ON TERMINAL BOARDS.

H. PANELBOARDS.

I. PANELBOARDS SHALL BE DEAD FRONT TYPE AND SHALL BE IN ACCORDANCE WITH UNDERWRITER LABORATORIES, INC., STANDARDS FOR PANELBOARDS AND ENCLOSING CABINETS AND SO LABELED.

J. PANELBOARDS SHALL BE FACTORY ASSIGNED WITH GROUNDING BREAKERS AS SHOWN IN RESIDUAL TWO CENTER, UNLESS SPECIFICALLY NOTED OTHERWISE.

K. ANY SPECIAL REQUIREMENTS ON THE DRAWINGS OR SCHEDULES, SUCH AS GROUND FAULT PROTECTION, RAO-FULT CURRENT BREAKERS, ETC. SHALL SUPERSEDE THESE GENERAL RULES. SUCH REQUIREMENTS AS SUCH THAT PARTICULAR REQUIREMENT IS CONCERNED AND AS INDICATED.

L. WIRING IN PANELBOARD CUTTERS SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER. WIRING SHALL BE GROUPED INTO NEAT BUNDLES AND SECURED WITH Nylon TIE WRAPS.

M. PROVIDE TYPE WRITTEN DIRECTIONS FOR EACH PANELBOARD INDICATING THE LOAD SERVED.

N. LIGHTING FIXTURES.

1. LIGHTING FIXTURES SHALL BE FURNISHED AS SHOWN ON DRAWINGS AND IN THE LIGHTING FIXTURE SCHEDULE. IT SHALL SPECIFICALLY BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE EXACT TYPE DESIGN AND RECESSING DEPTH OF ALL RECESSED FIXTURES AND TO FURNISH THE MOUNTING BRIMS AND ACCESSORIES OF THE SPECIFIED AND/OR APPROVED FIXTURES FOR THE CEILING TO BE INSTALLED. LIGHTING FIXTURES SHALL BE PROVIDED WITH HANGER PLATES AND CAPS, RETAINING FRAMES, HOUSINGS, AND ALL OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION.
2. ALL FIXTURES SHALL BE EQUIPPED WITH FLAPS UNLESS OTHERWISE NOTED. FLAPS SHALL BE INSTALLED NEAR, IMMEDIATELY PRIOR TO FLAPS UNLESS OTHERWISE NOTED. USED FOR A CONFINEMENT. ACCESSORIES SHALL BE FURNISHED WITH EACH UNIT AS REQUIRED FOR A COMPLETE FINISHED INSTALLATION. BASIC ACCESSORIES SHALL INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
1. JOINTING PLATES, END CAPS, RETAINING CLIPS, ETC.
2. TRIMS FOR RECESSED FIXTURES.
3. FLEXIBLE STRIPS AND GASKETS. FINISHES TO MATCH FIXTURES.
4. SPECIAL MOUNTING BRACKETS, TIEBARS, AND STANCHIONS FOR ALL EXTERIOR LIGHTING FIXTURES, PROVIDE BOLT, JUNCTION BOXES AND STANCHIONS FOR ALL LIGHTING FIXTURES TO BE INSTALLED IN EXTERIOR LOCATIONS.
5. THE SYSTEM GROUNDING CONDUCTOR SHALL BE SECURED TO EACH FIXTURE BODY BY MEANS OF A BONDING SCREW.
6. OVERHEAD/CEILING WIRING SHALL HAVE RIGHT TO RELOCATE LIGHTING FIXTURES OR LIGHTING SWITCH WITHIN 22", 24", 27" OF LOCATION SHOWN ON FIRST WALK-THROUGH AT NO ADDITIONAL EXPENSE.
7. COORDINATE THE WALK-THROUGH PRIOR TO THE INSTALLATION OF THE WIRING.

BE SPECIFICALLY DESIGNED AND U.L. LISTED AS WEATHER AND WATERPROOF. PROVIDE WEATHERPROOF GASKETS BETWEEN WALL MOUNTING SURFACE AND FIRE ALARM

PROJECT NUMBER JLC13.0064.00	CAD FILE	DRAWN MJB	CHECKED BLS	DATE 06-14-13
		E6.1		
REAL THREAD WORLD HEADQUARTERS 400 Pittman Street, Orlando, FL 32801				
ELECTRICAL SPECIFICATIONS				
 Joseph Lawrence & Co Consulting Engineers 155 GRAYS FORDS BLVD, SUITE 2080 ATLANTA, GEORGIA 30370 TEL 378722 4466 FAX 378722 3570 WWW.JLCCONC.COM				
JLC 13.0064.00				
Rev	Date	Description	By	
Blake Lawrence Student P.E. # 639600				

