Municipal Operation & Consulting, Inc. Oak Ridge

Phase 1 (One) of 2 (Two)
27316 Spectrum Way
Oak Ridge, Texas 77385

Project For:
MOCI
312 Spring Hill Drive Suite 100
Spring, TX 77386

Land Owner:
Texas Equity Ventures, LLC
14115 Kenson Lane
Cypress, Texas 77429

PROJECT ANALYSIS
Jurisdiction
City: Oak Ridge North
County: Montgomery
State: Texas

Agency Information
MCAD Account Number-R425980
Oak Ridge Existing Occupancy Number 140124
Shell TAS Project Number-EABPRJ-B4802439
Space TAS Project Number-EABPRJ-BSB13603

Land Legal
S764200 - Oak Ridge North Commerce Park, BLOCK 4, RES I-3 (REPLAT NO 5 & REPLAT NO 6 BLOCK 1, RES E #2012045734, #2013037100), ACRES 1.3437

Code Information
International Building Code, 2009 Edition
International Fire Code, 2009 Edition
Mechanical Code, 2009 Edition
Plumbing Code, 2009 Edition
NEC 2014
Texas TAS 2012 Standards
City of Oak Ridge Additions, Insertions, Deletions, and Changes To International Building Code 2009 Edition.

Zoning Information
Zone Classification=M-2/Medium Manufacturing
Zone Tract=15 (47.03 Acres)
Parking Class=Office
Parking Required = 42 (2.5 Per 1,000 Sq Ft)
Parking Provided = 69 of 77 (8 Spaces Required and Provided for Phase Two 27312 Spectrum Way under separate application)
(TAS Table 208.2) ADA Spaces Required (77 spaces) = 4/4
(TAS 208.2.4) ADA Van Accessible Spaces Required/Provided = 1/1

Occupancy
(302.1) Classification=Type A3(B)
(508.2) Separation=Mixed Use Non-Separated A3 Occupancy
(602.1) Construction Type=Type Existing and Proposed II-B Unprotected/ 55 feet Max Height
(Table 503) Allowable Floor Area= (A3)9,500 Sq Ft
(506.3) Allowable Increase= 32,585 Sq Ft (Refer to Sheet A0.01 For Calculations.)

Actual Gross Floor Area=16,525 Sq Ft
Ground Level=11,075 Sq Ft
2nd Level=5,450 Sq Ft
Actual Building Height=20.583 Feet

Fire Resistant Rating
([F) 903.2.1.3,3) Wet Fire Sprinkler Protection: Proposed (New) NFPA 13
([F) 903.4) Fire Alarm System: Proposed (New) NFPA 72

(Table 602)
Separation for Bearing and Non Bearing Exterior Walls
North Wall 10 feet = 0 Hour
East Wall 63 Feet = 0 Hour
South Wall 63 Feet = 0 Hour
West Wall 25 Feet = 0 Hour

(Table 601)
Primary Structural Frame: 0 Hour
Interior Bearing Wall: 0 Hour
Interior Nonbearing Partitions: 0 Hour
Floor & Floor/Ceiling Constructions: 0 Hour
Roofs & Roof/Ceiling Constructions: 0 Hour

Stairways
(1022.1) 1 Enclosed 1 Hour Fire Barrier
(1016.1, 3) 1 Unenclosed 0 Hours

Occupant Load
Total Occupancy: 299
(1014.3) Longest Common Path of Egress Travel (CPE) 100ft max: 42'
(1016.1) Longest Exit-Access Length of Travel 300ft max: 258 feet
Egress Width 0.2" per occupant:
Stair Egress Width 0.3" per occupant:
Min Egress width: 36"
Min Exit Egress Width: 32"

PROJECT DESCRIPTION:
A new tenant build out for a water utility district operator company to be built in a new existing pre-engineered metal shell building. The site parking and paving are constructed already on 1.34 acres. The new space has 11,075 sq ft on the ground floor and adding an additional 5,450 sq ft upper level in the building. New exterior windows will be added to the outside for second floor offices. The main ground floor will have two large conference rooms for district meeting, accounting and business offices, and payment lobby for utility users. The building will also be converted to have a NFPA 13 wet fire sprinkler system.

Area Modification Per S06.1

Using Equation S-1

$$A_a = [A_t + [A_t \times I_f] + [A_t \times I_t]]$$

& Using Equation S-2

$$I_f = [[(F/P) - 0.25] \times W/30)$$

Start with Equation S-2

$$I_f = [[(F/P) - 0.25] \times W/30)$$

Where:

I_f= **Solving For**- Area increase due to frontage.

F= **319 LF= (82+155+27.5+54.5)** Building perimeter that fronts on a public way or open space having 20 feet (6096 mm) open minimum width (feet).

P= **474 LF= (125+82+155+27.5+30+54.5)** Perimeter of entire building (feet).

W= **30**-Width of public way or open space (feet) in accordance with Section 506.2.1.

$$I_f = [[(F/P) - 0.25] \times W/30)$$

$$I_f = [[(319/474) - 0.25] \times 30/30)$$

$$I_f = [[(0.673) - 0.25]30/30)$$

$$I_f = [[0.43] \times 30/30)$$

$$\boldsymbol{I_f = 0.43}$$

Next use Equation S-1

$$A_a = [A_t + [A_t \times I_f] + [A_t \times I_t]]$$

Where:

A_a= **Solving For**-Allowable building area per story (square feet).

A_t= **9,500**- Tabular building area per story in accordance with Table 503 (square feet).

I_f= **0.43**- Area increase factor due to frontage as calculated in accordance with Section 506.2.

I_t = **2**-Area increase factor due to sprinkler protection as calculated in accordance with Section 506.3.

$$A_a = [A_t + [A_t \times I_f] + [A_t \times I_t]]$$

$$A_a = [9{,}500 + [9{,}500 \times [[(F/P) - 0.25] \times W/30)] + [9{,}500 \times 2]]$$

$$A_a = [9{,}500 + [9{,}500 \times 0.43] + 19{,}000)$$

$$A_a = [9{,}500 + [4{,}085] + 19{,}000)$$

$$\boldsymbol{A_a = 32{,}585\ Sq\ Ft}$$

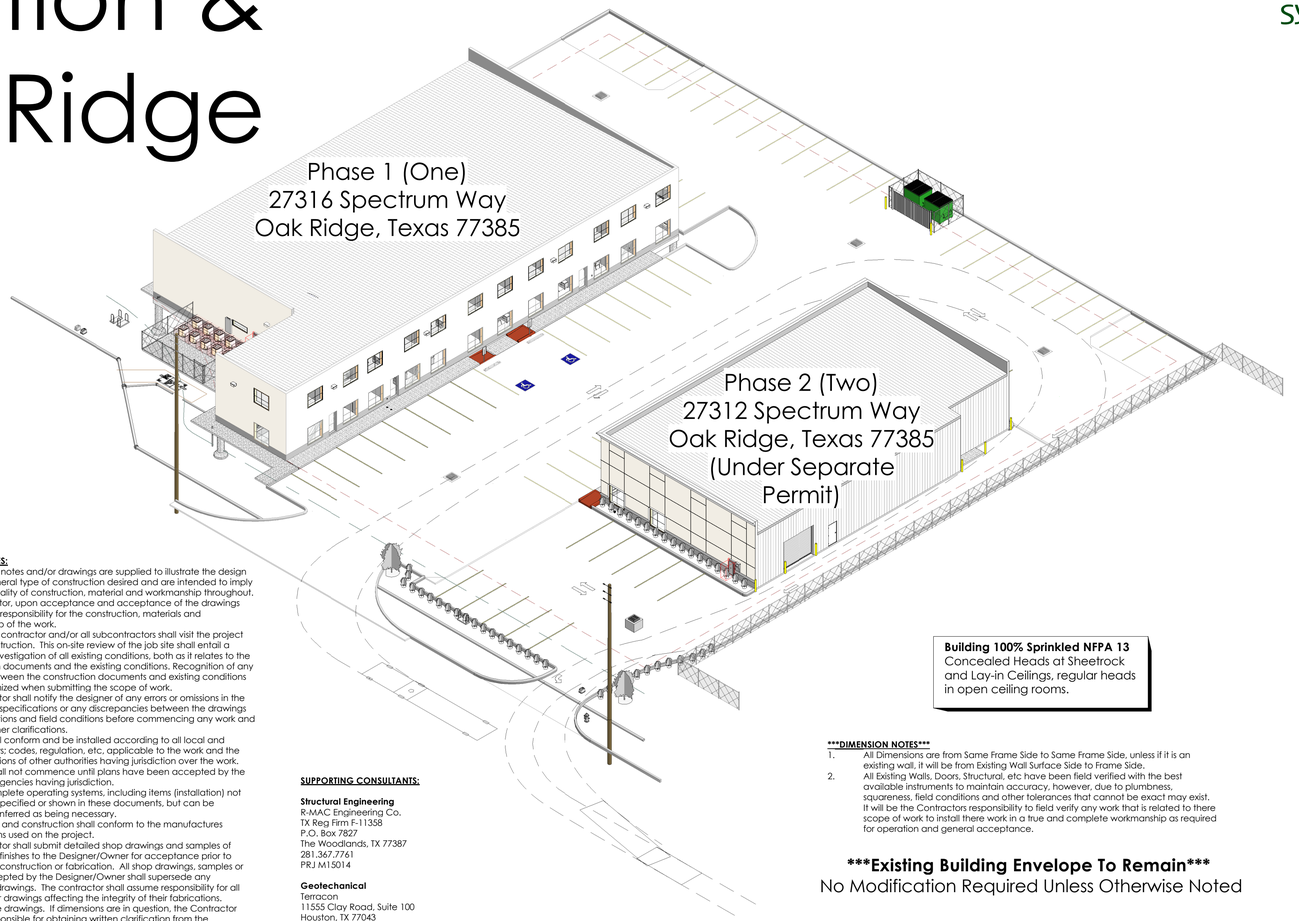
ENERGY CODE NOTES:

Air Leakage, Component Certification, and Vapor Retarder Requirements:

1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.
2. Windows, doors, and skylights certified as meeting leakage requirements.
3. Component R-values & U-factors labeled as certified.
4. No roof insulation is installed on a suspended ceiling with removable ceiling panels. 'Other' components have supporting documentation for proposed U-Factors.
6. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.
7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
8. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

Texas 811
Know what's below. Call before you dig.

Sheet List			
Sheet Number	Sheet Name	Sheet Issue Date	Current Revision
A0.00	Cover and Information Sheet	04/13/15	
A0.10	Code Review Sheet	04/13/15	
A0.20	Legends	04/13/15	
A0.50	Partition Details	04/13/15	
A0.90	ADA Notes	04/13/15	
A1.00	Site Plan	04/13/15	
A2.10	Floor Plan	04/13/15	
A2.12	Enlarge Plans	04/13/15	
A2.20	Level 2	04/13/15	
A2.41	Furniture Plan Level 1 & 2	04/13/15	
A3.10	Reflective Ceiling Plan level 1 Ground	04/13/15	
A3.20	Reflective Ceiling Plan level 2	04/13/15	
A4.10	Elevations	04/13/15	
A5.10	Interior Elevations	04/13/15	
A5.11	Interior Elevations	04/13/15	
A5.12	Interior Elevations	04/13/15	
A5.14	Interior Elevations	04/13/15	
A5.15	Interior Elevations	04/13/15	
A5.16	Interior Elevation	04/13/15	
A6.10	Building Section	04/13/15	
A6.20	Building Sections	04/13/15	
A7.10	Schedules	04/13/15	
S1.0	Foundation Plan	04/13/15	
S2.0	Level 1 Framing Plan	04/13/15	
MEP	MEP Notes	04/13/15	
M-1	Mechanical Plan Level 1	04/13/15	
M-2	Mechanical Plan Level 2	04/13/15	
M-3	Mechanical Notes	04/13/15	
E-1	Electrical Plan Level 1	04/13/15	
E-2	Power Plan Level 1	04/13/15	
E-3	Lighting Plan Level 2	04/13/15	
E-4	Power Plan Level 2	04/13/15	
E-5	Electrical Online-Load Anylsis	04/13/15	
P-1	Plumbing Plan Level 1	04/13/15	
P-2	Plumbing Plan Level 2	04/13/15	
P-3	Plumbing Riser	04/13/15	
P-4	Plumbing Details	04/13/15	



Building 100% Sprinkled NFPA 13
Concealed Heads at Sheetrock and Lay-in Ceilings, regular heads in open ceiling rooms.

GENERAL PLAN NOTES:

1. The general notes and/or drawings are supplied to illustrate the design and the general type of construction desired and are intended to imply the finest quality of construction, material and workmanship throughout. The contractor, upon acceptance and acceptance of the drawings assumes full responsibility for the construction, materials and workmanship of the work.
2. The general contractor and/or all subcontractors shall visit the project prior to construction. This on-site review of the job site shall entail a complete investigation of all existing conditions, both as it relates to the construction documents and the existing conditions. Recognition of any conflicts between the construction documents and existing conditions shall be itemized when submitting the scope of work.
3. The contractor shall notify the designer of any errors or omissions in the drawings or specifications or any discrepancies between the drawings or specifications and field conditions before commencing any work and request further clarifications.
4. All work shall conform and be installed according to all local and national laws; codes, regulation, etc. applicable to the work and the rules regulations of other authorities having jurisdiction over the work. The work shall not commence until plans have been accepted by the governing agencies having jurisdiction.
5. Provide complete operating systems, including items (installation) not necessarily specified or shown in these documents, but can be reasonably inferred as being necessary.
6. All materials and construction shall conform to the manufactures specifications used on the project.
7. The contractor shall submit detailed shop drawings and samples of materials or finishes to the Designer/Owner for acceptance prior to starting any construction or fabrication. All shop drawings, samples or finishes accepted by the Designer/Owner shall supersede any originating drawings. The contractor shall assume responsibility for all errors in their drawings affecting the integrity of their fabrications.
8. Do not scale drawings. If dimensions are in question, the Contractor shall be responsible for obtaining written clarification from the Owner/Designer prior to continuing with work that is in question.
9. Demolition may be required not specifically mentioned in these documents.

SUPPORTING CONSULTANTS:

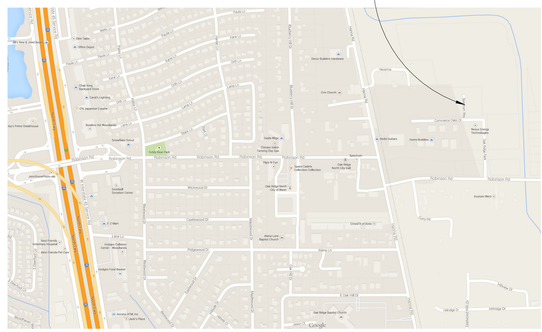
Structural Engineering
R-MAC Engineering Co.
TX Reg Firm F-11358
P.O. Box 7827
The Woodlands, TX 77387
281.367.7761
PRJ M15014

Geotechanical
Terracon
11555 Clay Road, Suite 100
Houston, TX 77043
713.690.8989
PRJ 9206553

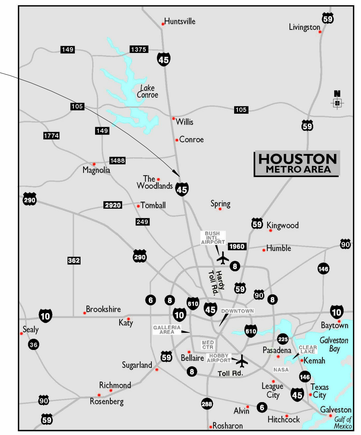
MEP Engineering
M.S. Esiere Engineers
435 Murphy Road, #B1-136
Stafford, TX 77477
281.713.1957

Civil Engineering
L Squared Engineering
21123 Eva St, Ste #200
Montgomery, TX 77356
936.647.0420

Site Location
30°09'36.61" (N)
095°25'59.19"(W)



Enlarged Map



Area Map (Not To Scale)
Key Map Page 252- F

Cover and Information Sheet

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
832.795.1553
symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2
27316 Spectrum Way
Oak Ridge, TX 77385

Project For:
MOCI

Revisions

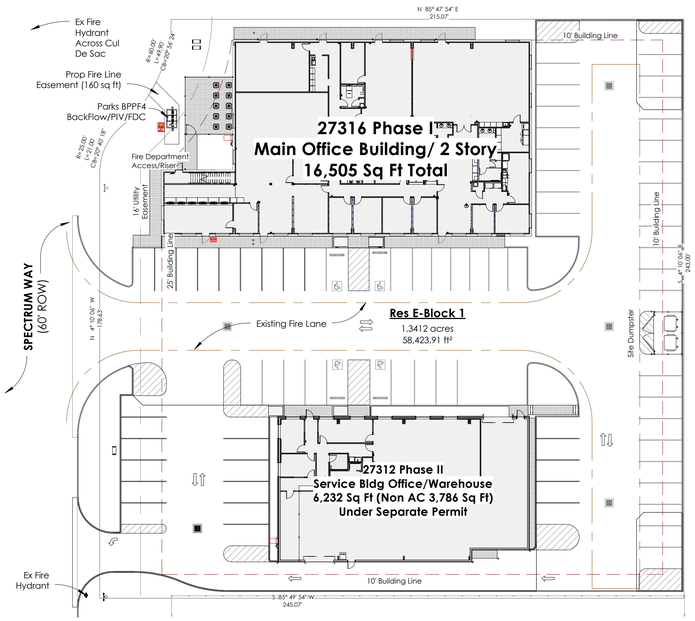
Rev:	Date:	Description:

Sheet: D 24x36
4/13/2015 8:23:45 AM
Edition:
Permit 4/13/15
Project #
3031
Scale:

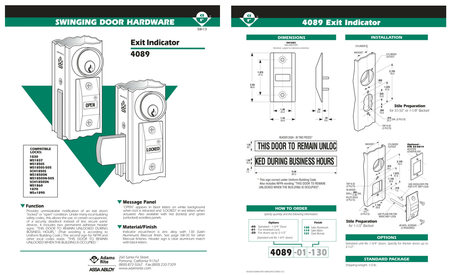
A0.00

*****DIMENSION NOTES*****
1. All Dimensions are from Same Frame Side to Same Frame Side, unless if it is an existing wall, it will be from Existing Wall Surface Side to Frame Side.
2. All Existing Walls, Doors, Structural, etc have been field verified with the best available instruments to maintain accuracy, however, due to plumbness, squareness, field conditions and other tolerances that cannot be exact may exist. It will be the Contractors responsibility to field verify any work that is related to there scope of work to install there work in a true and complete workmanship as required for operation and general acceptance.

*****Existing Building Envelope To Remain*****
No Modification Required Unless Otherwise Noted



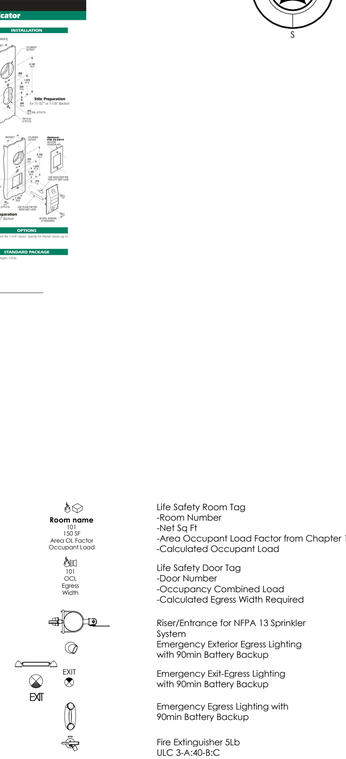
3 Fire Lane Site Plan
1" = 30'-0"



4 Exit Indicator Detail
No Scale

LIFE SAFETY NOTES:

1. Refer to General Notes on A0 for general project information.
2. Furniture, fixtures, and displays of goods for sale to the public shall be arranged so as to maintain free, immediate and unobstructed access to exits.
3. Fire partitions shall extend from floor to roof.
4. Door handles, pull latches, locks and other operating devices shall be installed 34-inches min and 48 inches maximum above finished floor.
5. Egress doors shall be readily operable from the egress side without the use of a key or special knowledge or effort. The unlatching of any leaf shall not require more than one operation.
6. The main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided a readily visible durable sign is posted on the egress side on or adjacent to the door stating "THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED" the sign shall be in letters 1 inch (25mm) high on a contrasting background.
7. Refer to the site plan for fire lane layout and access to the building public right-of-way.
8. Upon completion of all work, a request for final inspection form must be submitted to the fire marshal's office. This project may not be occupied until a final inspection had been performed and a certificate of compliance has been issued by the governing jurisdiction.
9. Contractor to provide and install semi-recessed fire extinguisher cabinets and certified 10 lb. (min.) ABC UL listed fire extinguisher in quantities and locations as shown, and or directed by the Fire Marshal, or other authority having jurisdiction.
10. Seal all penetrations of fire rated wall assemblies, if applicable, in accordance with UL fire rated penetration details.
11. All emergency Egress and Exit lighting shall have and provide a battery backup power source for 90 minutes after power failure.
12. All Glass and Glazing Shall be Tempered where required by Code.



Life Safety Room Tag
-Room Number
-Net Sq Ft
-Area Occupant Load Factor from Chapter 10
-Calculated Occupant Load

Life Safety Door Tag
-Door Number
-Occupancy Combined Load
-Calculated Egress Width Required

Riser/Entrance for NFPA 13 Sprinkler System
Emergency Exterior Egress Lighting with 90min Battery Backup

Emergency Exit-Egress Lighting with 90min Battery Backup

Emergency Egress Lighting with 90min Battery Backup

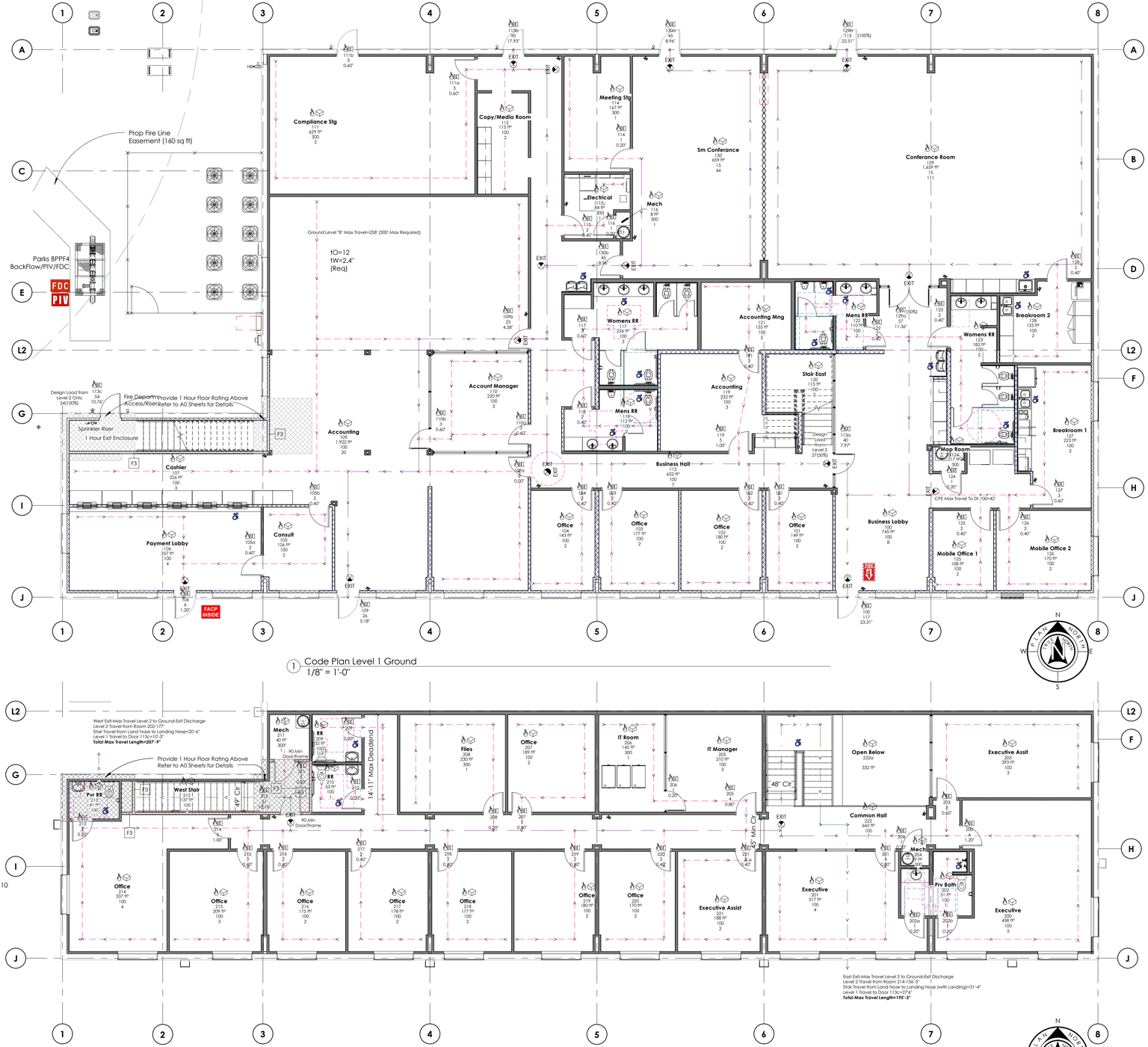
Fire Extinguisher 5Lb
ULC 3-A:40-B:C

Common Path of Egress Travel-Stage 1

Exit Access Travel-Stage 2

Exit Travel-Stage 3

Life Safety Ledgend
No Scale



1 Code Plan Level 1 Ground
1/8" = 1'-0"

2 Code Plan Level 2
1/8" = 1'-0"

Code Review Sheet

SYMMETRY DEVELOPMENT

Services Prepared By:
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MOC (Oak Ridge) Phase 1 of 2

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Revisions

Rev:	Date:	Description:

Sheet: D 24x36
4/13/2015 8:24:46 AM
Edition:
Permit 4/13/15
Project #
3031
Scale:
As indicated

A0.10

Aluminum
Steel
Wood 1
Wood 2
Wood 3
Gypsum Plaster
Concrete 1
Concrete 2
Concrete 3
Earth
Earth45
Gravel 1
Gravel 2
Gravel-Aggerate
Gravel-Pebble
Ground Cover
Chain Link Fence
Rigid Insulation
Masonary Brick
Masonary Concrete Block
Plastic
Plywood
MFD Plywood
Sand 1
Sand 2
Roof Shingle 1
Roof Shingle 2
Texture Stipple
Texture
Wood End Grain
Wood Face Grain
Wood Finish

Tile 12"
Vertical 12"
Horzontial 12"
Tile 8x24
Block 8x16
Block 8x8
Brick Face
Brick King
Brick Soilder Course
Stone
Ceiling 2x2
Ceiling 2x4
Diamond Tread
Glass 1
Glass
Glass Wire
Metal Panel Wall
Metal Panel Roof
Wood Board
Wood Board Wide
Crosshatch
Crosshatch Small
Diagonal Crosshatch
Diagonal Crosshatch Small
Diagonal Down
Diagonal Down Small
Diagonal Up
Diagonal Up Small
Horizontal Lines
Horizontal Small
Ortho Crosshatch
Solid Black
Vertical Small
Vertical

ABBREVIATIONS:

ABV	Above
A/C	Air Conditioner
ADA	Americans Disability Act
ADD	Addition
ADJ	Adjust
A.F.F.	Above Finished Floor
A.F.G.	Above Finished Grade
ALG	Align
ALT	Alternate
APPD	Approved
ASPH	Asphalt
ASTM	American Society for Testing and Materials
ASME	American Society of Mechanical Engineers
BD	Board
B.L.	Building Line
BLDG	Building
BRG	Bearing
CAB	Cabinet
CB	Catch Basin
CFCI	Contractor Furnish/ Contractor Install
CFOI	Contractor Furnish/ Owner Install
CFM	Cubic Feet per Minute
CL	Center Line
CLG	Ceiling
CO	Clean Out
COL	Column
CONT	Continuous
CONC	Concrete
CT	Ceramic Tile
DS	Down spout
DBL	Double
DEMO	Demolition
DIA	Diameter
DIM	Dimension
DN	Down
DR	Door
E	East
EA	Each
EF	Exhaust fan
EJ	Expansion joint
ELEV	Elevation
ELEC	Electric, electrical
EQ	Equal
EQUIP	Equipment
EST	Estimate
EX	Existing
EXT	Exterior
FA	Fire alarm
FD	Floor drain
FE	Fire extinguisher
FAB	Fabricate
FIN	Finish
FLR	Floor
FRM	Framing
FV	Field Verify
GA	Gauge
GALV	Galvanized
GC	General Contractor
GFI	Ground Fault Interrupt
GPS	Global Positioning System
GYP	Gypsum
HB	Hose bib
HDW	Hardware
HGT	Height
HOR	Horizontal
HTR	Heater
HVAC	Heating, Venting and Air Conditioning
HW	Hot water
ID	Inside diameter
INCL	Inclusive, including
INSUL	Insulation
INT	Interior

ABBREVIATIONS: (cont)

E	East
EA	Each
EF	Exhaust fan
EJ	Expansion joint
ELEV	Elevation
ELEC	Electric, electrical
EQ	Equal
EQUIP	Equipment
EST	Estimate
EX	Existing
EXT	Exterior
FA	Fire alarm
FD	Floor drain
FE	Fire extinguisher
FAB	Fabricate
FIN	Finish
FLR	Floor
FRM	Framing
FV	Field Verify
GA	Gauge
GALV	Galvanized
GC	General Contractor
GFI	Ground Fault Interrupt
GPS	Global Positioning System
GYP	Gypsum
HB	Hose bib
HDW	Hardware
HGT	Height
HOR	Horizontal
HTR	Heater
HVAC	Heating, Venting and Air Conditioning
HW	Hot water
ID	Inside diameter
INCL	Inclusive, including
INSUL	Insulation
INT	Interior
JCT	Junction
JST	Joist
LF	Linear feet
LAM	Laminate
LAN	Local Area Network
LAV	Lavatory
LCD	Liquid Crystal Display
LN	Linear
LP	Light Pole
MAX	Maximum
MECH	Mechanical
MED	Medium
MFG	Manufacturing
MIN	Minimum
MH	Manhole
MTL	Metal (steel)
N	North
NTS	Not to scale
NOM	Nominal
OC	On center
OCEW	On center each way
OD	Outside diameter
OEM	Original Equipment Manufacturer
OFCI	Owner Furnish/Contractor Install
OFOI	Owner Furnish/Owner Install
OH	Overhead
OPNG	Opening

ABBREVIATIONS: (cont)

P	Paint
PAV	Pavement
PDF	Portable Document Format
PERF	Perforated
PL	Property Line
PLT	Plate
PLAS	Plastic
PLYWD	Plywood
PORC	Porcelain
PP	Power Pole
PPL	People
PROP	Proposed
PSF	Pounds per square foot
PSI	Pounds per square inch
PVC	Polyvinyl chloride
PWR	Power
QA	Quality Assurance
QC	Quality Control
QTY	Quantity
NFPA	National Fire Protection Association
RAD	Radius
RD	Roof drain
RO	Rough Opening
ROW	Right of way
REFG	Refrigerator
REF	Reference
REINF	Reinforced
REQ	Required
REV	Revision
RM	Room
S	South
SAN	Sanitary
SC	Solid core
SCHED	Schedule
SD	Smoke detector
SHTG	Sheathing
SIM	Similar
SPECS	Specifications
SF	Square feet
SQ FT	Square feet
SQ IN	Square inches
SS	Stainless Steel
STD	Standard
STL	Steel
STM	Storm Sewer
SY	Square yard
SYS	System
T&G	Tongue and groove
TBM	Temporary Benchmark
TOB	Top of Beam
TOC	Top of curb
TOS	Top of Steel
TYP	Typical
UNF	Unfinished
UON	Unless Otherwise Noted
VB	Vapor barrier
VIF	Verify in field
V	Voltage
VCT	Vinyl composition tile
W	West
WC	Toilet (water closet)
WT	Window Treatment

Low Voltage Tele-Data Outlet White 16" AFF Center

Low Voltage TV Cable RG6 or as other specified Outlet White-Locate as Req

120/277v-1-Gang Single Pole Switch White 48" AFF Center

120/277v-2-Gang Single Pole Switch White 48" AFF Center

120/277v-1-Gang Single Pole 3-way Switch White 48" AFF Center

120/277v-1-Gang Dimming Switch White 48" AFF Center

120/277v-1-Gang Vacancy Switch White 48" AFF Center

120/277v-1-Gang Motion Switch/Timer White 48" AFF Center

Ceiling Mounted Remote Vacancy Sensor

Wire Diagram

120v Floor Outlet Dark Bronze Finish

120v-Duplex Outlet "X"" AFF or Note

120v-Duplex Outlet- 16"AFF Center UON

120v-Quadplex Outlet 16"AFF Center

220v-Special Purpose Outlet

120v-GFCI Quadplex Outlet

120v-Quadplex Outlet X-AFF Center

120v-GFCI Duplex Outlet Weather Resistant

120v-GFCI Duplex Outlet

120v-Dedicated Duplex Outlet

Electrical Service Meter Can

Electrical Load Center/Panel

Service Disconnect

Floor Mounted Step Down Transformer

2x4 Recessed Troffer Light

8' Light Strip Light- 2 Bulb

4' Light Strip Light- 2 Bulb

Exterior Wall Mount Wall Pack Light Metal Halide Type 1

Exterior Wall Mount Wall Pack Light Metal Halide Type 2

Exterior Pole Mount Parking Lot Light Metal Halide

4" Recessed can light-Fluorescent

6" Recessed can light-Fluorescent

Wall Mounted Light Fixture

Outlet and Switch Colors
Office/Business
- General Purpose Outlets-White device with white Cover Plate
- Dedicated Devices- Gray Device with white cover plate
- Specialized Equipment- Orange Device with White Cover Plate

Service area's and shop areas
- Gray Device with SS Cover Plate

Electrical Legend
1/4" = 1'-0"

White Adjustable Metal Wall Louver Supply Diffuser

Floor Mounted Linear Supply Slot Diffuser

White Metal 2x2 Lay-In Supply Diffuser

White Metal 2x2 Lay-In Return Diffuser

Flex Duct Insulated

Round Metal Duct Section

Rectangle Duct Section

Ceiling Mounted Exhaust Fan 120v/1Ø

Exterior Air Conditioner Condenser

Above Ceiling Air Handler w/Electric Heat

Wall Mounted Mini Split Air Handler

Mechanical Ledgend
1/4" = 1'-0"

Room name
101
150 SF
Area Ot. Factor
Occupant Load

101
OCL
Egress
Width

Life Safety Room Tag
-Room Number
-Net Sq Ft
-Area Occupant Load Factor from Chapter 10
-Calculated Occupant Load

Life Safety Door Tag
-Door Number
-Occupancy Combined Load
-Calculated Egress Width Required

Riser/Entrance for NFPA 13 Sprinkler System
Emergency Exterior Egress Lighting with 90min Battery Backup

Emergency Exit-Egress Lighting with 90min Battery Backup

Emergency Egress Lighting with 90min Battery Backup

Fire Extinguisher 5Lb ULC 3-A:40-B:C

Common Path of Egress Travel-Stage 1

Exit Access Travel-Stage 2

Exit Travel-Stage 3

Life Safety Ledgend
3/8" = 1'-0"

Ref
1
1 View Name
1/8" = 1'-0"
Name
Elevation
Ref
1 View Name
Name
Elevation
FF Height
N 90 00' 00" E
Distance
Distance
Name
Acres
Sq Ft
1'-0" A.F.F.
Room name
101
150 SF
0
A
A101
SIM
1
A101
SIM
1
A101
SIM
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A101
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Ref
1
Ref
1 Ref
1 Ref

Graphic Scale: 1 inch = 20 feet

0 20' 40' 60' 80'

N
W
E
S
PLAN NORTH
TRUE NORTH

True North and Plan North Symbol

Annotation Legend
No Scale

Legends

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
832.795.1553
symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2

27316 Spectrum Way
Oak Ridge, TX 77385

Project For:
MOCI

Revisions

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BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design No. L524

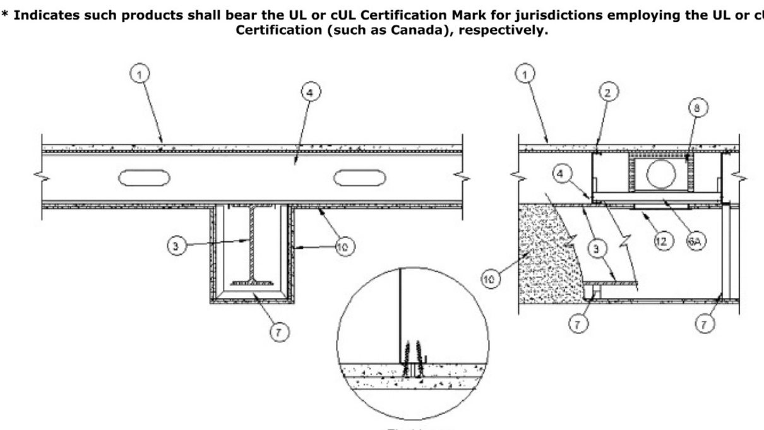
December 12, 2014

Unrestrained Assembly Rating — 1 Hr.

Unrestrained Beam Rating — 1 Hr.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Flooring System —** The flooring system shall consist of one of the following:

System No. 1

Finish Flooring — Min 19/32 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered. Long edges shall be T & G.

System No. 2

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. ¼ in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

2. **Flooring Fasteners —** (Not Shown) - The subflooring (first layer) of each floor system and finish flooring of System No. 1 are to be fastened to the steel joists with Type S12 by 1-15/16 in. long self-drilling, pilot point, steel screws. The screws are to be spaced 6 in. OC around the perimeter of the floor and at all end (butt) joints of the panels. Spacing in the field to be 10 in. OC. For flooring System No. 2, the finish flooring is to be fastened to the subflooring with Type S12 by 2 in. long steel screws spaced 6 in. OC around the perimeter of the floor and at all end (butt) joints of the finish flooring panels. Spacing in the field to be 10 in. OC with rows of screws spaced 16 in. OC.

3. **Structural Steel Member —** Min W8 x 15 wide flange steel beam.

4. **Steel Joists —** The joists are channel-shaped, min 7 in. deep with min 1-5/8 in. wide flanges and 1/2 in. long stiffening flanges. The joists are fabricated from min No. 18 MSG galv steel. Min yield strength of steel is either 33,000 or 40,000 psi with corresponding max working stress of 20,000 and 24,000 psi. Joists spaced max 24 in. OC. At joist splices bearing on supports, joists are overlapped a min of 3 in. **When ceiling damper (Item 8) is used, min joist depth is 14 in.**

5. **Joist Stiffeners —** (Not Shown) - Channel-shaped stiffeners, made from min No. 18 MSG galv steel. Stiffeners are 6-13/16 in. long, 3-1/2 in. deep with 1-5/8 in. flanges and 1/2 in. stiffening flanges. The joist stiffeners are used at all bearing locations of the joists.

6. **Joist Bridging —** (Not Shown) - Installed immediately after joists are erected and before construction loads are applied. The bridging consisting of joist section cut to length and placed between outer supports, adjacent to openings and at mid span with 8 ft OC max spacing. Bridging channels are screw-attached at each end to joist webs using angle clips. V-bracing of 1-1/2 in. by 20-gal galvanized steel is screw-attached to bottom joist flange between bridging channels.

6A. **Horizontal Joist Bridging —** Used in lieu of Item 6 in same joist bay as ceiling damper (Item 8), when ceiling damper is employed. Joist section cut to length and secured to joists above bottom flanges with Type S12 screws and 1-1/2 by 1-1/2 in. No. 18 MSG galv steel angles.

7. **Beam Cage —** The cage used to support the gypsum board beam protection is fabricated from No. 24 MSG electrogalvanized steel angle with 7/8 by 1-3/8 in. legs and No. 25 MSG, electrogalvanized steel channel studs, 2-1/2 in. wide with 1 in. legs. Angles are fastened to the steel joists using 1/2 in. pan head steel sheet metal screws.

8. **Ceiling Damper* —** (Optional) - Max nom area shall be 198 sq in. Max rectangular size shall be 12 in. wide by 16-1/2 in. long. Max height of damper shall be 8-3/4 in. Aggregate damper openings shall not exceed 99 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 13) shall be installed in accordance with installation instructions.

RUSKIN COMPANY — Model CFD7

9. **Ceiling Damper Support —** (Not Shown) - Provided with ceiling damper. Support secured to ceiling damper and steel joists in accordance with installation instructions provided with ceiling damper.

10. **Gypsum Board* —** For Ceiling - Two layers of 1/2 in. thick gypsum board installed with long dimensions

Subflooring — Min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring — Min 19/32 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered. Long edges shall be T & G.

System No. 3

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD

Floor Mat Materials* — (Optional) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* — (Optional) - Nom 3/8 in. thick floor mat material loose laid over the subfloor. Floor topping thickness shall be as specified under **Floor Topping Mixture.**

GRASSWORX L L C — Type SC50

System No. 4

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

ELASTIZELL CORP OF AMERICA — Type FF.

System No. 5

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Floor Mat Materials* — (Optional)— Floor mat material nom 5/64 in. (2mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1 in. of floor-topping mixture.

ECORE INTERNATIONAL INC — Type QTscu 4002

HACKER INDUSTRIES INC — Type Hacker Sound-Mat.

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/4 in. (6mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. (32mm) of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/8 in. (3mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 3/4 in. (19mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 125

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/4 in. (6mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1 in. (25mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 250, Quiet Qurl 55/025

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 3/8 in. (10mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/4 in. (32mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 400, Quiet Qurl 60/040

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 3/4 in. (19mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in. (38mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 750, Quiet Qurl 65/075

Metal Lath (Optional) — For use with 3/8 in. (10 mm) floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1100 psi. Mixture shall consist of 6.8 gal of water to 80 lbs of floor topping mixture to 1.9 cu ft of sand.

HACKER INDUSTRIES INC — Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 3310, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant.

System No. 6

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 1 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 62.5 lbs of Pea Gravel, 312.5 lbs of sand with 5-1/2 gal of water.

LITE-CRETE INC — Type I.

System No. 7

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Mixture shall consist of 5 to 8 gal of water to 80 lbs of floor topping mixture to 2.1 cu ft of sand.

ULTRA QUIET FLOORS — Types UQF-A, UQF-Super Blend, UQF-Plus 2000.

System No. 8

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Floor Mat Materials* — (Optional) - Nom 1/4 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer to be applied to the surface of the mat prior to the floor topping placement. When floor mat material is used, min thickness of floor topping thickness is 1 in. Floor topping thickness a min 3/4 in. over Acousti-Mat I floor mat.

MAXXON CORP — Type Acousti-Mat I, Acousti-Mat II, Acousti-Mat II HP.

Alternate Floor Mat Materials* - (Optional) — Nom 0.8 in. thick floor mat material loose laid over the subfloor with Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.

MAXXON CORP — Type Acousti-Mat 3, Acousti-Mat 3 HP, Crack Suppression Mat (CSM)

Metal Lath (Alternate to Crack Suppression Mat (CSM)) — 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.

Fiber Glass Mesh Reinforcement — (Optional) — Maxxon Corp's "Maxxon Reinforcement (MR)" for use with or as an alternate to CSM or metal lath reinforcement, the materials consists of a plastic coated non-woven fiber glass mesh grid intended to suppress cracks in the Floor Topping Mixture.

Alternate Floor Mat Materials* - (Optional) — Nom 0.4 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer to be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be min 1 in. Floor topping thickness shall be min 3/4 in. when used with Crack Suppression Mat (CSM), Metal Lath, or Maxxon Reinforcement (MR).

MAXXON CORP — Type Enkasonic 9110, Enkasonic 9110 HP.

Alternate Floor Mat Materials* - (Optional) — Nom 0.2 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer may be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be as specified under **Floor Topping Mixture.**

MAXXON CORP — Type Acousti-Mat LP-R

Metal Lath (Optional) — For use with floor mat materials, 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd or Maxxon Corp. UL Classified Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1 in.

MAXXON CORP — Type Crack Suppression Mat (CSM)

Fiber Glass Mesh Reinforcement — (Optional) — Maxxon Corp's "Maxxon Reinforcement (MR)" for use with or as an alternate to CSM or metal lath reinforcement, the materials consists of a plastic coated non-woven fiber glass mesh grid intended to suppress cracks in the Floor Topping Mixture.