	DIRECTION OF FLOW IN PIPE
	PITCH PIPE DOWN IN DIRECTION OF ARROW
	PIPE UP
	PIPE DOWN
	EXPANSION JOINT
	FLEXIBLE PIPE CONNECTOR
	BALL VALVE
	CHECK VALVE, HORIZONTAL SWING
	GATE VALVE
	BUTTERFLY VALVE
	GLOBE VALVE
	BALANCING VALVE
	BALANCING COCK
	STRAINER, Y-TYPE AND BLOWOFF VALVE
	PRESSURE RELIEF VALVE (WATER)
	PRESSURE REDUCING VALVE
	MANUAL AIR VENT
	SOLENOID VALVE
	VALVE OS & Y
	CAPPED LINE
	SAN ——— SANITARY SEWER (ABOVE GRADE)
	-- SAN -- SANITARY SEWER (BELOW GRADE)
	--- C--- DOMESTIC COLD WATER
	— BP — BOOSTED PRESSURE DOMESTIC COLD WATER
	--- C--- DOMESTIC HOT WATER
	--- C--- DOMESTIC HOT WATER RETURN
	--- CD --- CONDENSATE DRAIN (BELOW GRADE)
	— CD — CONDENSATE DRAIN (ABOVE GRADE)
	--- ST --- STORM SEWER (BELOW GRADE)
	— ST — STORM SEWER (ABOVE GRADE)
	— EO — STORM EMERGENCY OVERFLOW PIPING
	--- GR --- GREASE SEWER (BELOW GRADE)
	— GR — GREASE SEWER (ABOVE GRADE)
	--- SCW --- SOFT COLD WATER
	VENT
	--- G --- GAS LINE (BELOW GRADE)
	— G — GAS LINE (ABOVE GRADE)
	POINT OF CONNECTION NEW TO EXISTING
	POINT OF REMOVAL FOR DEMOLITION
	ΔT TEMPERATURE DIFFERENCE

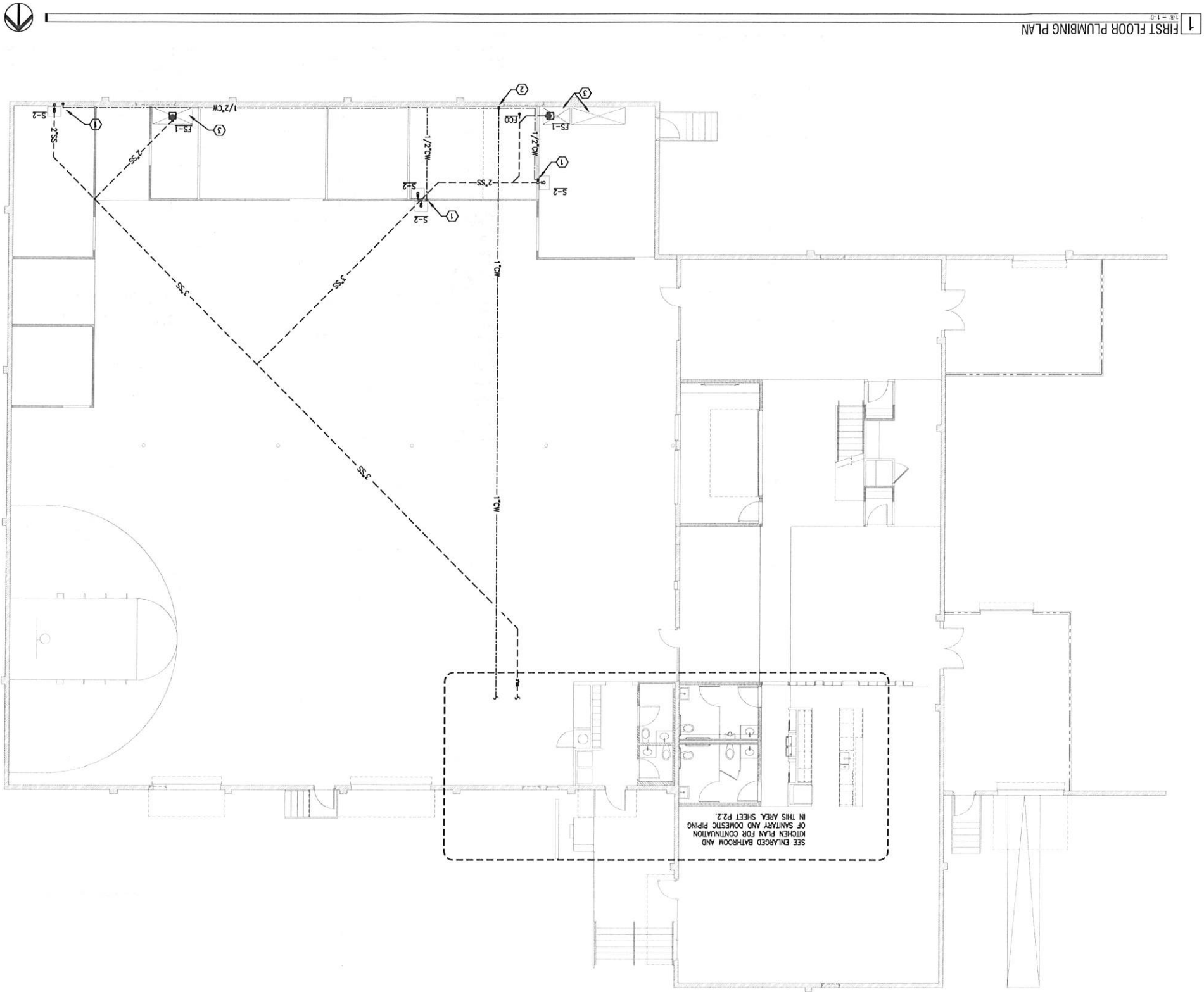
PHOTO DETAIL OR SECTION IDENTIFICATION TARGET
A = DETAIL NUMBER.
B = SHEET NUMBER ON WHICH DETAIL IS LOCATED

HB  HOSE BIBB
FD  FLOOR DRAIN
HB  HUB DRAIN
TD  TRENCH DRAIN
— — A — — COMPRESSED AIR (BELOW GRADE)
— — A — — COMPRESSED AIR (ABOVE GRADE)
— —  FLOOR CLEANOUT
— —  CLEANOUT
— —  EXTERIOR CLEANOUT
— — || — — HORIZONTAL CLEANOUT
 ITEMS TO BE REMOVED (DEMOLITION)
— CWN — COLD RAW WATER
— CWF — COLD FILTERED WATER
 SHOCK ABSORBER

PART 1 GENERAL	SECTION INCLUDES
A. GENERAL PROVISIONS SPECIFICALLY APPLICABLE TO DIVISION 15 SECTIONS, IN ADDITION TO DIVISION 1 - GENERAL REQUIREMENTS.	
1.2 SCOPE	
A. THE WORK SHALL INCLUDE THE PROVISIONS OF SYSTEMS, EQUIPMENT AND MATERIALS SPECIFIED IN THIS DIVISION AND AS CALLED FOR ON THE DRAWINGS. WORK SHALL ALSO INCLUDE SUPERVISION, OPERATION, METHODS AND LABOR FOR THE FABRICATION, START-UP AND TESTS FOR A COMPLETE OPERATIONAL PLUMBING INSTALLATION.	
B. DRAWINGS FOR THE WORK ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED TO CONVEY THE SCOPE OF THE INSTALLATION AND TO INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK, BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS PIPE FITTINGS, ACCESS PANELS, AND SLEEVES MAY NOT BE SHOWN. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING THE EQUIPMENT TO FIT THE SPACE PROVIDED, THE LOCATION AND SIZES FOR PIPE FITTINGS, SLEEVES, INSERTS, FIRE AND/OR SMOKE DAMPERS, AND OTHER BASIC ITEMS REQUIRED BY CODE AND OTHER SECTIONS SHALL BE COORDINATED AND INCLUDED FOR THE PROPER INSTALLATION OF THE WORK.	
C. EQUIPMENT SPECIFICATIONS MAY NOT DEAL INDIVIDUALLY WITH MINUTE ITEMS REQUIRED SUCH AS COMPONENTS, PARTS, CONTROLS AND DEVICES WHICH MAY BE REQUIRED TO PRODUCE THE EQUIPMENT PERFORMANCE SPECIFIED OR AS REQUIRED TO MEET THE EQUIPMENT WARRANTIES. WHERE SUCH ITEMS ARE REQUIRED, THEY SHALL BE INCLUDED BY THE INSTALLER OF THE EQUIPMENT, WHETHER OR NOT SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS WITH NO ADDITIONAL COST INCURRED.	
D. WHERE NOTED ON THE DRAWINGS OR INDICATED IN OTHER SECTIONS OF THE SPECIFICATION, THE CONTRACTOR FOR THIS DIVISION SHALL INSTALL PLUMBING/EQUIPMENT FURNISHED BY OTHERS, AND SHALL MAKE ALL FINAL CONNECTIONS. CONTRACTOR SHALL INSTALL EQUIPMENT AND SYSTEMS IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.	
E. COORDINATE WITH ALL TRADES IN SUBMITTAL OF SHOP DRAWINGS. TIGHT SPACE CONDITIONS SHALL BE DETAIL TO THE SATISFACTION OF ALL TRADES, SUBJECT TO THE REVIEW AND FINAL ACCEPTANCE OF THE ARCHITECT/ENGINEER. IN THE EVENT THAT THE CONTRACTOR INSTALLS HIS WORK BEFORE COORDINATING WITH THE OTHER TRADES OR SO AS TO CAUSE ANY INTERFERENCE WITH THE WORK OF THE OTHER TRADES THIS CONTRACTOR SHALL MAKE ALL REQUIRED CHANGES TO CORRECT THE CONDITION AT NO ADDITIONAL COST TO THE PROJECT.	
F. CONTRACTOR SHALL VERIFY ALL EQUIPMENT CONNECTION SIZES PRIOR TO INSTALLATION OF ANY SYSTEMS. THIS CONTRACTOR SHALL ADJUST PIPING SYSTEM SIZES AS REQUIRED TO MATCH EQUIPMENT CONNECTIONS. UTILIZE REDUCERS WHERE EQUIPMENT CONNECTIONS ARE SMALLER THAN PIPE SIZES (INDICATED ON PLANS, NO PIPING SHALL BE DECREASED IN SIZE (IN THE DIRECTION OF FLOW).	
G. EXAMINATION OF BIDDING DOCUMENTS:	
1. EACH BIDDER SHALL EXAMINE THE BIDDING DOCUMENTS CAREFULLY AND NOT LATER THAN TEN (10) DAYS PRIOR TO THE DATE FOR RECEIPT OF BIDS, SHALL MAKE WRITTEN REQUEST TO THE ENGINEER FOR INTERPRETATION OR CORRECTION OF ANY AMBIGUITY, INCONSISTENCY OR ERROR THEREIN. ANY INTERPRETATION OR CORRECTION WILL BE ISSUED AS AN ADDENDUM BY THE ENGINEER. ONLY A WRITTEN INTERPRETATION OR CORRECTION TO BID DOCUMENTS BY ADDENDUM SHALL BE BINDING. NO BIDDER SHALL RELY UPON ANY INTERPRETATION OR CORRECTION GIVEN BY ANY OTHER METHOD.	