Finish Flooring - Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for min 19/32 or min 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Mixture shall consist of 3 to 7 gal of water mixed with 80 lbs of floor topping mixture to 1.0 to 2.1 cu ft of sand.

MAXXON CORP — Type D-C, GC, GC2000, L-R, T-F, CT.

System No. 9

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Floor Primer to be applied to the surface of the mat prior to the floor topping placement. When floor mat material is used, min thickness of floor topping mixture is 1 in. Floor topping thickness a min 3/4 in. over Acousti-Mat I floor mat.

MAXXON CORP — Type Acousti-Mat I, Acousti-Mat II, Acousti-Mat II HP.

Alternate Floor Mat Materials* - (Optional) — Nom 0.8 in. thick floor mat material loose laid over the subfloor with Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.

MAXXON CORP — Type Acousti-Mat 3, Acousti-Mat 3 HP, Crack Suppression Mat (CSM)

Metal Lath (Alternate to Crack Suppression Mat (CSM)) — 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material. Floor topping thickness shall be min 1-1/2 in.

Fiber Glass Mesh Reinforcement — (Optional) — Maxxon Corp's "Maxxon Reinforcement (MR)" for use with or as an alternate to CSM or metal lath reinforcement, the materials consists of a plastic coated non-woven fiber glass mesh grid intended to suppress cracks in the Floor Topping Mixture.

Alternate Floor Mat Materials* - (Optional) — Nom 0.4 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer to be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be min 1 in. Floor topping thickness shall be min 3/4 in. when used with Crack Suppression Mat (CSM), Metal Lath, or Maxxon Reinforcement (MR).

MAXXON CORP — Type Enkasonic 9110, Enkasonic 9110 HP.

Alternate Floor Mat Materials* - (Optional) — Nom 0.2 in. thick floor mat material loose laid over the subfloor. Maxxon Floor Primer may be applied to the surface of the mat prior to the floor topping placement. Floor topping thickness shall be as specified under **Floor Topping Mixture.**

MAXXON CORP — Type Acousti-Mat LP-R

Metal Lath (Optional) — For use with floor mat materials, 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd or Maxxon Corp. UL Classified Crack Suppression Mat (CSM) loose laid over the floor mat material. Floor topping thickness shall be min 1 in.

MAXXON CORP — Type Crack Suppression Mat (CSM)

Fiber Glass Mesh Reinforcement — (Optional) — Maxxon Corp's "Maxxon Reinforcement (MR)" for use with or as an alternate to CSM or metal lath reinforcement, the materials consists of a plastic coated non-woven fiber glass mesh grid intended to suppress cracks in the Floor Topping Mixture.

Finish Flooring - Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for min 19/32 or min 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1200 psi. Mixture shall consist of 4 to 7 gal of water mixed with 80 lbs of floor topping mixture and 1.4 to 1.9 cu ft of sand.

RAPID FLOOR SYSTEMS — Types RF, RFP, RFU, RFR, Ortecrete.

System No. 10

Subflooring — Min 1 by 6 in. T & G lumber fastened diagonally to joists, or min 15/32 in. thick plywood or min 7/16 in. thick oriented strand board (OSB) wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Finish Flooring - Mineral and Fiber Board* — Min 1/2 in. thick, supplied in sizes ranging from 3 ft by 4 ft to 8 ft by 12 ft. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

HOMASOTE CO — Type 440-32 Mineral and Fiber Board

System No. 11

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.2 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

AERIX INDUSTRIES — Floor Topping Mixture

System No. 12

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) - Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ALLIED CUSTOM GYPSUM — Accu-Crete, AccuRadiant, AccuLevel G40 and AccuLevel SD30.

Alternate Floor Mat Material* - (Optional) - Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in. or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively.

ALLIED CUSTOM GYPSUM — Type AccuQuiet P80, Type AccuQuiet C40, AccuQuiet D13, and Type AccuQuiet D-18.

System No. 13

Subflooring — 15/32 or 19/32 in. thick wood structural panels, min. grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 2100 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

BMI PRODUCTS OF NORTHERN ILLINOIS INC — Maxit 493

System No. 14

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered.

Vapor Barrier — (Optional) - Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring* — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies.

Floor Mat Materials* — (Optional) - Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. ¼ in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

System No. 15

Subflooring — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Gypsum Board* — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1 in. long No. 6 Type W bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

Floor Mat Materials* — (As an alternate to the single layer gypsum board) - Floor mat material loose laid over the subfloor.

MAXXON CORP — Type Acousti-Mat I, Acousti-Mat II, Acousti-Mat II HP, Acousti-Mat 3, Acousti-Mat 3 HP, Enkasonic 9110, Enkasonic 9110 HP, Acousti-Mat LP-R.

Gypsum Board* — (For use when floor mat is used) Two layers of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists on top of the floor mat material. Gypsum board secured to each other with 1 in. long No. 6 Type G bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches between layers and from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

System No. 16

Subflooring — Min 15/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

DEPENDABLE LLC — GSL M3.4, GSL K2.6 and GSL RH

Floor Mat Materials* — (Optional) - Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

perpendicular to joists. Base layer attached to steel joists using 1 in. long, Type S12 bugle head steel screws spaced 8 in. OC along butt joints and 12 in. OC in field along the joists. Butt joints to occur beneath joists with screws located 1/2 in. for the butt joints. Outer layer attached to assembly using 1-1/2 in. long, Type G bugle head steel screws spaced 8 in. OC along butt joints and with 1-5/8 in. long, Type S12 bugle head steel screws spaced 12 in. OC in the field along the joists. Butt joints of outer layer to occur between joists with screws located 3/4 in. from the butt joints. Edge joints to be staggered between layers. **For Beam** - Two layers of 1/2 in. thick gypsum board fastened to beam cage. Inner layer secured using 1 in. long, Type S12 bugle head steel screws spaced 12 in. OC and outer layer fastened to cage using 1-5/8 in. long, Type S12 bugle head steel screws spaced 12 in. OC. Joints are to be staggered between layers.

ACADIA DRYWALL SUPPLIES LTD — Type C

AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type FRPC, Type C

CGC INC — Type C, IP-X2

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Type C, IP-X2

USG MEXICO S A DE C V — Type C, IP-X2

11. **Steel Framing Members* —** As an alternate to the direct attachment of the Gypsum Board* (Item 10), Steel Framing Members* and Gypsum Board* (Item 12) may be installed beneath the bottom flange of the steel beam.

a. **Main Runners —** Nom 12 ft long, with 15/16 in. or 1-1/2 in. wide face, spaced 4 ft OC, installed perpendicular to steel beam. Main runners hung a min of 2 in. below bottom chord of steel beam and secured to steel joists with No. 12 SWG galv steel wire, spaced a max of 48 in. OC.

b. **Cross Tees or Channels —** Nom 4 ft long cross tees, with 15/16 in. or 1-1/2 in. wide face, or nom 4 ft long cross channels, with 1-1/2 in. wide face, either spaced 16 in. OC, installed perpendicular to the main runners. Additional cross tees or channels used 8 in. from each side of butted gypsum board end joints. The cross tees or channels may be riveted or screw-attached to the wall angle or channel to facilitate the ceiling installation.

c. **Wall Angles or Channels —** Used to support steel framing member ends and for screw-attachment of the gypsum board. Painted or galvanized steel angles with 1 in. legs or channels with 1 in. legs and 1-9/16 in. deep, attached to walls at perimeter of ceiling with fasteners 16 in. OC.

CGC INC — Type DGL or RX.

USG INTERIORS LLC — Type DGL or RX.

12. **Gypsum Board* —** Two layers of nom 1/2 in. thick by 48 in. wide gypsum board for use with **Steel Framing Members***. Base layer installed with long dimension perpendicular to cross tees with side joints centered along main runners and end joints centered along cross tees. Base layer fastened to cross tees with 1-1/4 in. long Type S bugle-head steel screws spaced 8 in. OC along butt joints and 12 in. OC in the field of the board. End joints of adjacent gypsum board sheets shall be staggered not less than 4 ft OC. Outer layer attached to the cross tees through inner layer using 1-7/8 in. long Type S bugle-head steel screws spaced 8 in. OC at butted end joints and 12 in. OC in the field. Butted end joints to be centered along cross tees and be offset a min of 32 in. from end joints of inner layer. Rows of screws on both sides of butted end joints of each layer shall be located 3/8 to 1/2 in. from end joints. Butted side joints of outer layer to be offset a min of 18 in. from butted side joints of inner layer.

CGC INC — Type C, IP-X2.

UNITED STATES GYPSUM CO — Type C, IP-X2.

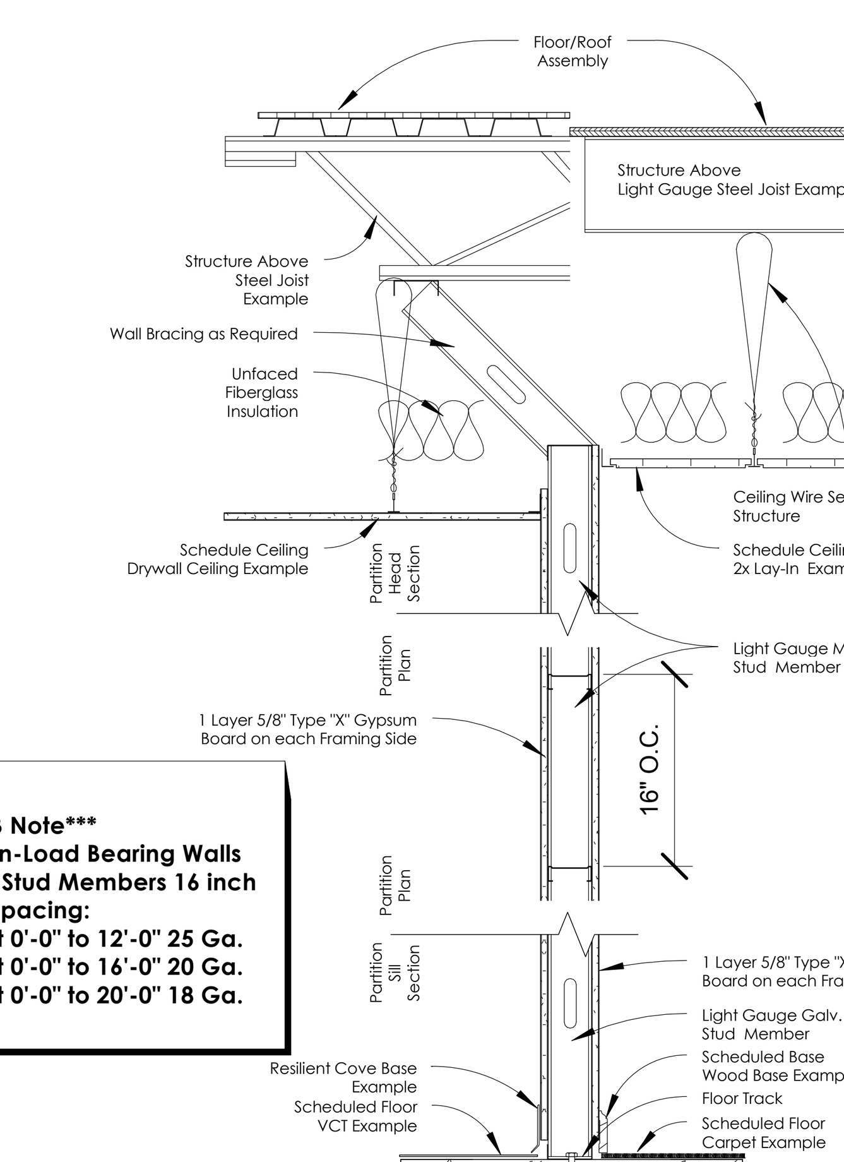
USG MEXICO S A DE C V — Type C, IP-X2.

13. **Grille —** Steel grille, installed in accordance with the installation instructions provided with the ceiling damper.

Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2014-12-12

*****NLB Note*****
All Non-Load Bearing Walls
Metal Stud Members 16 inch
O.C. Spacing:
Height 0'-0" to 12'-0" 25 Ga.
Height 0'-0" to 16'-0" 20 Ga.
Height 0'-0" to 20'-0" 18 Ga.

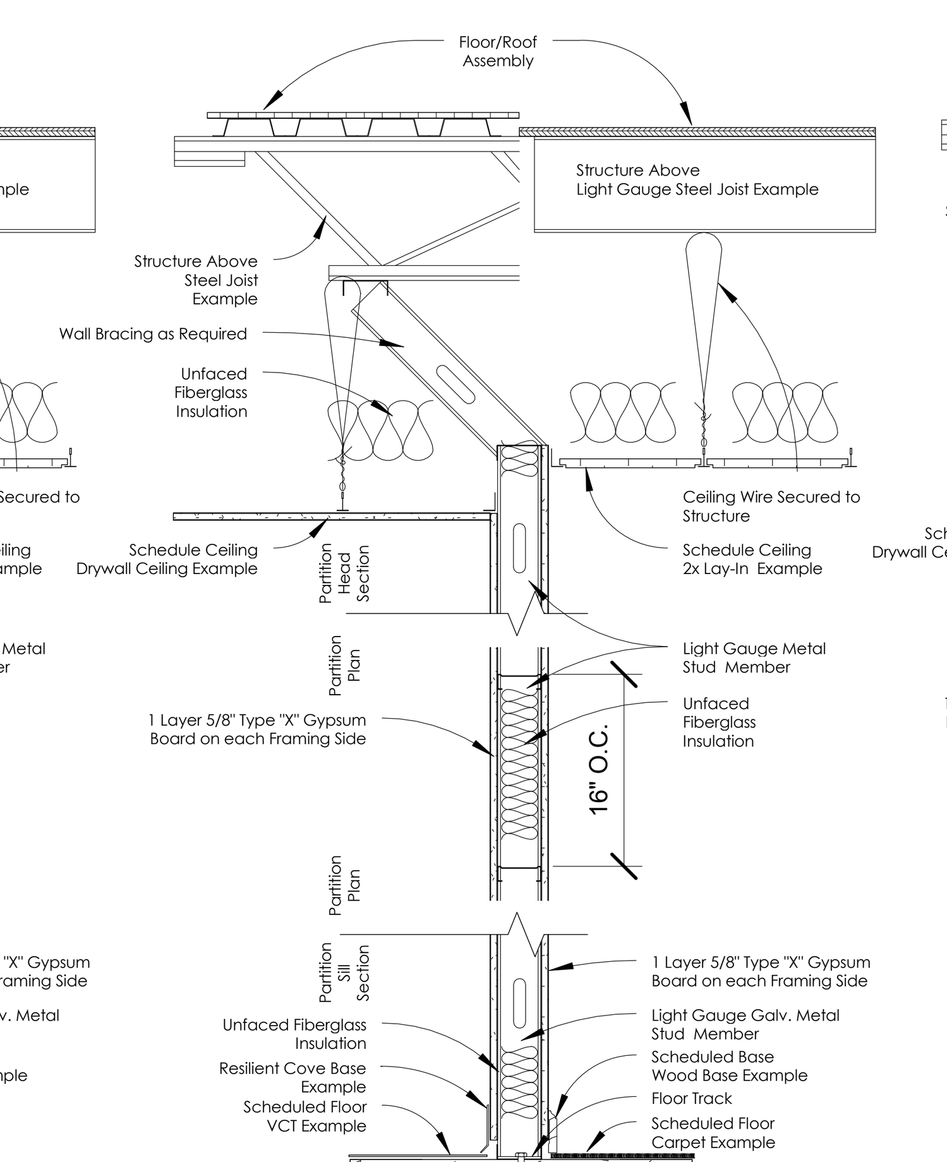


"A"
Non-Load Bearing Partition

A2= 2-1/2", 25 Gauge Metal Stud, Refer to NLB Note
A3= 3-5/8", 25 Gauge Metal Stud, Refer to NLB Note
A6= 6", 25 Gauge Metal Stud, Refer to NLB Note

Refer to The Structural Drawings for all Foundation/Wall/ & Floor Framing Details

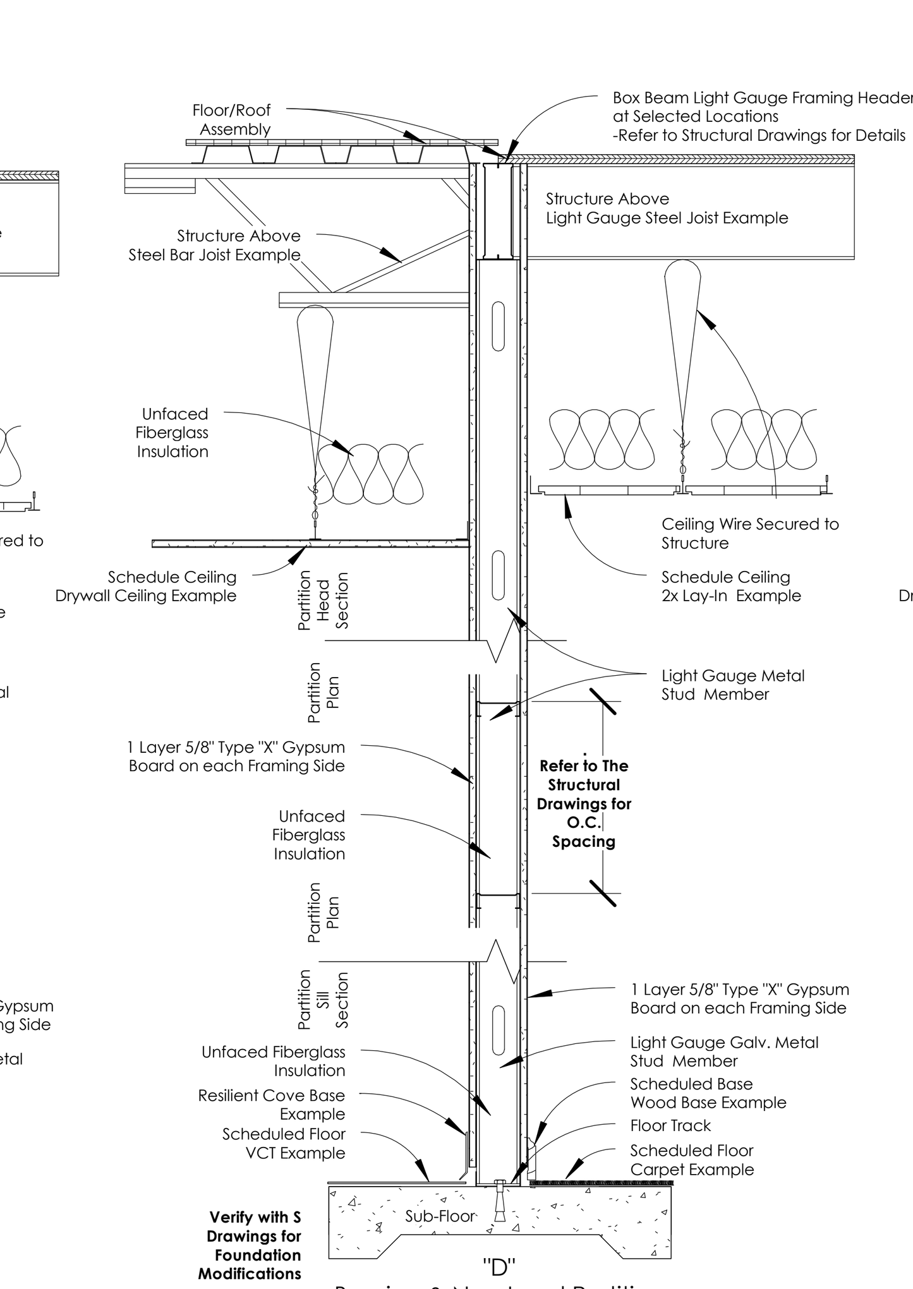
1 Partition Wall Details
3/4" = 1'-0"



"I"
Non-Load Bearing Partition
With Insulation

I2= 2-1/2",Metal Stud w/ Insulation, Refer to NLB Note
I3= 3-5/8", 25 Gauge Metal Stud w/ Insulation, Refer to NLB Note
I6= 6", 25 Gauge Metal Stud w/ Insulation, Refer to NLB Note

Refer to The Structural Drawings for all Foundation/Wall/ & Floor Framing Details

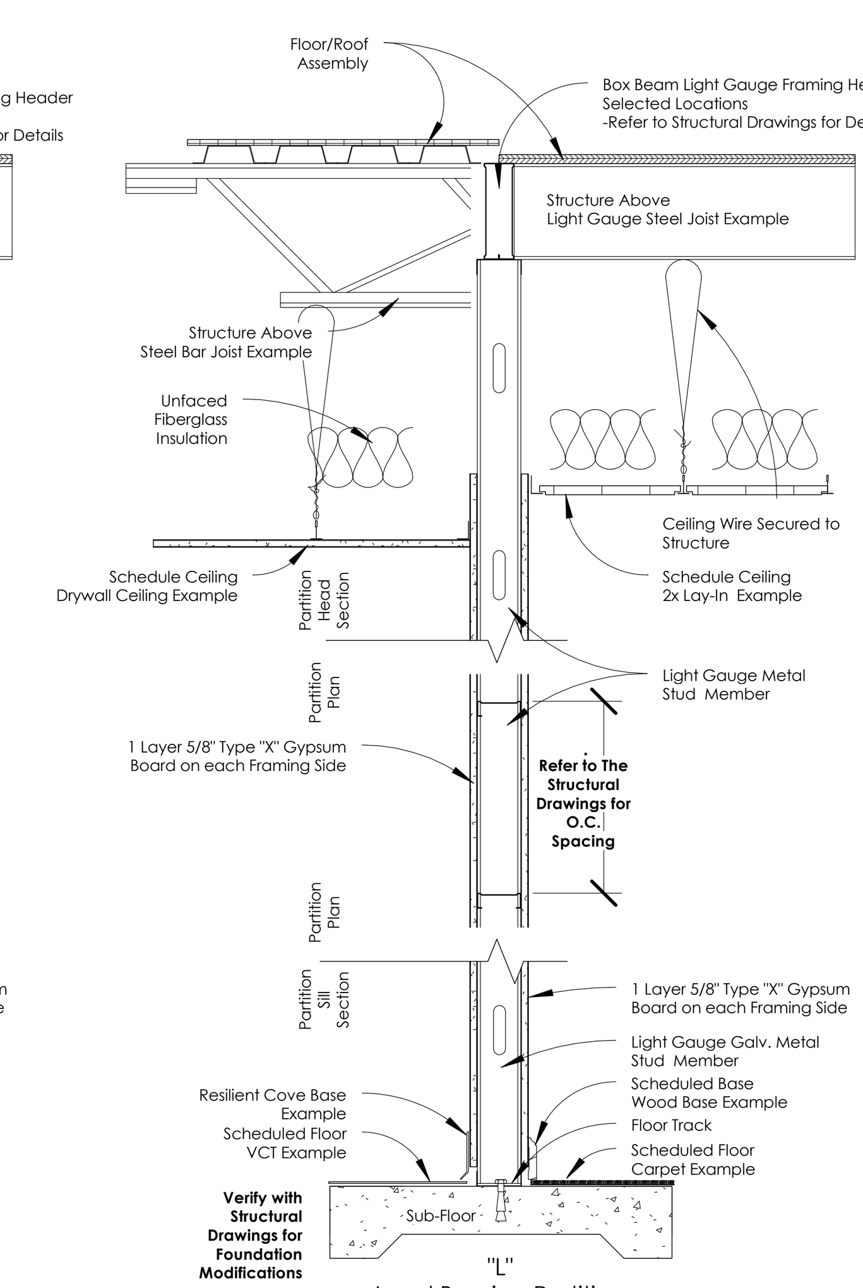


"D"
Bearing & Non-Load Partition
To Deck

Non Load Bearing
D2= 2-1/2" Metal Stud, Refer to NLB Note
D3= 3-5/8" Metal Stud, Refer to NLB Note
D6= 6" Metal Stud, Refer to NLB Note

Load Bearing
BD3= 3-5/8" Metal Stud, Gauge As Specified Per Structural Drawings.
BD6= 6" Metal Stud, Gauge As Specified Per Structural Drawings.