H. SUBSTITUTIONS	
1. EXCEPT AS PROVIDED BELOW, EACH BIDDER REPRESENTS THAT HIS BID IS BASED UPON THE MATERIALS AND EQUIPMENT DESCRIBED IN THE BIDDING DOCUMENTS.	
2. NO SUBSTITUTIONS FOR OTHER MATERIALS AND EQUIPMENT WILL BE CONSIDERED UNLESS WRITTEN REQUEST HAS BEEN SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST TEN (10) DAYS PRIOR TO THE DATE FOR RECEIPT OF BIDS. EACH SUCH REQUEST SHALL INCLUDE A COMPLETE DESCRIPTION OF THE PROPOSED SUBSTITUTE, THE NAME OF THE MATERIAL OR EQUIPMENT FOR WHICH IT IS TO BE SUBSTITUTED, DRAWINGS, CUTS, PERFORMANCE AND TEST DATA OR INFORMATION NECESSARY FOR A COMPLETE EVALUATION.	
3. IF THE ENGINEER APPROVES ANY PROPOSED SUBSTITUTION, SUCH APPROVAL WILL BE ISSUED AS AN ADDENDUM FORWARDED TO ALL PARTICIPATING BIDDERS.	
4. IF ANY BIDDER IS UNABLE TO PROCURE WRITTEN APPROVAL OF ANY SUBSTITUTION FROM THE ENGINEER PRIOR TO THE OPENING OF BIDS, THEN HE SHALL BASE HIS BID ON ITEMS AND SYSTEMS AS SPECIFIED IN BID DOCUMENTS.	
5. SUBSTITUTIONS REQUESTED ON THE BID PROPOSAL FORM WHICH ARE PRIOR APPROVED BY THE ENGINEER WILL BE INCORPORATED INTO THE CONTRACT WITH THE SUCCESSFUL BIDDER.	
6. REQUESTS FOR ANY SUBSTITUTIONS NOT SUBMITTED AND APPROVED IN ACCORDANCE WITH THE ABOVE INSTRUCTIONS WILL BE DENIED BY THE ENGINEER.	
1.3 REGULATORY REQUIREMENTS	
A. ALL INSTALLATIONS AND EQUIPMENT SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE STATUTES, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION.	
B. CONFORM TO 2010 FLORIDA BUILDING CODE.	
PART 2 PRODUCTS	SECTION INCLUDES
2.1 PIPE HANGERS AND SUPPORTS	A. MANUFACTURERS:
1. B-LINE.	2. OTHER ACCEPTABLE MANUFACTURERS OFFERING EQUIVALENT PRODUCTS.
A) MICHIGAN HANGER.	B) PHD.
2.2 PIPING INSULATION	A. MANUFACTURERS:
1. OWENS-CORNING	2. JOHNS-MANVILLE
3. KNAUF	B. ASTM C547, RIGID MOLDED NON-COMBUSTIBLE FIBERGLASS INSULATION. "K" VALUE .024 @ 75 DEGREES F.
C. VAPOR BARRIER JACKET, KRAFT PAPER WITH GLASS FIBER YARN AND BONDED TO ALUMINUM FILM. CLOSURE SYSTEM SHALL BE UL 181.	D. INSULATION THICKNESS 1-1/2"
2.4 PIPING: SANITARY SEWER PIPING	A. PVC: ASTM D2665 SCHEDULE 40 PVC PIPING OR PVDF.
1. FITTINGS: ASTM D2665 SCHEDULE 40 PVC DWV FITTINGS.	2. JOINTS: ASTM D2564 SOLVENT CEMENT. JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2655.
2.5 PIPING: WATER PIPING	A. COPPER PIPING: ASTM B88 TYPE "L" HARD DRAWN OR CPVC.
1. FITTINGS: ASME 16.18 CAST BRONZE OR ASME B16.22 WROUGHT COPPER OR BRONZE.	2. JOINTS: ASTM B32 SOLDER, ASTM 95-5 TA MINIMUM, FLUX ASTM B813. JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM B828.
2.6 PIPING: GAS PIPING	A. STEEL PIPE: ASTM A 53/A 53M; TYPE E OR S; GRADE B; BLACK. WALL THICKNESS OF WROUGHT PIPE SHALL COMPLY WITH ASME B36.10M.
1. MALEABLE-IRON THREADED FITTINGS: ASME B16.3, CLASS 150, STANDARD PATTERN, WITH THREADED ENDS ACCORDING TO ASME B1.20.1.	2. STEEL THREADED FITTINGS: ASME B16.11, FORGED STEEL WITH THREADED ENDS ACCORDING TO ASME B1.20.1.
3. STEEL WELDING FITTINGS: ASME B16.9, WROUGHT STEEL OR ASME B16.11, FORGED STEEL.	4. UNIONS: ASME B16.39, CLASS 150, MALEABLE IRON WITH BRASS-TO-IRON SEAT, GROUND JOINT, AND THREADED ENDS ACCORDING TO ASME B1.20.1.