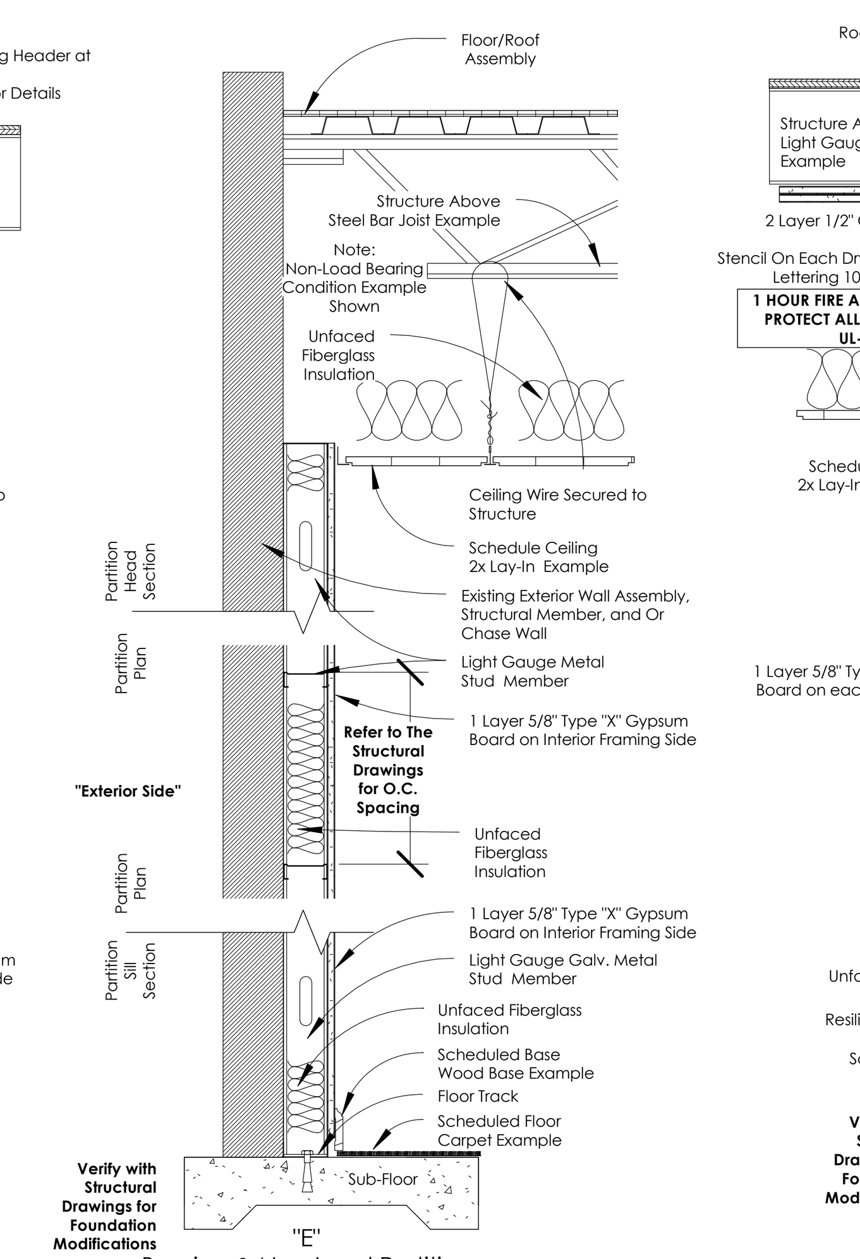
Refer to The Structural Drawings for all Foundation/Wall/ & Floor Framing Details



"L"
Load Bearing Partition

Load Bearing
B3= 3-5/8" Metal Stud,Gauge As Specified Per Structural Drawings.
B6= 6" Metal Stud, Gauge As Specified Per Structural Drawings.

Refer to The Structural Drawings for all Foundation/Wall/ & Floor Framing Details

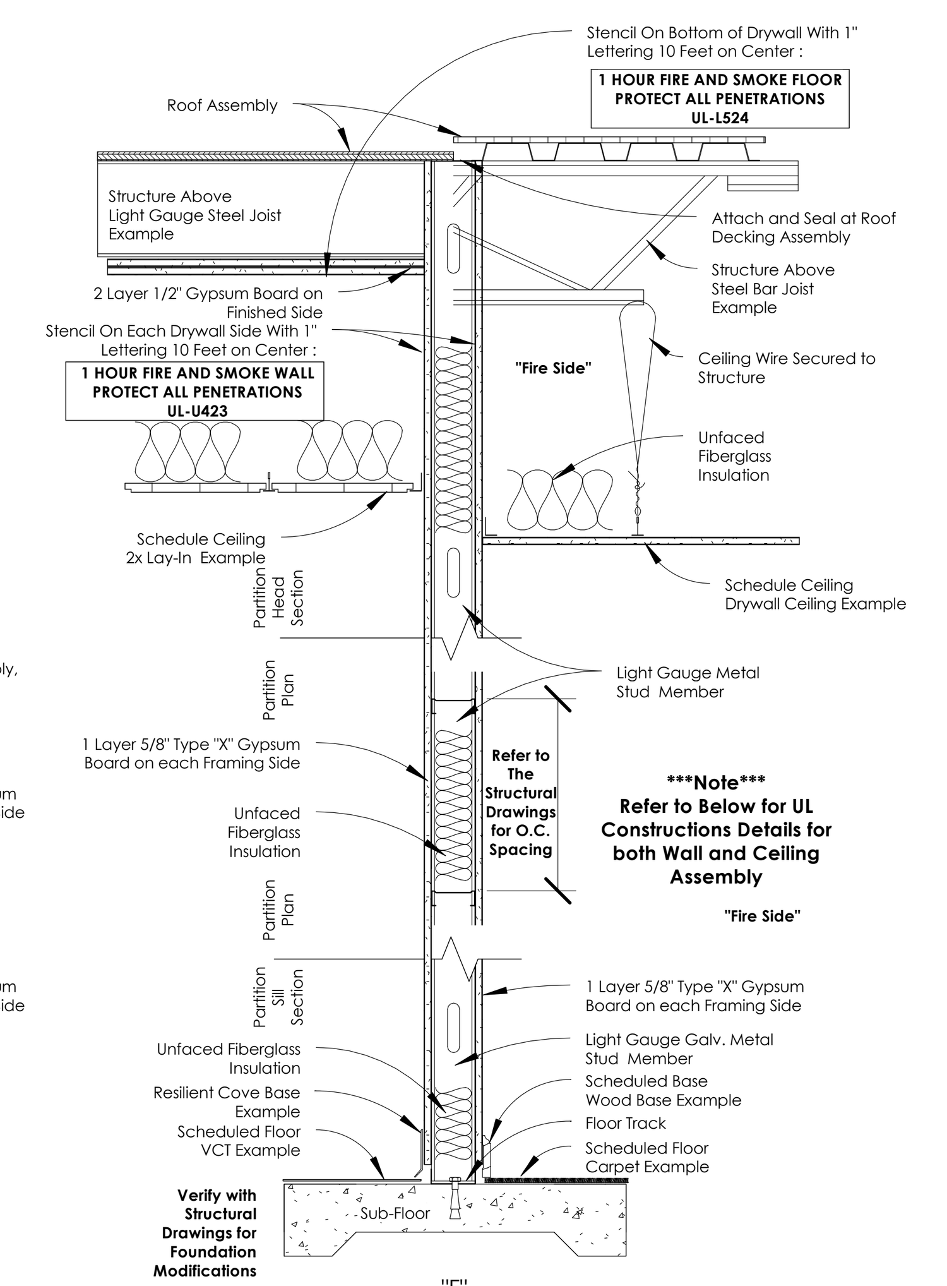


"E"
Bearing & Non-Load Partition
With Insulation (Cladding)

Non Load Bearing
E0= No Metal/ 1-Layer Gypsum Board Only Glued to Existing Wall Face
E2= 2-1/2" Metal Stud w/ Insulation, Refer to NLB Note
E3= 3-5/8" Metal Stud w/ Insulation, Refer to NLB Note
E6= 6" Metal Stud w/ Insulation, Refer to NLB Note

Load Bearing
BE3= 3-5/8" Metal Stud w/ Insulation, Refer to NLB Note
BE6= 6" Metal Stud w/ Insulation, Refer to NLB Note

Refer to The Structural Drawings for all Foundation/Wall/ & Floor Framing Details



"F"
Load Bearing Partition /w Insulation
Fire Wall 1 Hour UL-U423 with 1 Hour Floor UL-L524

Load Bearing
F2= 2-1/2" Metal Stud w/ Insulation , Refer to NLB Note
F3= 3-5/8" Metal Stud w/ Insulation , Refer to NLB Note
F6= 6" Metal Stud w/ Insulation , Refer to NLB Note

Refer to The Structural Drawings for all Foundation/Wall/ & Floor Framing Details

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BXUV.http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=BXUV.U423
Fire Resistance Ratings - ANSI/UL 263

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BXUV - Fire Resistance Ratings - ANSI/UL 263

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

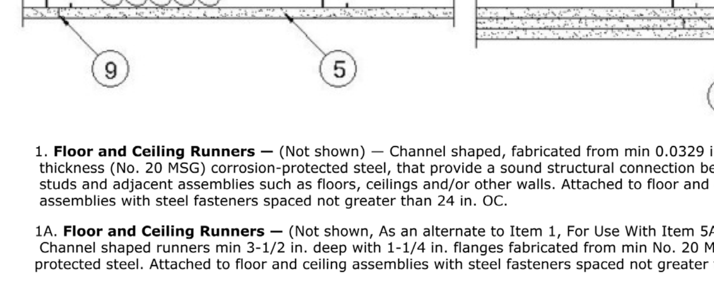
Design No. U423

April 08, 2015

Bearing Wall Ratings — 45 min, 1, 1-1/2 or 2 Hr (See Items 5 & 7)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor and Ceiling Runners —** (Not shown) — Channel shaped, fabricated from min 0.0329 in., bare metal thickness (No. 20 MSG) corrosion-protected steel, that provide a sound structural connection between steel studs and adjacent assemblies such as floors, ceilings and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. OC.

1A. **Floor and Ceiling Runners —** (Not shown, As an alternate to Item 1, For Use With Item 5A and 5C) — Channel shaped runners min 3-1/2 in. deep with 1-1/4 in. flanges fabricated from min No. 20 MSG corrosion-protected steel. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. OC.

2. **Steel Studs —** Min 0.0329 in., bare metal thickness (No. 20 MSG) corrosion-protected steel studs, min 3-1/2 in. wide, cold formed, designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI). All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing shall not exceed 24 in. OC. Studs attached to floor and ceiling runners with 1/2 in. long Type S-12 steel screws on both sides of the studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. **Steel Studs —** (As an alternate to Item 2, For use with Item 5A and 5C) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min width, min 1-1/2 in. flanges and 1/4 in. return, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners.

2B. **Steel Studs —** (As an alternate to Item 2 and 2A, For Use With Item 5B) - Min 0.0329 in., (No. 20 MSG) corrosion-protected cold formed steel studs, min 3-1/2 in. deep by 1-5/8 in. wide with 1/2 in. returns. Braced at mid-height and designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute (AISI). All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing shall not exceed 24 in. OC. Studs attached to floor and ceiling runners with 1/2 in. long Type S-12 steel screws on both sides of the studs or by welded or bolted connections designed in accordance with the AISI specifications.

2C. **Framing Members - Steel Studs —** (As an alternate to Item 2, For use with Item 5C) Channel shaped, fabricated from min 20 MSG (0.0327 in. thick) corrosion-protected or galv steel, 3-1/2 in. min width, min 1-1/2 in. flanges and 1/4 in. return, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

3. **Lateral Support Members —** (Not shown) — Where required for lateral support of studs, support shall be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Wood Structural Panel Sheathing —** (Optional, For use with Item 5 only.)- (Not Shown) - 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, fastener lengths for gypsum panels increased by min. 1/2 in.

The maximum loading on the steel studs was evaluated with the steel studs braced at mid-height and not braced by the plywood sheathing.

5. **Gypsum Board* —** Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered when load is reduced to 90 percent of max stud capacity. When load is at 100 percent, horizontal edge joints and horizontal butt joints on opposite sides of studs staggered a min of 12 in. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. When used in widths other than 48 in., gypsum panels to be installed horizontally. The thickness and number of layers and percent of design load for the 45 min, 1 hr, 1-1/2 hr, and 2 hr ratings are as follows:

Wallboard Protection on Each Side of Wall

Rating	No. of Layers & Thkns of Panel	% of Design Load
45 Min	1 layer, 1/2 in. thick	100
1 hr	1 layer, 5/8 in. thick	100
1-1/2 hr	2 layers, 1/2 in. thick	100
2 hr	2 layers, 5/8 in. thick	80
2 hr@	2 layers, 5/8 in. thick	100
2 hr	3 layers, 1/2 in. thick	100
2 hr	2 layers, 3/4 in. thick	100

@Rating applicable when Batts and Blankets (Item 7) are used.

CGC INC — 1/2 in. thick Type IP-X2, IPC-AR, C, WRC, or; 5/8 in. thick Type SCX, SHX, WRX, IP-X1, AR, C, IP-AR, IP-X2, IPC-AR, ULX, or WRC; 3/4 in. thick Types AR, IP-AR, IP-X3, ULTRACODE

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR, or WRC; 5/8 in. thick Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULX, WRX, or WRC; 3/4 in. thick Types AR, IP-AR or IP-X3, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR, WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRX or WRC; 3/4 in. thick Types AR, IP-AR, IP-X3, ULTRACODE

5A. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) - Nom 5/8 in. or ¾ in. may be used as alternate to all 5/8 in. or ¾ in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or ¾ in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1A, 2A 8, 8A(a). Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 12) or Lead Discs or Tabs (see Item 13).

RAY-BAR ENGINEERING CORP — Type RB-LBG

5B. **Gypsum Board* —** (As an alternate to Items 5 and 5A,) - Nom 5/8 in. thick gypsum panels with square edges, applied horizontally or vertically. For the1 hour single layer system -when the gypsum board panels are installed horizontally the joints are to be staggered by a minimum of 12 in. on opposite sides of assembly, they are to be secured on each side of the studs with 1-1/4 in. long Type S-12 bugle head steel screws spaced 8 in. OC to the top and bottom tracks and in the field with screws 1 in. and 4 in. from the horizontal joints. When the gypsum board panels are installed vertically all vertical joints must be centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC to the top and bottom tracks and in the field with screws 1 in and 4 in. from the perimeter. For the 2 hour double layer system - when the gypsum board panels are installed horizontally the joints need not be staggered on opposite sides of assembly. Base layer secured on each side of the studs with 1-1/4 in. long Type S-12 bugle head steel screws spaced 16 in. OC to the top and bottom track and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer horizontal joints staggered 8 in from base layer joints and secured with 1-5/8 in. long Type S-12 bugle head steel screws spaced 16 in. OC to the top and bottom tracks and in the field with screws beginning 1 in. and 8 in. from the horizontal joints. Face layer screws offset 8 in. from base layer screws. When the gypsum board panels are installed vertically all vertical joints must be centered over studs and staggered min 1 stud cavity on opposite sides of studs. Face layer gypsum boards secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 16 in. OC with screws 2 in. and 16 in. from the perimeter. Base layer gypsum boards secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 16 in. OC with screws 1-1/2 in and 8 in. from the perimeter. Face layer screws offset 8 in. from base layer screws.

UNITED STATES GYPSUM CO — 5/8 in. thick Type USGX (Joint tape and compound, Item 9, optional with Type USGX)

5C. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or #6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5D. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4) - Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1A, 2A 8, 8A(a). Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 12A) or Lead Discs (see Item 13A).

MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

5E. **Gypsum Board* —** (As an alternate to Item 5 when used as the base layer on one or both sides of wall, For direct attachment only, not to be used with Item 4). Nom 5/8 in. may be used as alternate to all 5/8. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 1A, 2A 8, 8A(a). Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5F. **Gypsum Board* —** Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. When used in widths other than 48 in., gypsum panels to be installed horizontally. Insulation (Item 7D) required when using Type ULIX. The thickness and number of layers and percent of design load are as follows:

Wallboard Protection on Each Side of Wall

Rating	No. of Layers & Thkns of Panel	% of Design Load
1 hr	1 layer, 5/8 in. thick	100

UNITED STATES GYPSUM CO — 5/8 in. thick Type ULIX

6. **Fasteners —** (Not shown) — For use with Item 5 - Type S-12 steel screws used to attach panels to runners (Item 1 or 1A) and studs (Item 2 or 2A) or furring channels (Item 8). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 12 in. OC when panels are applied vertically. **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in. and 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. **Three-layer systems:** First layer- 1 in. long for 1/2 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. **Batts and Blankets* —** (Required as indicated under Item 5) — Nom 2 in. thick mineral wool batts, friction fitted between studs and runners. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

7A. **Batts and Blankets* —** (Optional, not shown) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

7B. **Batts and Blankets* —** (Optional, not shown) — Placed in stud cavities, glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

OWENS CORNING — Type QuietZone Acoustic Batts

7C. **Fiber, Sprayed* —** (optional) As an alternate to Batts and Blankets (Item 7) - Not for use with Items 8A or 8B) — Spray applied mineral wool insulation. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).

TEXAS AMERROCK PARTNERS L P, DBA AMERROCK PRODUCTS — Type Rockwool

7D. **Batts and Blankets* —** Placed in stud cavities, any 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

8. **Furring Channels —** (Optional on one or both sides, not shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 panhead steel screws. Not for use with type FRX-G gypsum panels and Item 5A or 5C.

8A. **Steel Framing Members (Not Shown)* —** (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with type FRX-G gypsum panels and Item 5A or 5C.

b. **Steel Framing Members* —** Used to attach furring channels (Item 8a) to studs (Item 2). Clips spaced max. 48 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

PAC INTERNATIONAL INC — Types RSIC-1, RSIC-1 (2.75).

8B. **Steel Framing Members —** (Not Shown)* — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 8, furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with type FRX-G gypsum panels and Item 5A or 5C.

b. **Steel Framing Members* —** Used to attach furring channels to studs (Item 2). Clips spaced max. 48 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

PLITEQ INC — Type GENIECLIP

9. **Joint Tape and Compound —** Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layers. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

10. **Siding, Brick or Stucco —** (Optional, not shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

11. **Caulking and Sealants* —** (Optional, not shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.

UNITED STATES GYPSUM CO — Type AS

12. **Lead Batten Strips —** (Not Shown, For Use With Item 5A) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5A) and optional at remaining stud locations. Required behind vertical joints.

12A. **Lead Batten Strips —** (Not Shown, for use with Item 5D) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 6) and optional at remaining stud locations.

13. **Lead Discs or Tabs —** (Not Shown, For Use With Item 5A) - Used in lieu of or in addition to the lead batten strips (Item 12) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

13A. **Lead Discs —** (Not Shown, for use with Item 5D) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

14. **Lead Batten Strips —** (Not Shown, For Use With Item 5C) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5C) and optional at remaining stud locations.