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FITTINGS AS REQUIRED BY ALL APPLICABLE CODES AND GOVERNING AUTHORITIES.
2. CONTRACTOR SHALL VERIFY AND CORRECT AS REQUIRED TO MEET ALL CODES AND REGULATIONS ANY POSSIBLE DISCREPANCIES BETWEEN TYPE AND SIZE OF CONNECTION SPECIFIED IN PLUMBING FIXTURE SCHEDULE AND FIXTURES ACTUALLY INSTALLED ON THE SITE.
3. ALL SANITARY PIPING SHALL HAVE A 1/8" PER FOOT SLOPE UNLESS OTHERWISE NOTED.
4. VENT PIPING SHOWN ON FLOOR PLANS IS ONLY INDICATIVE EXCEPT FOR VENT LOCATIONS.
5. VALVES AND FITTINGS SHALL BE OF SAME SIZE OF LINE ON WHICH THEY ARE LOCATED, UNLESS OTHERWISE INDICATED ON DRAWINGS.
6. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES.
7. CONTRACTOR SHALL FIELD VERIFY ALL GIVEN MEASUREMENTS PRIOR TO LAYING AND CONNECTING ALL SANITARY AND WASTE PIPING AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
8. AIR CHAMBERS SHALL NOT BE CONSIDERED AN EQUAL TO WATER ARRESTORS AS SPECIFIED.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FIRE RATING AND WEATHERPROOFING INTEGRITY OF ALL PIPING AND PENETRATIONS.
10. ALL WATER SUPPLY AND SANITARY LINES SHALL BE RUN AS CLOSE TO PLANS AS POSSIBLE WITH NO CHANGES IN SIZING.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY SUPPORTING DEVICES FOR ALL FIXTURES INCLUDED IN CONTRACT OR HEREIN SPECIFIED OR OTHERWISE.
12. CHANGES IN THE DIRECTION OF SANITARY PIPING SHALL NOT BE MADE WITH FITTINGS WHICH WILL CAUSE EXCESSIVE REDUCTION IN THE VELOCITY OF FLOW OR CREATE ANY OTHER ADVERSE EFFECT UNLESS PHYSICALLY IMPOSSIBLE (IE. USE OF SANITARY TEE IN A HORIZONTAL CONNECTION OF A DOUBLE SANITARY TEE IN A VERTICAL STACK, IN GENERAL, USE OF SHORT-RADIUS FITTINGS FOR BRANCH TO HOUSE DRAIN OR STACK CONNECTION).
13. ALL DRAINAGE PIPING SHALL BE MARKED WITH THE SEAL OF APPROVAL OF THE NATIONAL SANITATION FOUNDATION.
14. DO NOT PENETRATE FOUNDATIONS WITH PIPING, COORDINATE WITH GENERAL CONTRACTOR TO DROP FOUNDATIONS AS REQUIRED TO CLEAR PLUMBING SERVICES WHERE ABSOLUTELY NECESSARY. ALL PIPING PENETRATING A BEARING WALL OR FLOORING MUST BE SLEEVED AND LOCATION APPROVED BY STRUCTURAL ENGINEER.
15. ROUTE ALL PIPING CONCEALED ABOVE CEILINGS, WITHIN WALLS, OR IN CHASES. PIPING EXPOSED SHALL BE SLOPED AND PAINTED TO MATCH ARCHITECTURAL FINISHES. PIPING IN MECHANICAL ROOMS MAY BE EXPOSED.
16. PROVIDE ACCESS PANELS TO ALL VALVES WITHIN CHASES OR ABOVE NON-ACCESSIBLE CEILINGS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
17. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF PLUMBING FIXTURE MOUNTING HEIGHTS, AND DIMENSIONS.
18. CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF SEWERS TO WHICH NEW SEWER LINES ARE TO BE CONNECTED BEFORE INSTALLATION OF NEW SEWER LINE.
19. ALL VENTS THROUGH ROOF SHALL BE MIN. 10'-0" FROM ANY AIR INTAKES.