15. **Lead Tabs —** (Not Shown, For Use With Item 5C) 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5C) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

16. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — For use with Item 1, Item 2 to 2C, Item 3, Item 5,Item 6, Item 7A, Item 8 and Item 9. For a maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 5), install RefleXor membrane with the gold side facing outwards. Membrane installed with T50 staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When RefleXor membrane is used an additional layer of Gypsum Board identical to the one used in the first layer and as specified in Item 5 shall be installed over the membrane. Additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 5 except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 7A. On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels as per Item 8. Over the Resilient Channels install ¾ inch thick SONOpan panel secured to the Resilient Channels with drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 5 with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

MSL — RefleXor membrane, SONOpan panel.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2015-04-08

Partition Details

SYMMETRY DEVELOPMENT

Services Prepared By:

SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
832.795.1553
symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2
27316 Spectrum Way
Oak Ridge, TX 77385

Project For:
MOCI

Revisions

Rev:	Date:	Description:

Sheet: D 24x36

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Edition:
Permit 4/13/15

Project #
3031

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

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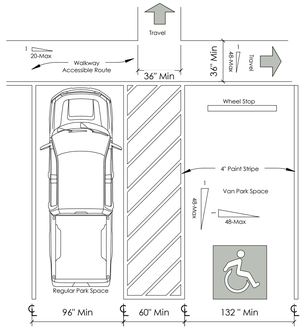
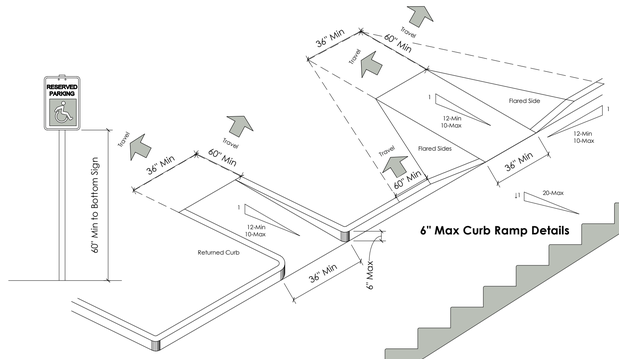
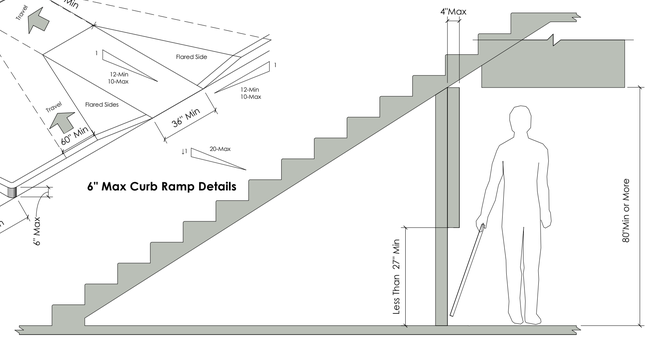
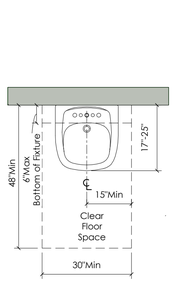


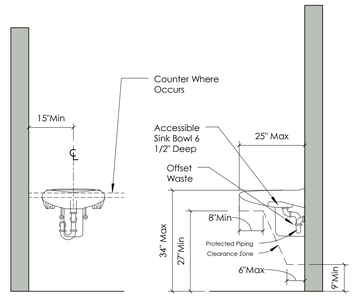
Dimensions Of Parking Spaces



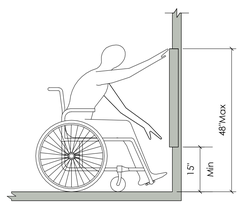
6" Max Curb Ramp Details



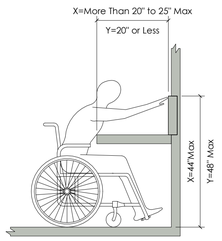




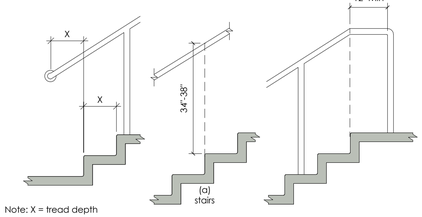
Lavatory or Sink



Obstructed High Forward Reach



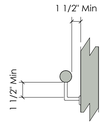
Unobstructed Side Reach



Note: X = tread depth

Bottom Handrail Extension at Stairs

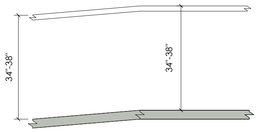
Top Handrail Extension at Stairs



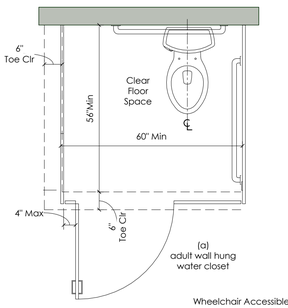
Horizontal Projections Below Gripping Surface

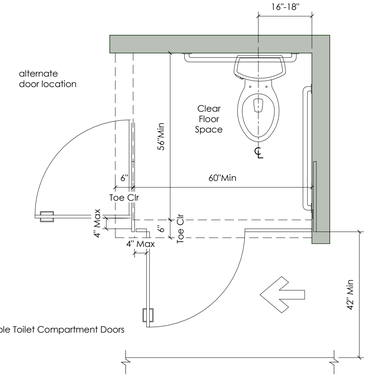
Handrail Clearance

Elevation

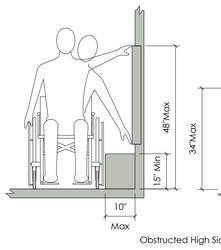


Handrail Height
at Walks and Ramps

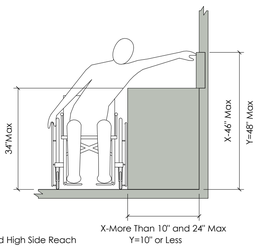


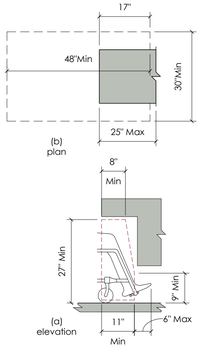


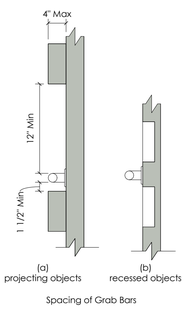
Wheelchair Accessible Toilet Compartment Doors



Obstructed High Side Reach

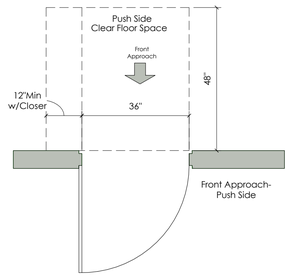


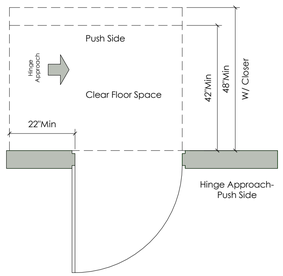


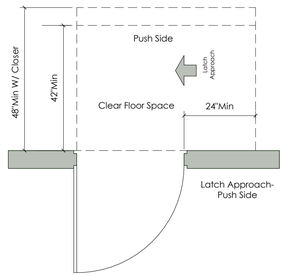


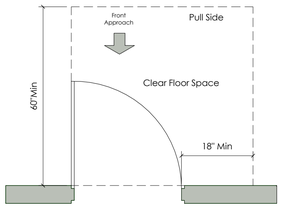
Spacing of Grab Bars

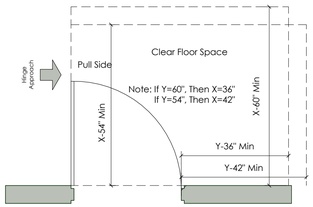
Figure 306.3 Knee and Toe Clearance

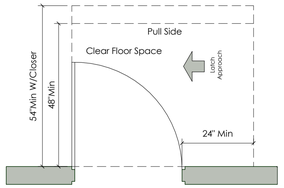




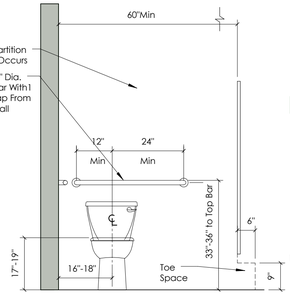


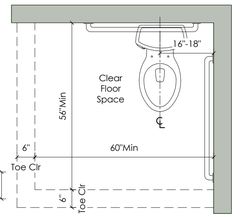


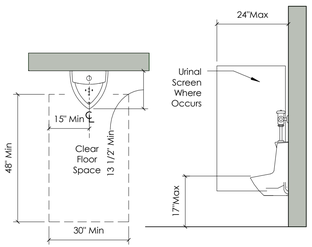




Maneuvering Clearances At Doors

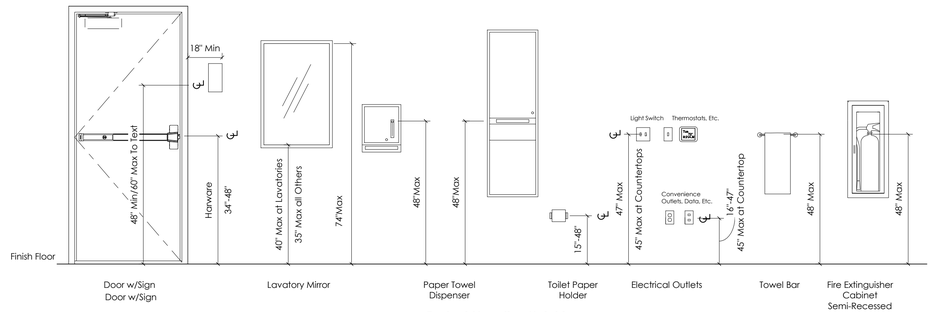






Water Closet

Urinal



Typical Mounting Heights

ADA Notes

SYMMETRY DEVELOPMENT

Services Prepared By:

SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
832.795.1553
symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2

27316 Spectrum Way
Oak Ridge, TX 77385

Project For:
MOCI

Revisions

Rev:	Date:	Description:

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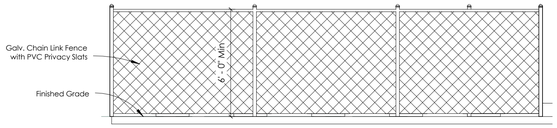
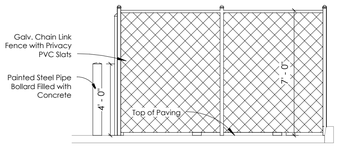
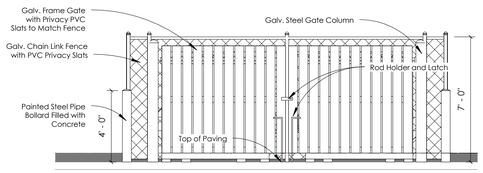


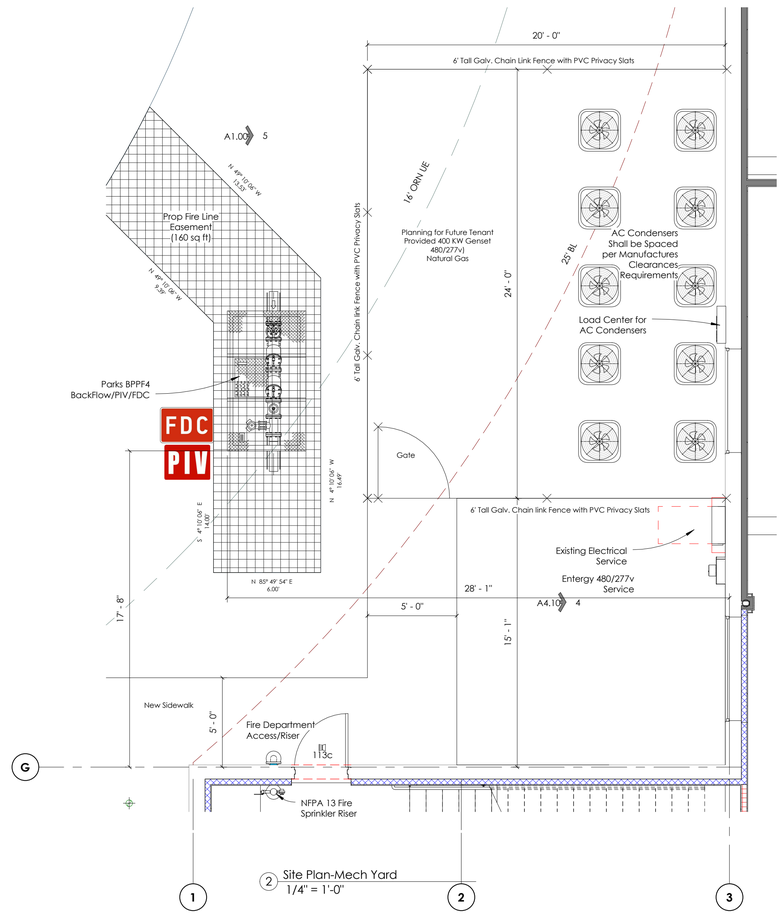
5 Typical Fence Elevation
1/4" = 1'-0"



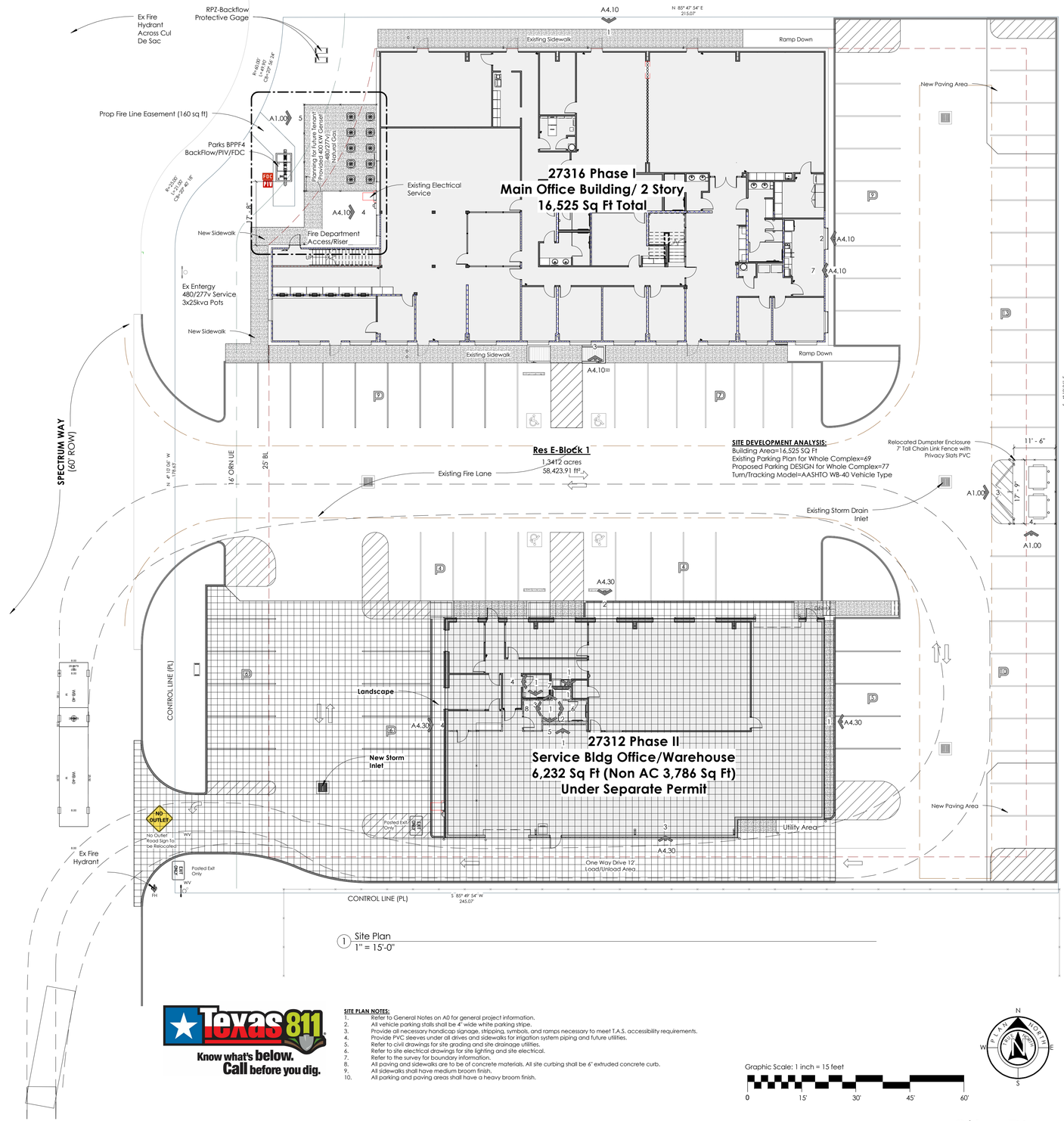
4 Site Dumpster Enclosure Elevation 1
1/4" = 1'-0"



3 Site Dumpster Enclosure Elevation 2
1/4" = 1'-0"



2 Site Plan-Mech Yard
1/4" = 1'-0"



1 Site Plan
1" = 15'-0"

Texas 811
Know what's below. Call before you dig.

SITE PLAN NOTES:
1. Refer to General Notes on A0 for general project information.
2. All vehicle parking stalls shall be 4" wide white parking stripe.
3. Provide all necessary handicap signage, stripping, symbols, and ramps necessary to meet T.A.S. accessibility requirements.
4. Provide PVC sleeves under all drives and sidewalks for irrigation system piping and future utilities.
5. Refer to civil drawings for site grading and site drainage utilities.
6. Refer to site electrical drawings for site lighting and site electrical.
7. Refer to the survey for boundary information.
8. All paving and sidewalks are to be of concrete materials. All site curbing shall be 6" extruded concrete curb.
9. All sidewalks shall have medium broom finish.
10. All parking and paving areas shall have a heavy broom finish.

Graphic Scale: 1 inch = 15 feet
0 15' 30' 45' 60'

N
W PLAN NORTH E
S

Site Plan

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
832.795.1553
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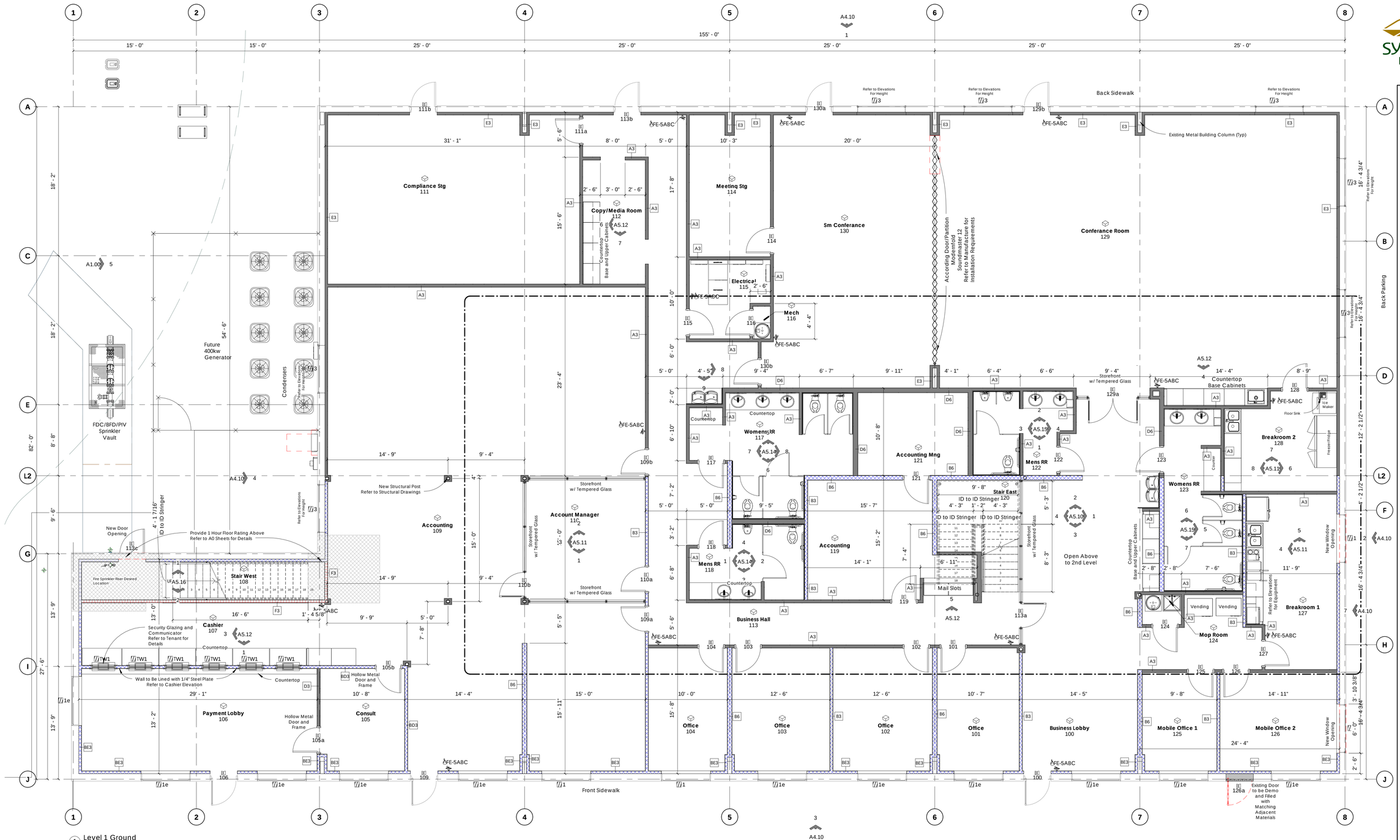

1 Level 1 Ground
3/16" = 1'-0"

FLOOR PLAN NOTES:

1. Refer to General Notes on A0 for general project information.
2. Verify with owner for all equipment and furniture requirements.
3. All construction systems shall allow and be installed to meet current TAS regulations.
4. The contractor shall review existing and construction conditions and verify that each system or element may be installed properly before ordering material.
5. The work is to be installed plumb, level, square, true and in proper alignment.
6. All dimensions are given from same face of framing member to same face of framing member unless otherwise noted on the drawings.
7. Contractor should confirm all rough-in sizes for doors/windows items/etc. prior to installation. Please verify with schedule and manufacturer specifications.
8. All gypsum wallboard shall be 5/8" thick type "X" fire rated.
9. Provide water resistant gypsum wallboard within a minimum 4 feet horizontally and vertically at all plumbing fixture areas.
10. Suspended ceiling systems shall be connected to existing structural framing or additional supports above. Do not attach to underside of metal deck or any other system.
11. Contractor to complete moisture testing as required by specified flooring material manufacturer specifications prior to installation. Test is to be performed as required before flooring is schedule to be installed and must meet the recommended and acceptable limits before installation.
12. All interior finishes shall comply with all agencies having jurisdiction.
13. Provide blocking in all walls for wall mounted fixtures as required for heights and weights.
14. Coordinate with truss manufacture for all bearing wall locations for truss system and components.
15. All exterior windows, vents, doors frames, and penetrations shall be caulked as required and or approved by the manufacture.

All Glass and Glazing Shall be Tempered where required by Code.