20. CONTRACTOR SHALL INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.
21. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS (INCLUDING PIPE ROUTING AND EQUIPMENT LOCATIONS) TO ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE INSTALLATION OR PURCHASING OF ANY PIPING AND/OR EQUIPMENT.
22. PROVIDE 1/2" C.W. SUPPLY WITH ANGLE STOP AND FLEXIBLE SUPPLY TO RE-FRIGERATORS WITH ICE MAKERS AT HEIGHT REQUIRED BY MANUFACTURE OF EQUIPMENT INSTALLED.
23. PROVIDE 1/2" H.W. SUPPLY WITH ANGLE STOP AND FLEXIBLE SUPPLY TO DISHWASHER MACHINE, AT HEIGHT REQUIRED BY MANUFACTURER OF EQUIPMENT INSTALLED.
24. ALL WATER PIPING INSTALLED IN EXTERIOR WALLS SHALL BE PLACED ON THE INTERIOR SIDE OF THE WALL, SO THAT WALL INSULATION CAN BE PLACED ON THE EXTERIOR SIDE OF THE PIPING.
25. WHERE EXISTING PIPING IS DESIGNATED TO BE REMOVED AND CAPPED, ALL PIPING SERVING THE DESIGNATED FIXTURE SHALL BE REMOVED FROM WITHIN WALLS TO THE POINT DESIGNATED ON THE DRAWINGS. PIPING SHALL BE CAPPED BY APPROVED CAPPING METHODS UTILIZING PIPE CAPS INTENDED FOR SUCH USE. CAPS SHALL BE AIRTIGHT AND WATERKIGHT.
26. WHERE EXISTING SURFACES ARE DISRUPTED DUE TO THE REMOVAL OF EXISTING EQUIPMENT OR PIPING, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF DISRUPTED SURFACES TO MATCH EXISTING ADJACENT SURFACES.
27. EXISTING CONDITIONS AS SHOWN ON THE DRAWINGS ARE TAKEN FROM ORIGINAL AND AS-BUILT DRAWINGS OF THE BUILDING AND IN PART ARE UNVERIFIED. FIELD CONDITIONS SHALL GOVERN. ALL EXISTING CONDITIONS MUST BE VERIFIED PRIOR TO INITIATION OF WORK.
28. ALL EXISTING PIPING, NOT REMAINING IN SERVICE AFTER NEW CONSTRUCTION, SHALL BE REMOVED.
29. PIPING WHICH IS TO REMAIN IN SERVICE SHALL NOT BE DISTURBED. EXISTING PIPING DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH NEW PIPING OF THE SAME SIZE AND MATERIAL.
30. EXISTING BUILDING SEWERS THAT ARE USED WITH NEW BUILDING SANITARY SEWERS SHALL BE EXAMINED AND TESTED TO CONFORM IN ALL RESPECTS TO ALL THE REQUIREMENTS OF PLUMBING AUTHORITY HAVING JURISDICTION AND APPLICABLE PLUMBING CODES.
31. ALL EXISTING SANITARY, DOMESTIC WATER, AND RAIN WATER PIPING THAT ARE LOCATED IN EXISTING WALLS TO BE DEMOLISHED AND REMAINING IN SERVICE AFTER CONSTRUCTION SHALL BE RELOCATED TO NEW WALLS, CHASES, ETC.
32. COORDINATE WITH GENERAL CONTRACTOR TO PATCH ALL EXISTING WALLS, FLOORS, CEILINGS, ETC., AS REQUIRED BY NEW WORK. SEE SPECIFICATIONS.
33. IT IS THE PLUMBING CONTRACTORS RESPONSIBILITY TO PROVIDE A DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICE ON THE MAIN DOMESTIC WATER SERVICE PROVIDED TO THE BUILDING/SPACE UNDER CONSTRUCTION AS PER THE LATEST ADOPED VERSION OF THE PLUMBING CODE, EVEN IF THE BACKFLOW PREVENTION DEVICE IS NOT CALLED OUT SPECIFICALLY ON THE PLANS.