Floor Plan

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
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symmetrydevelopment.com

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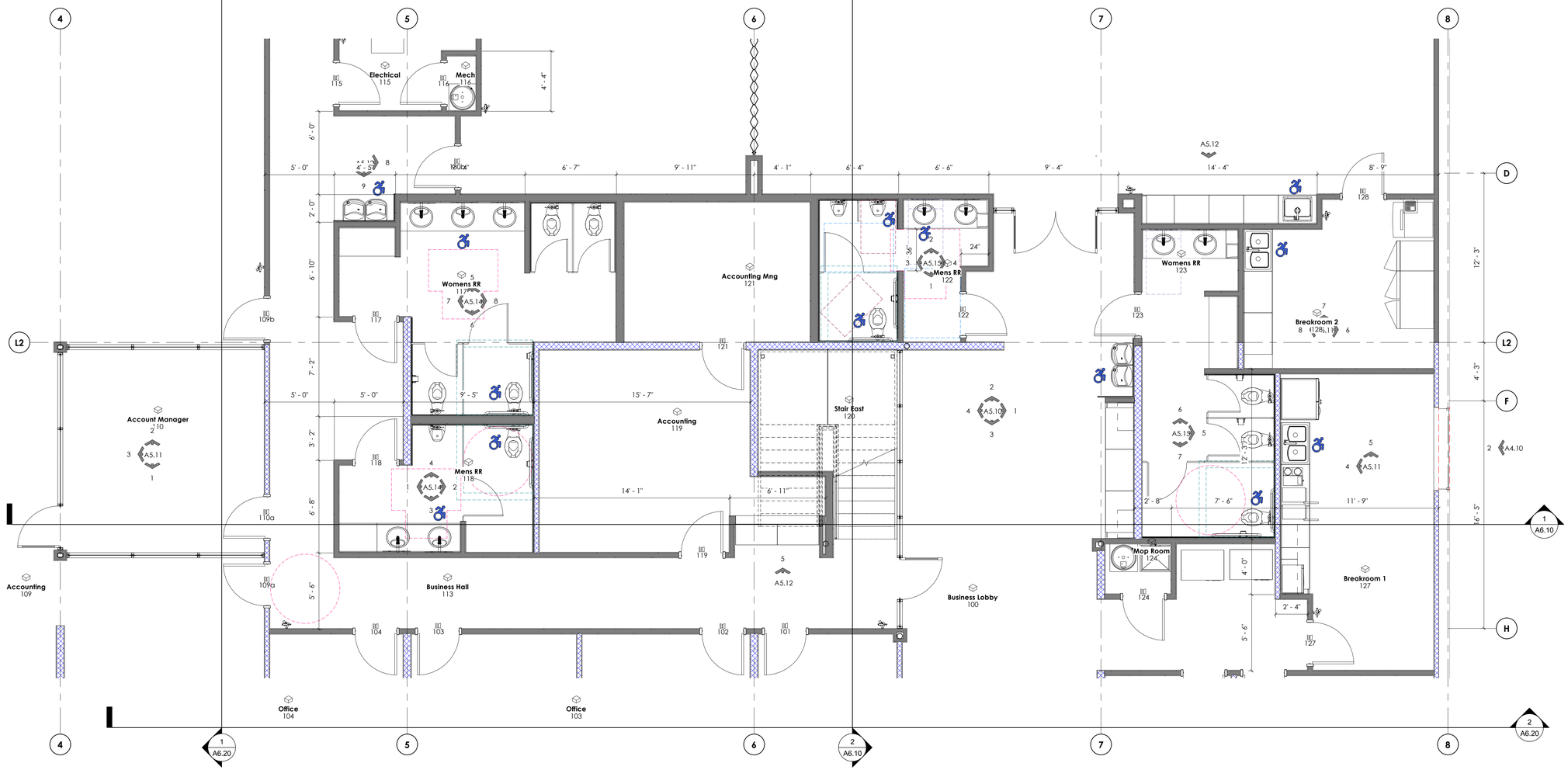

1 Enlarged Level 1 Core
1/4" = 1'-0"

FLOOR PLAN NOTES:

1. Refer to General Notes on A0 for general project information.
2. Verify with owner for all equipment and furniture requirements.
3. All construction systems shall allow and be installed to meet current TAS regulations.
4. The contractor shall review existing and construction conditions and verify that each system or element may be installed properly before ordering material.
5. The work is to be installed plumb, level, square, true and in proper alignment.
6. All dimensions are given from same face of framing member to same face of framing member unless otherwise noted on the drawings.
7. Contractor should confirm all rough-in sizes for doors/windows items/etc. prior to installation. Please verify with schedule and manufacturer specifications.
8. All gypsum wallboard shall be 5/8" thick type "X" fire rated.
9. Provide water resistant gypsum wallboard within a minimum 4 feet horizontally and vertically at all plumbing fixture areas.
10. Suspended ceiling systems shall be connected to existing structural framing or additional supports above. Do not attach to underside of metal deck or any other system.
11. Contractor to complete moisture testing as required by specified flooring material manufacturer specifications prior to installation. Test is to be performed as required before flooring is schedule to be installed and must meet the recommended and acceptable limits before installation.
12. All interior finishes shall comply with all agencies having jurisdiction.
13. Provide blocking in all walls for wall mounted fixtures as required for heights and weights.
14. Coordinate with truss manufacture for all bearing wall locations for truss system and components.
15. All exterior windows, vents, doors frames, and penetrations shall be caulked as required and or approved by the manufacture.

All Glass and Glazing Shall be Tempered where required by Code.

Enlarge Plans

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
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symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2

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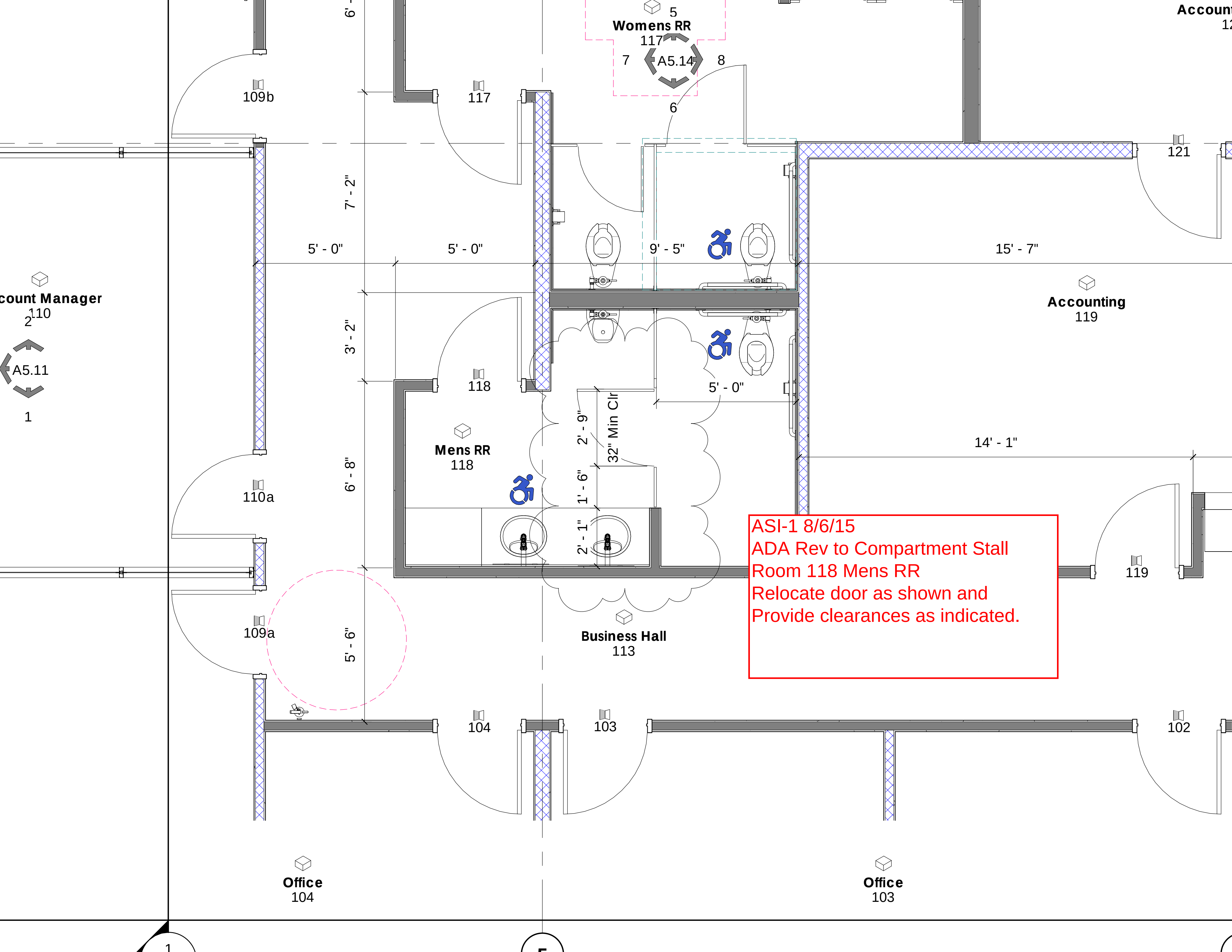
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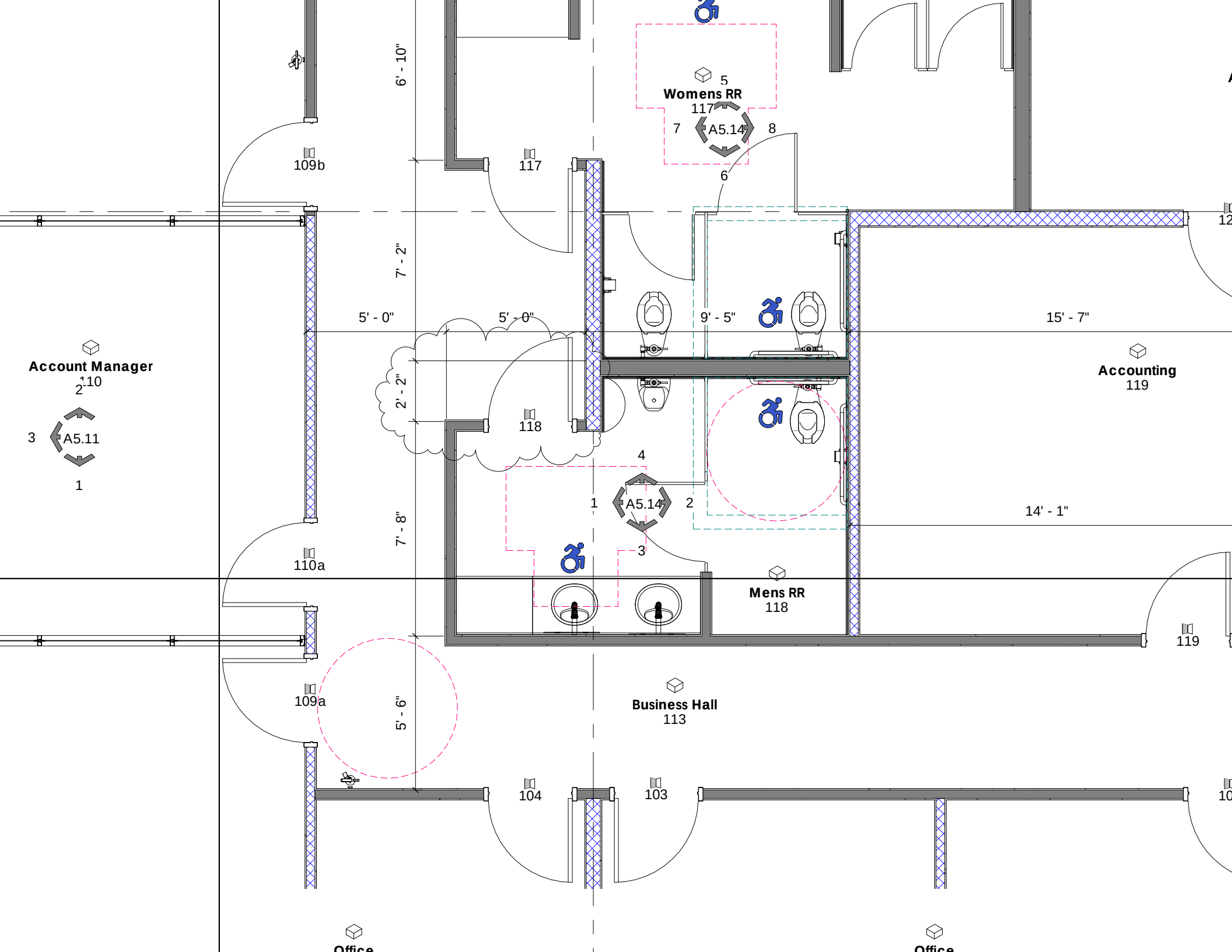
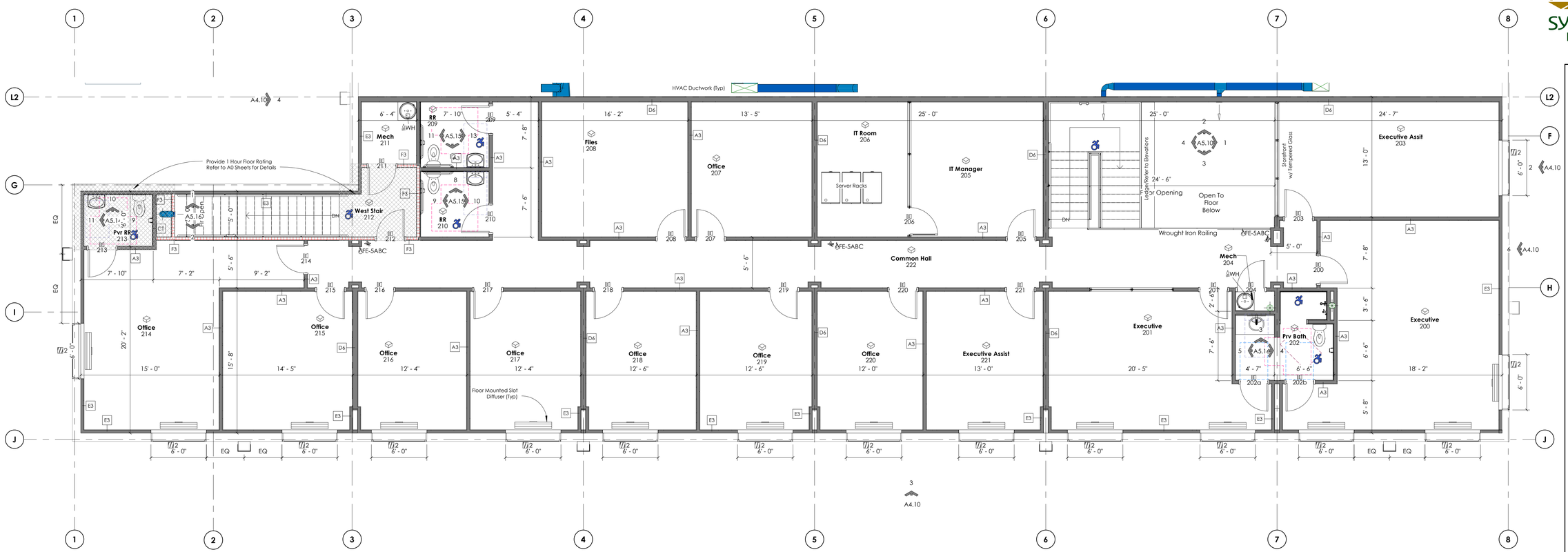
5
7
8
6
109b
117
7' - 2"
5' - 0"
5' - 0"
9' - 5"
15' - 7"
Account Manager
110
2
A5.11
1
Accounting
119
121
3' - 2"
118
5' - 0"
Mens RR
118
2' - 9"
32" Min Clr
1' - 6"
2' - 1"
6' - 8"
14' - 1"
110a
ASI-1 8/6/15
ADA Rev to Compartment Stall
Room 118 Mens RR
Relocate door as shown and
Provide clearances as indicated.
119
109a
5' - 6"
Business Hall
113
104
103
102
Office
104
Office
103


6' - 10"
Womens RR
117
5
7
A5.14
8
6
109b
117
7' - 2"
5' - 0"
5' - 0"
9' - 5"
15' - 7"
Account Manager
110
2
3
A5.11
1
2' - 2"
118
Accounting
119
4
1
A5.14
2
7' - 8"
14' - 1"
3
110a
Mens RR
118
119
109a
5' - 6"
Business Hall
113
104
103



1 Level 2
3/16" = 1'-0"

FLOOR PLAN NOTES:

1. Refer to General Notes on A0 for general project information.
2. Verify with owner for all equipment and furniture requirements.
3. All construction systems shall allow and be installed to meet current TAS regulations.
4. The contractor shall review existing and construction conditions and verify that each system or element may be installed properly before ordering material.
5. The work is to be installed plumb, level, square, true and in proper alignment.
6. All dimensions are given from same face of framing member to same face of framing member unless otherwise noted on the drawings.
7. Contractor should confirm all rough-in sizes for doors/windows items/etc. prior to installation. Please verify with schedule and manufacturer specifications.
8. All gypsum wallboard shall be 5/8" thick type "X" fire rated.
9. Provide water resistant gypsum wallboard within a minimum 4 feet horizontally and vertically at all plumbing fixture areas.
10. Suspended ceiling systems shall be connected to existing structural framing or additional supports above. Do not attach to underside of metal deck or any other system.
11. Contractor to complete moisture testing as required by specified flooring material manufacturer specifications prior to installation. Test is to be performed as required before flooring is schedule to be installed and must meet the recommended and acceptable limits before installation.
12. All interior finishes shall comply with all agencies having jurisdiction.
13. Provide blocking in all walls for wall mounted fixtures as required for heights and weights.
14. Coordinate with truss manufacture for all bearing wall locations for truss system and components.
15. All exterior windows, vents, doors frames, and penetrations shall be caulked as required and or approved by the manufacture.

All Glass and Glazing Shall be Tempered where required by Code.

Level 2

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Spring, Texas 77386
832.795.1553
symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2

27316 Spectrum Way
Oak Ridge, TX 77385

Project For:
MOCI

Revisions

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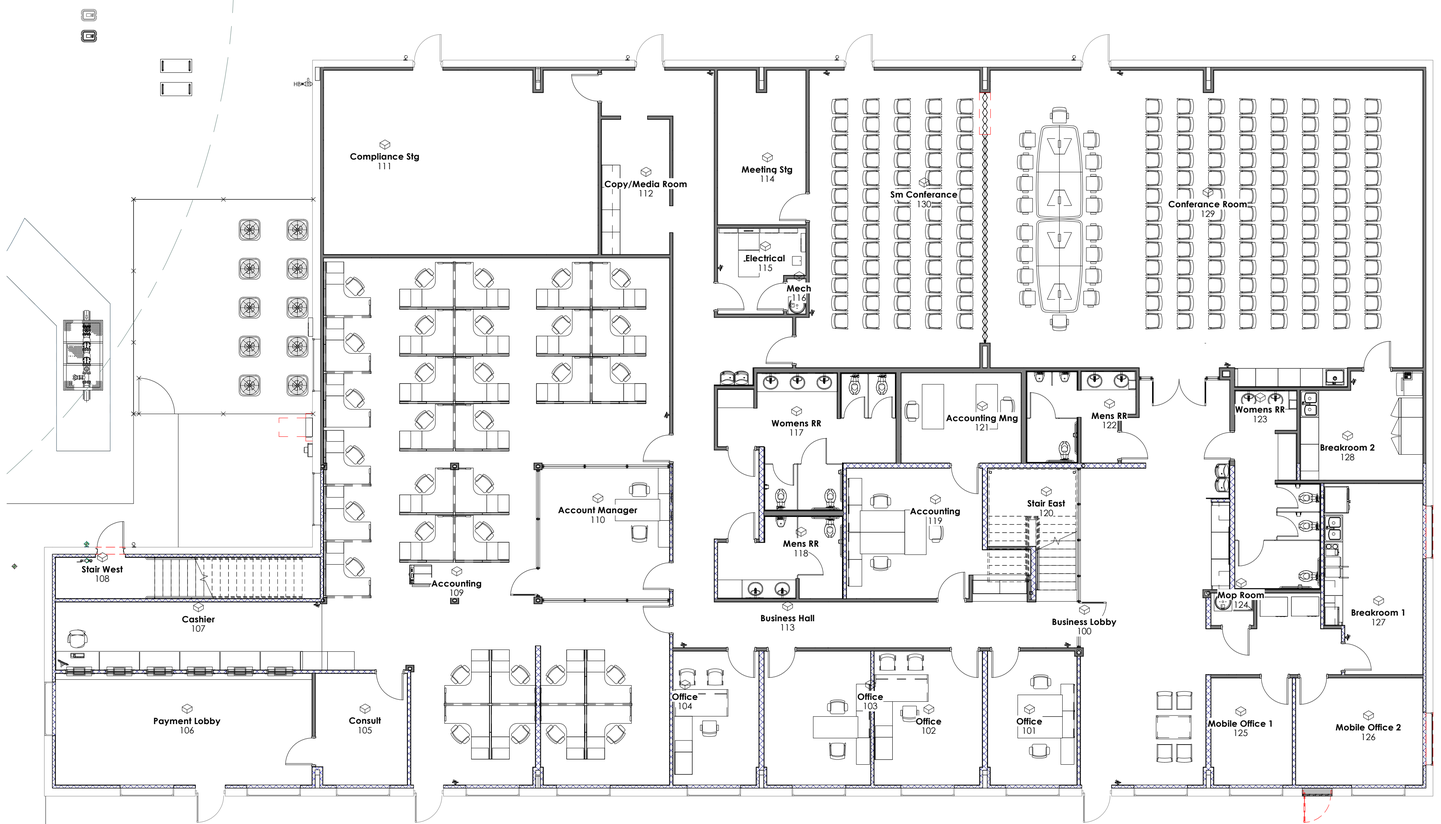
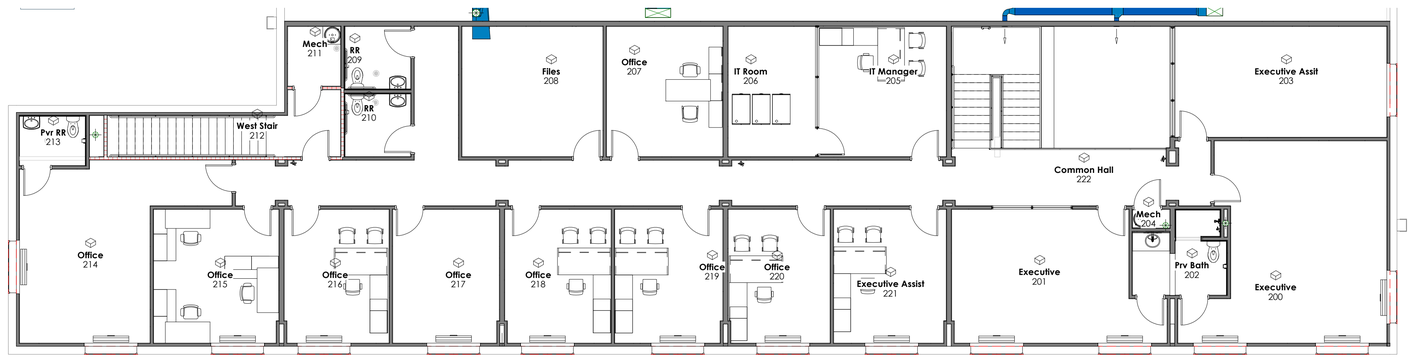
Scale:
3/16" = 1'-0"