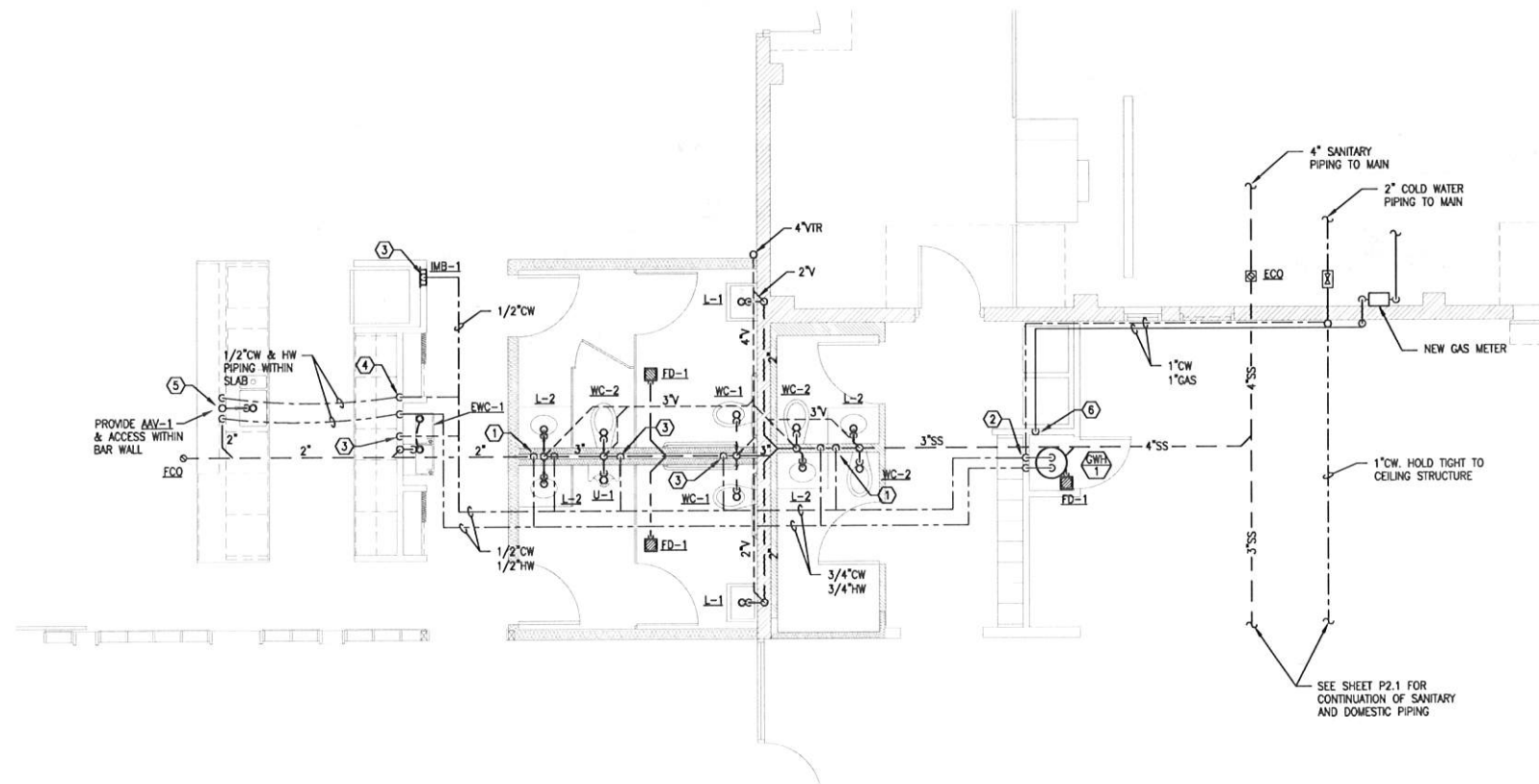
REAL THREAD WORLD HEADQUARTERS 400 Pittman Street, Orlando, FL 32801		Joseph, Lawrence & Co Consulting Engineers 155 GRANES ROOST BLVD. SUITE 2080 ATLANTA, GEORGIA 30318 TEL. 331.975.4466 WWW.JL&C.COM CA. NO. 297530		JLC 13.0064.00	
SYMBOL, LEGEND AND GENERAL NOTES		City Review Comments			
DRAWN SJM		CHECKED AJB		Date	
CAD FILE		Rev			
PROJECT NUMBER JLC13.0064.00		1 08/01/13			
DRAWING NUMBER P0.1		Description			
DATE 06-14-13		By JBR			