A2.20



1 Furniture Level 1 Ground
1/8" = 1'-0"



2 Furniture Level 2
1/8" = 1'-0"

Furniture Plan Level 1 & 2

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3031
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1/8" = 1'-0"

A2.41

1 Level 1 Ground
3/16" = 1'-0"

CEILING NOTES:

1. Refer to General Notes on A0 for general project information.
2. 12 gauge (minimum) hanger wires may be used for up to and including 4 feet x 4 Feet grid spacing and shall be attached to main runners.
3. Provide 12 gauge hanger wires at the ends of all main and cross Runners within 8 inches of the support or within one-fourth (1/4) of the length of the end tee, whichever is least, for the Perimeter of the ceiling area. End connections for runners which are designed and detailed the resist the applied vertical and horizontal forces may be used on lieu of the 12 gauge hanger wires.
4. Provide trapeze and other supplementary support members at Obstructions to typical hanger spacing. Provide additional Hangers, struts, and braces as required at all ceiling breaks, Soffits, and discontinuous areas.
5. Fasten hanger wires with no less than three (3) tight turns. Fasten bracing wires with four (4) tight turns. Make all tight turns within a distance of 1 ½ inches. Hanger and bracing wire anchors to the structure. Install in such a manner that the direction of the wire aligns as closely as possible with the direction of the forces acting on the wire.
6. Separate all ceiling hanging and bracing wires at least 6 inches such as single electrical conduit not exceeding ¾ inch nominal diameter, may be attached to hanger wires using connectors acceptable to the architect.
7. Attach all light fixtures and ceiling mounted air terminals and Force equal to the weight of the fixtures. Screws or approved Fasteners are required.
8. Support flush light fixtures, recessed light fixtures, air terminals and services, weighing less than 56 pounds directly on runners of a heavy duty grid system. Provide a minimum of two 12 gage slack safety wires attached to fixture at diagonal corners and anchored to structure above. All 2 feet x 4 feet light fixtures shall have slack safety wires at each corner.
9. All flush light fixtures, recessed light fixtures and air terminals and services weighing 56 pounds or more shall be independently supported by not less than four (4) taut 12 gage wires each attached to the fixture and to the structure. The Four (4) taut 12 gage wires including their attachment to the structure above must be capable of supporting four (4) times the weight of the unit.
10. Support surface mounted light fixtures by at least two positive devices which surround the ceiling runner and which are each supported from the structure above by a 12gage wire. Spring clips or clamps that connect only to the runner are not 8 feet or longer.
11. Support pendant mounted light fixtures directly from the structure above with hanger wires or cables passing through each pendant hanger and capable of supporting four (4) times the weight of the fixture. A bracing assembly is required where the pendant hanger penetrates the ceiling. Special details are required to attach the pendant hanger to the bracing assembly to transmit horizontal forces.
12. Where conflict in ceiling devices occurs, coordinate with contracting officer's representative.

Use Caddy clip AF or VF series as required at bar joist/ metal building purlins.

N
PLANS NORTH
W
E
S

Reflective Ceiling Plan level 1 Ground

SYMMETRY DEVELOPMENT

Services Prepared By:
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28510 Carley Cove Lane
Spring, Texas 77386
832.795.1553
symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2

27316 Spectrum Way
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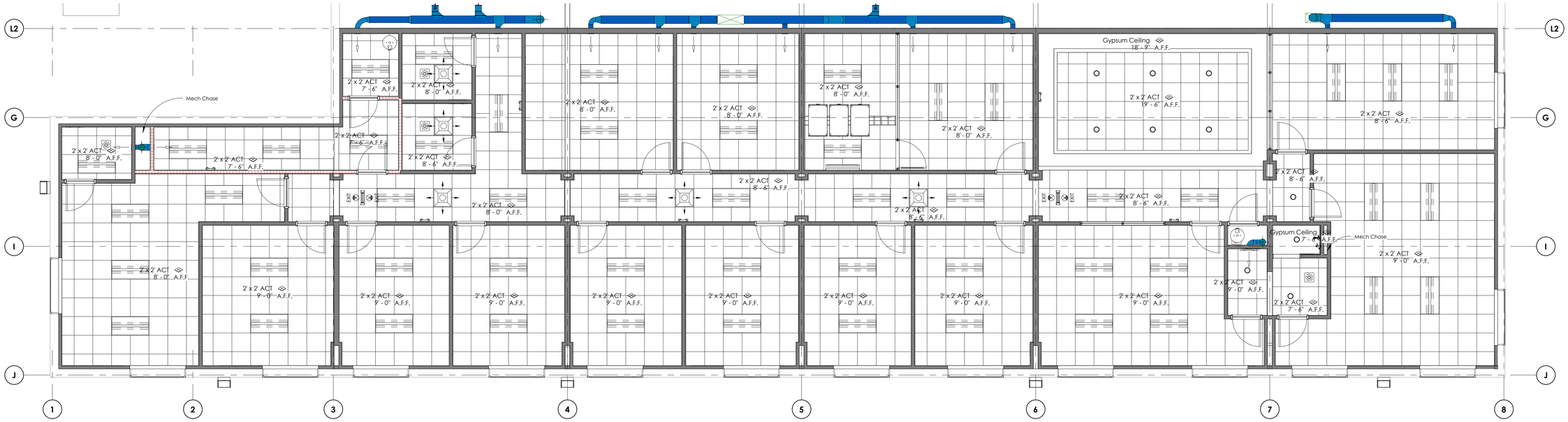
A3.10



1 Level 2
3/16" = 1'-0"

CEILING NOTES:

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12. Where conflict in ceiling devices occurs, coordinate with contracting officer's representative.

Use Caddy clip AF or VF series as required at bar joist/ metal building purlins.

Reflective Ceiling Plan level 2

SYMMETRY DEVELOPMENT

Services Prepared By:
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Spring, Texas 77386
832.795.1553
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27316 Spectrum Way
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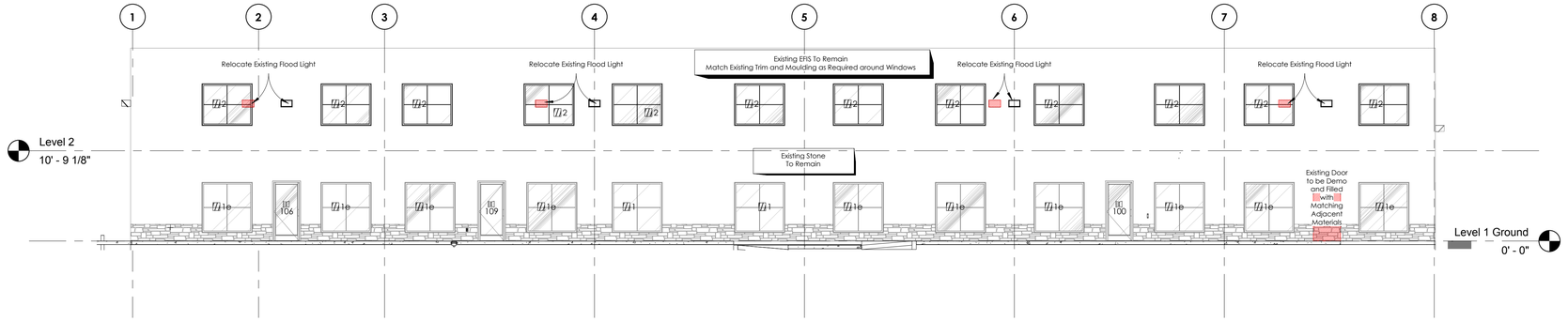
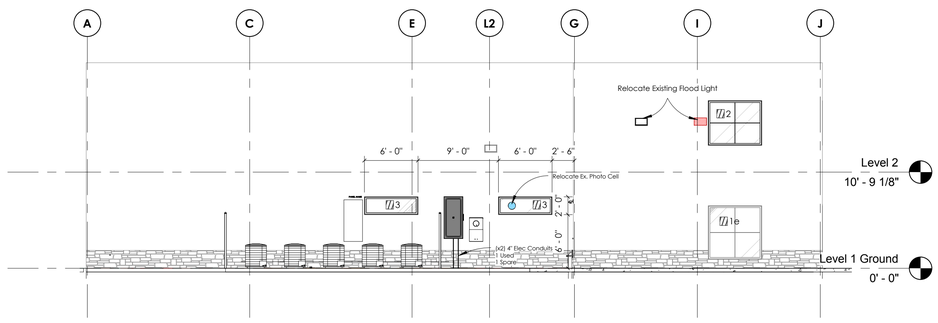
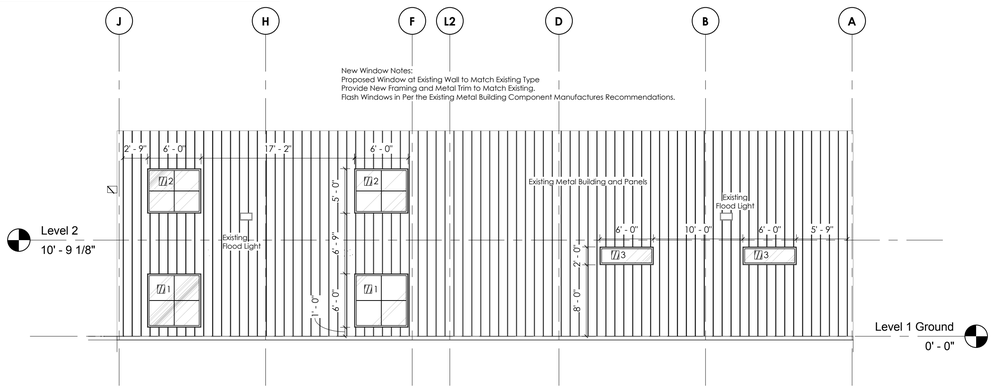
A3.20



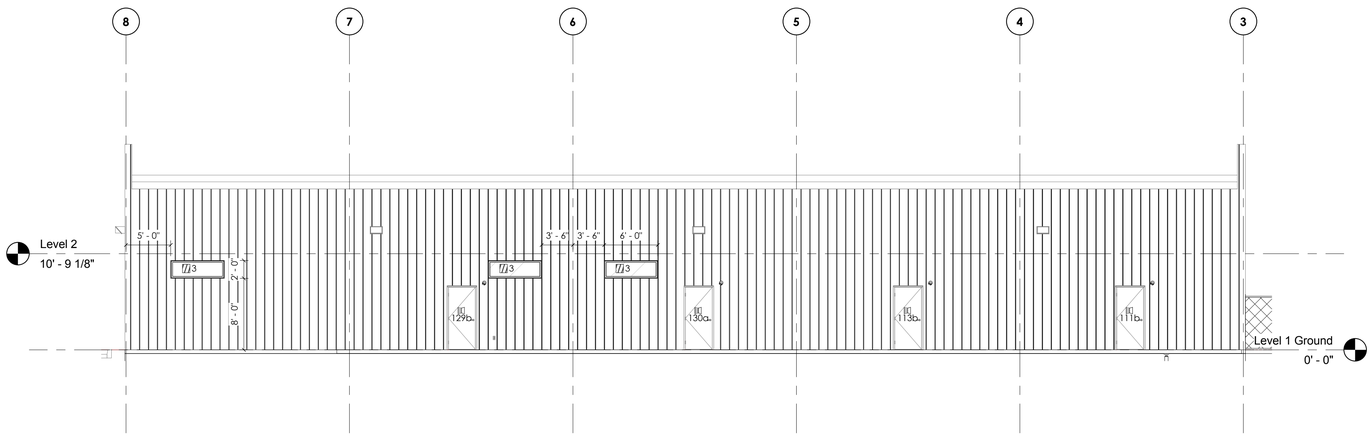
3 South
1/8" = 1'-0"



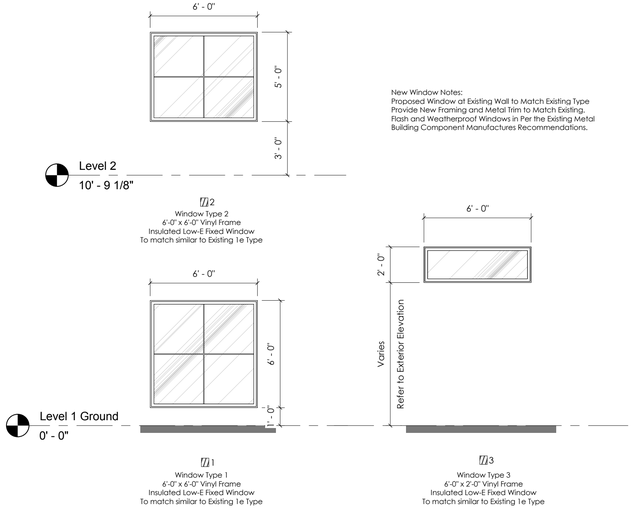


4 West
1/8" = 1'-0"

2 East
1/8" = 1'-0"



1 North
1/8" = 1'-0"



New Window Notes:
Proposed Window at Existing Wall to Match Existing Type
Provide New Framing and Metal Trim to Match Existing.
Flash and Weatherproof Windows in Per the Existing Metal
Building Component Manufactures Recommendations.

Window Type Details

Elevations

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MOC (Oak Ridge) Phase 1 of 2

27316 Spectrum Way
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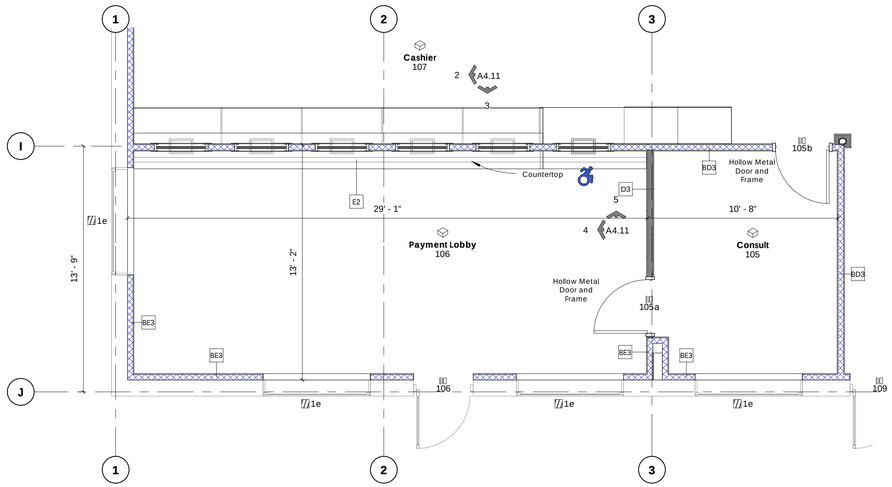
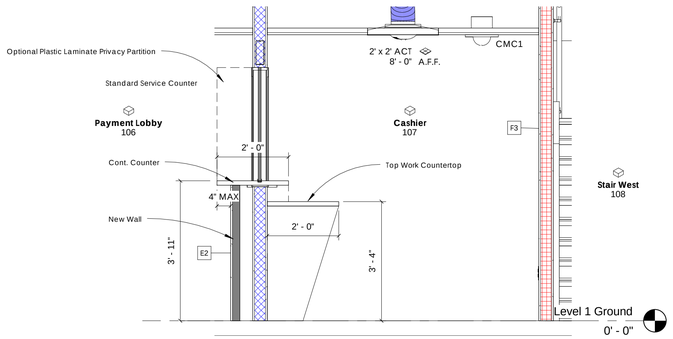
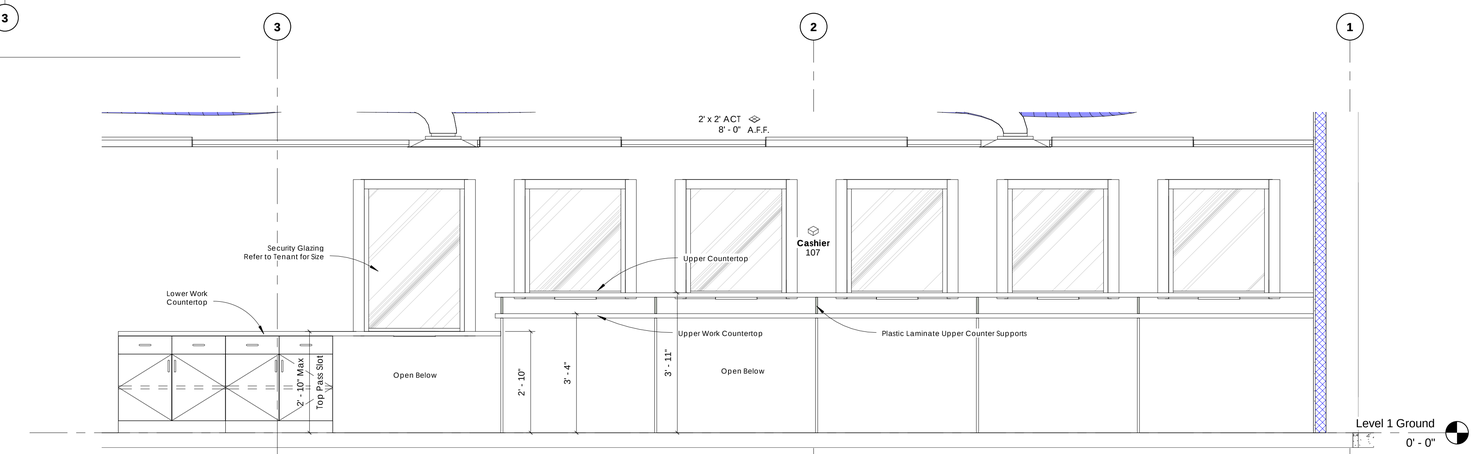


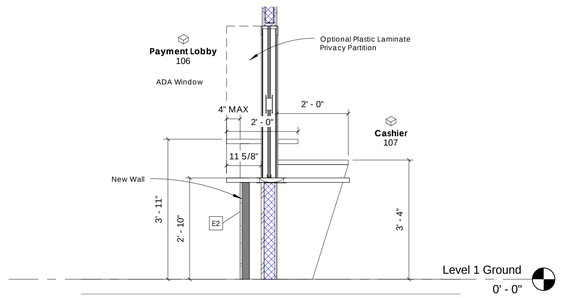
1 Payment Lobby
1/4" = 1'-0"



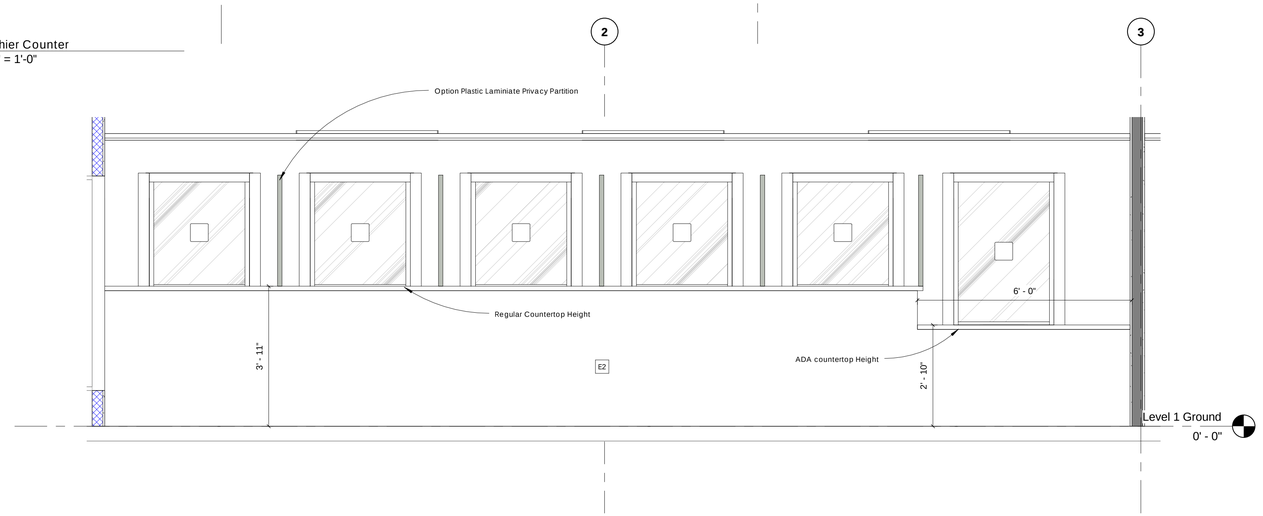
2 Cashier Counter Side
1/2" = 1'-0"