- ① 1/2" CW DOWN WALL TO FLOOR BELOW.
② 1" CW DOWN WALL TO PRODUCTION AREA CEILING SPACE.
③ OWNER TO PROVIDE WAS DOWN SINKS & INDIRECT WASTE TO NEW FLOOR SINK.

REFERENCE NOTES: ③

DATE 06-14-13		DRAWING NUMBER JLC13.0064.00		PROJECT NUMBER JLC13.0064.00		CAD FILE		CHECKED SJM AJB		REAL THREAD WORLD HEADQUARTERS 400 Pittman Street, Orlando, FL 32801		FLOOR PLANS - PLUMBING		 Joseph, Lawrence & Co Consulting Engineers 135 GANES FOSTER BLVD SUITE 2000 ALPHARETTA, GA 30201 TEL: 312.722.4466 WWW.JL&C.COM FAX: 312.722.4466		JLC 13.0064.00		Rev		Date		Description		By	
P2.1		JLC13.0064.00		JLC13.0064.00		SJM		AJB										1		08/01/13		City Review Comments		JBR	



1 ENLARGED FIRST FLOOR PLUMBING PLAN
1/4" = 1'-0"



REFERENCE NOTES: ⑥

- ① 1/2" COLD & 1/2" HOT WATER PIPING DOWN WITHIN WALL TO PLUMBING FIXTURES BELOW.
- ② 3/4" COLD & 3/4" HOT WATER PIPING UP WITHIN WALL TO CEILING SPACE.
- ③ 1/2" COLD WATER PIPING DOWN WITHIN WALL TO PLUMBING FIXTURES BELOW.
- ④ 1/2" COLD & 1/2" HOT WATER DOWN WITHIN WALL TO SLAB BELOW.
- ⑤ 1/2" COLD & 1/2" HOT WATER UP WITHIN WALL PLUMBING FIXTURE.
- ⑥ 1" GAS PIPING DOWN WALL TO GAS WATER HEATER.

		Joseph, Lawrence & Co Consulting Engineers 155 GRANKS ROAD, SUITE 2080 ALTAMONTE, FLORIDA 32701 WWW.JLCCNC.COM TEL: 321.972.4466 FAX: 321.972.4466		JLC 13.0064.00 Adam Joseph Barney P.E. # 85124																
		REAL THREAD WORLD HEADQUARTERS 400 Pittman Street, Orlando, FL 32801 ENLARGED FLOOR PLAN - PLUMBING	DRAWN: SJM CHECKED: AJB CAD FILE PROJECT NUMBER: JLC13.0064.00 DRAWING NUMBER: P2.2 DATE: 06-14-13																	
REFERENCE NOTES: ⑥		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Rev</th> <th>Date</th> <th>Description</th> <th>By</th> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">08/01/13</td> <td style="text-align: center;">City Review Comments</td> <td style="text-align: center;">JBR</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>			Rev	Date	Description	By	1	08/01/13	City Review Comments	JBR								
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