3 Cashier Counter
1/2" = 1'-0"



4 Elevation 1 - a
1/2" = 1'-0"



5 Elevation 1 - b
1/2" = 1'-0"

Payment Lobby

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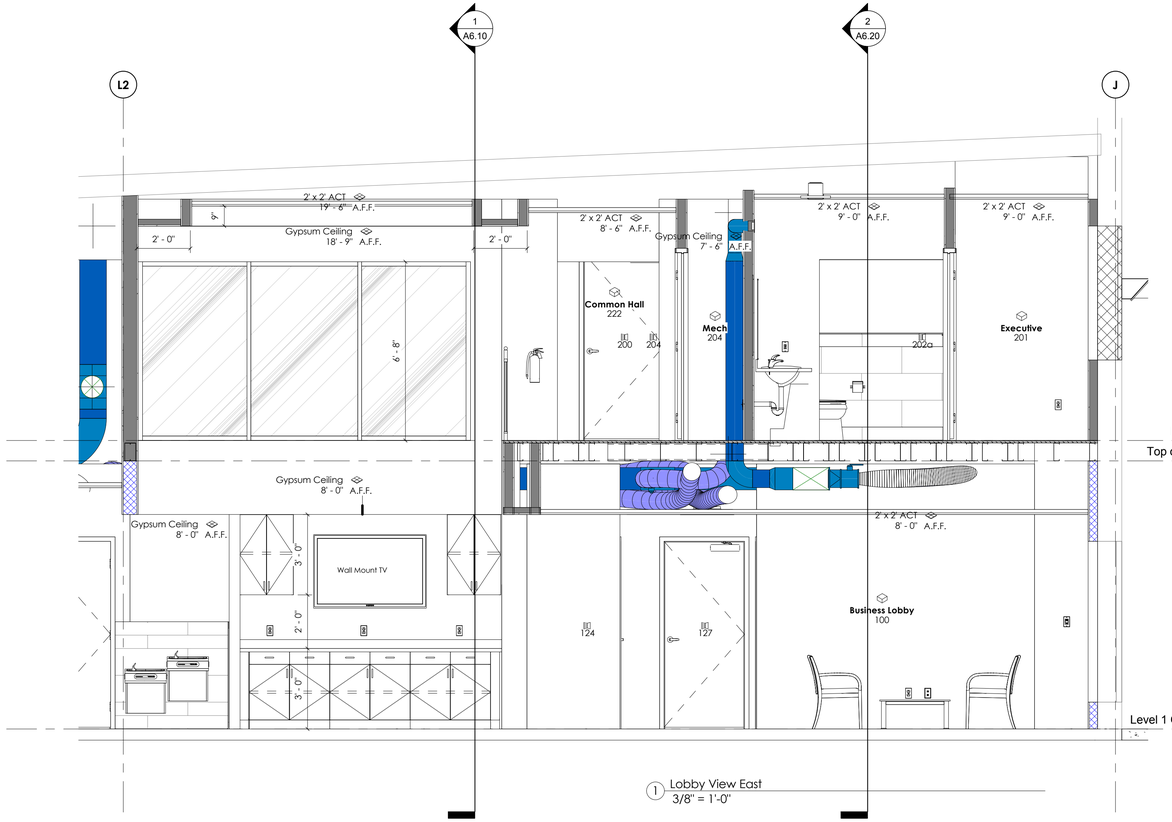

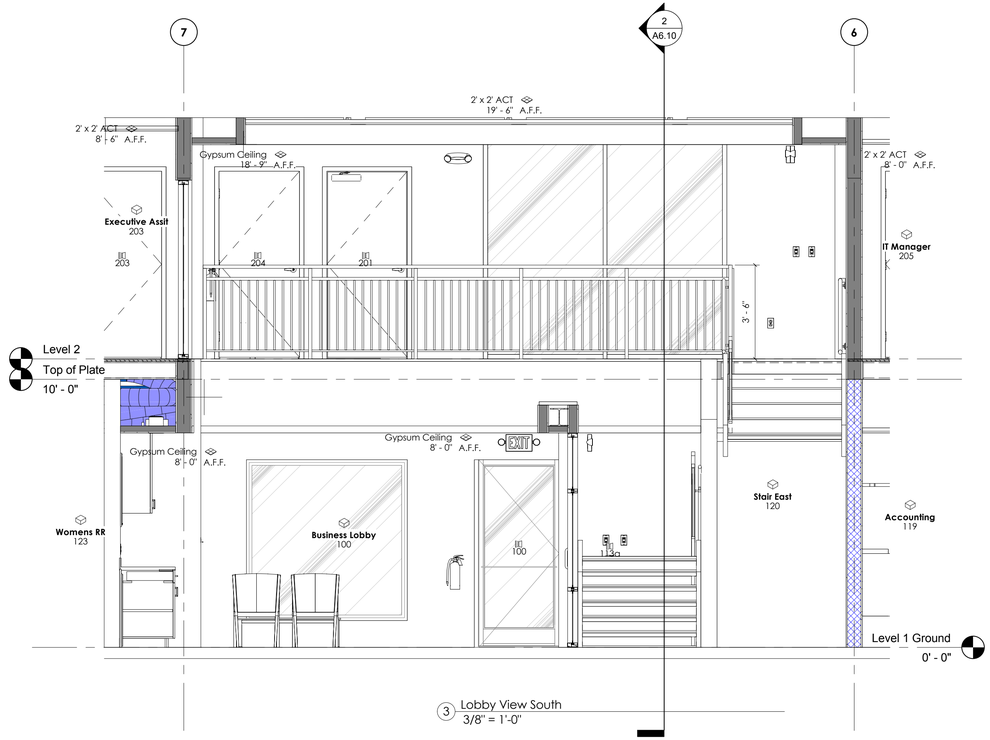

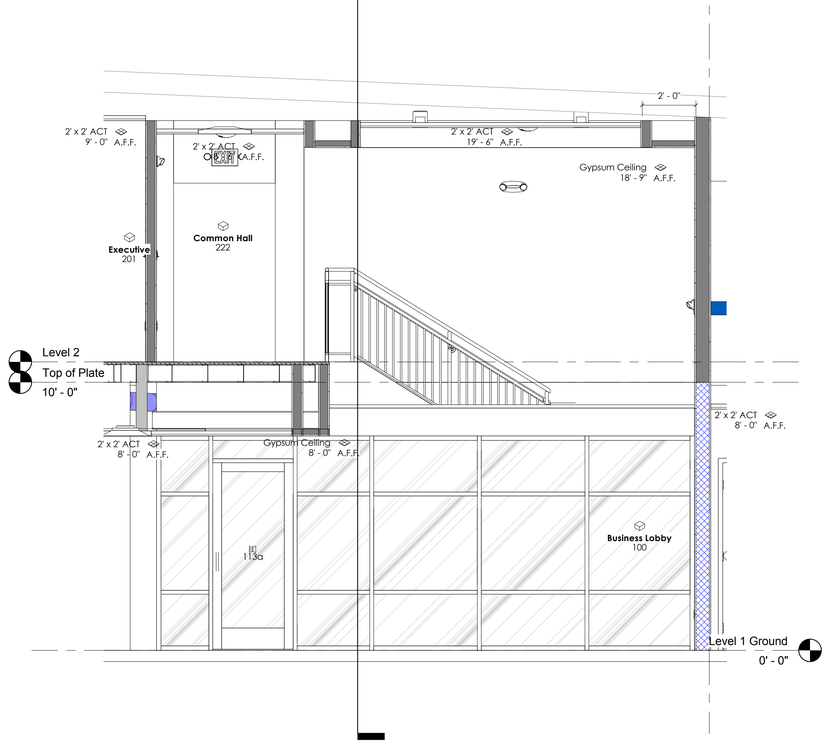

Interior Elevations

SYMMETRY DEVELOPMENT

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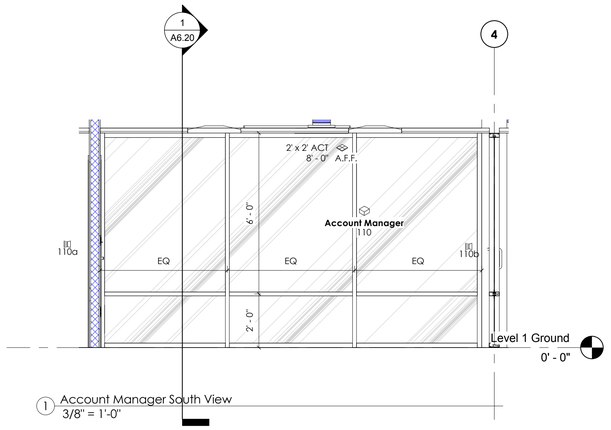
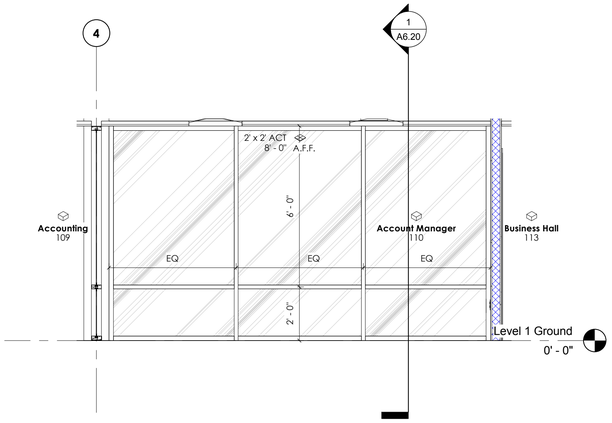
3/8" = 1'-0"

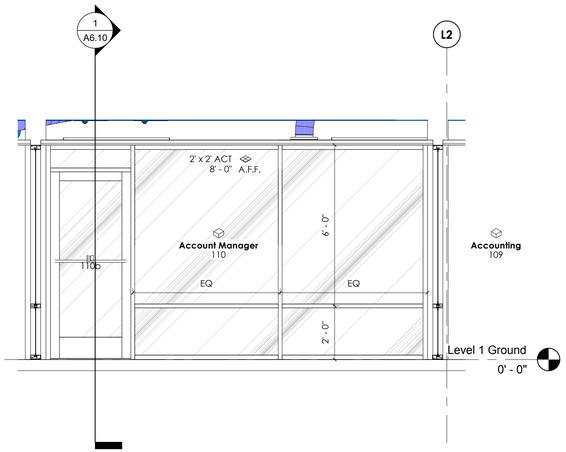
A5.10



1 Account Manager South View
3/8" = 1'-0"



2 Account Manager View North
3/8" = 1'-0"



3 Accounting Manager
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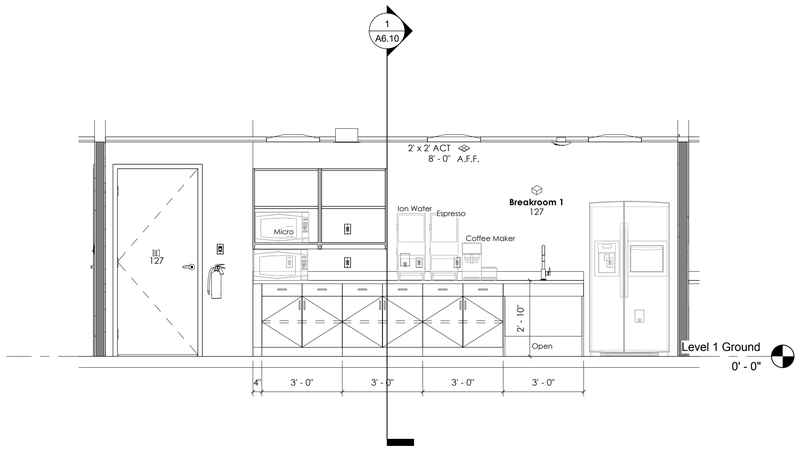
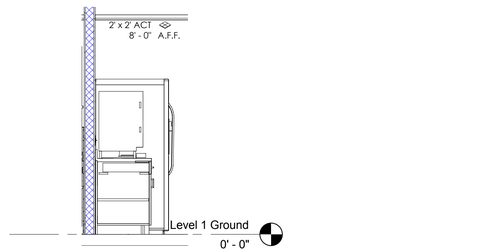
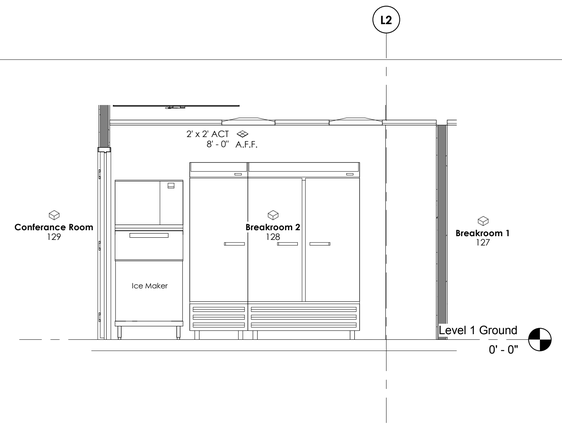


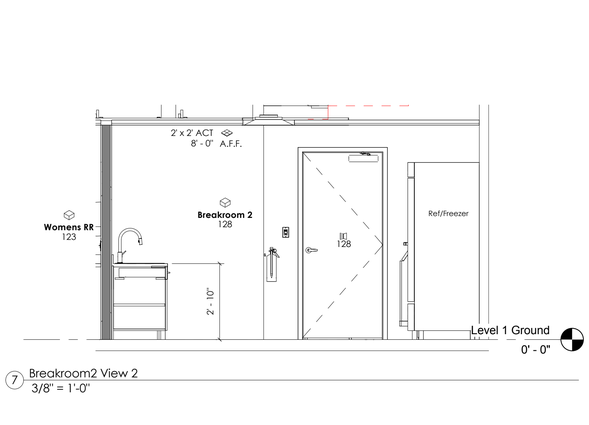
4 Breakroom1 Front View
3/8" = 1'-0"



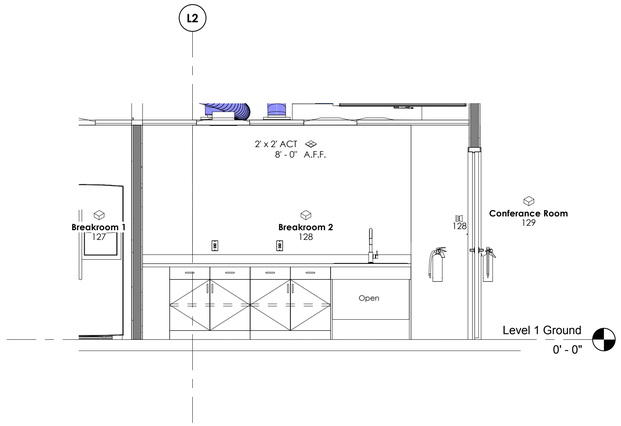
5 Breakroom1 Side View
3/8" = 1'-0"



6 Breakroom2 View 1
3/8" = 1'-0"



7 Breakroom2 View 2
3/8" = 1'-0"



8 Breakroom2 View 3
3/8" = 1'-0"

Interior Elevations

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
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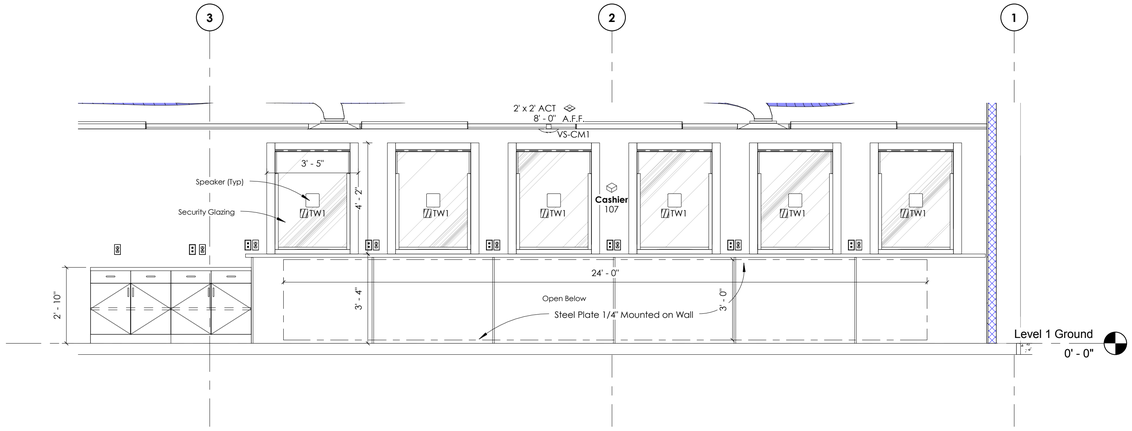
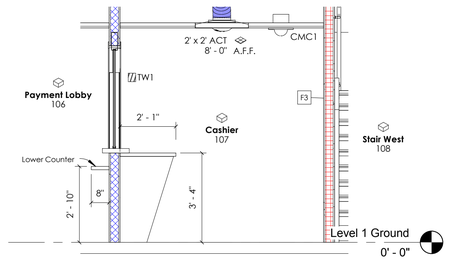
3/8" = 1'-0"

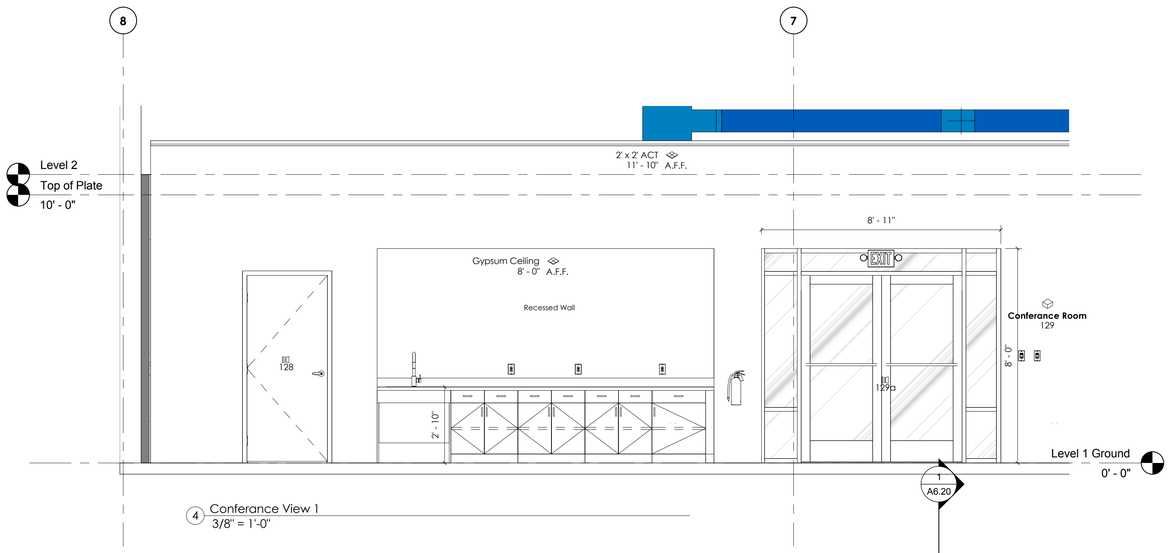
A5.11



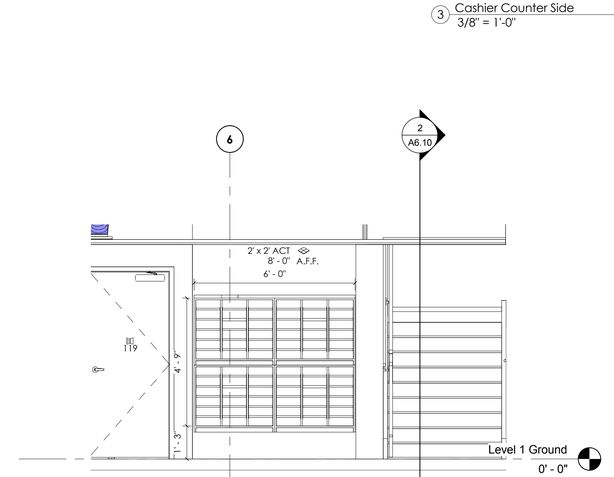
1 Cashier Counter
3/8" = 1'-0"



3 Cashier Counter Side
3/8" = 1'-0"

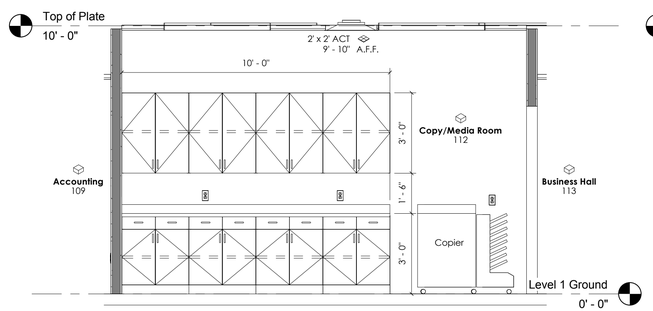


4 Conferance View 1
3/8" = 1'-0"

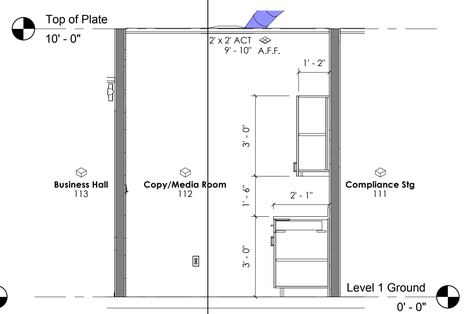


5 Mailbox View
3/8" = 1'-0"

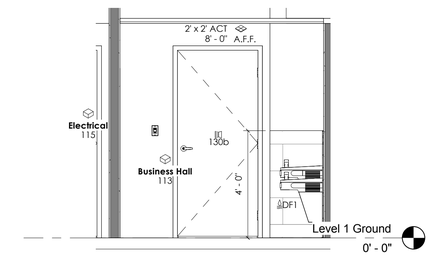
5



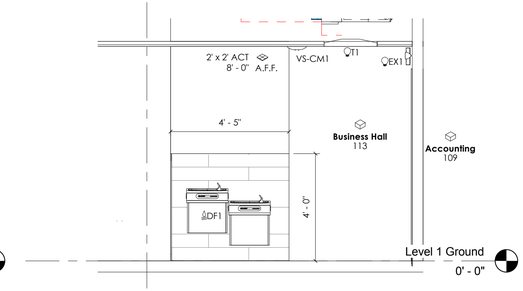
6 Media Room- Front View
3/8" = 1'-0"



7 Media Room-Side View
3/8" = 1'-0"



8 Water Cooler 1 Side View
3/8" = 1'-0"



9 Water Cooler 1- Front View
3/8" = 1'-0"

Interior Elevations

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
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MOC (Oak Ridge) Phase 1 of 2
27316 Spectrum Way
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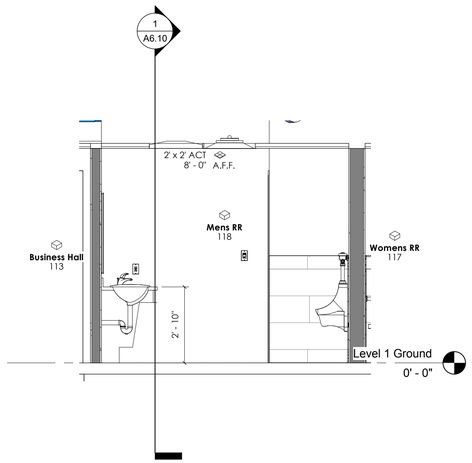
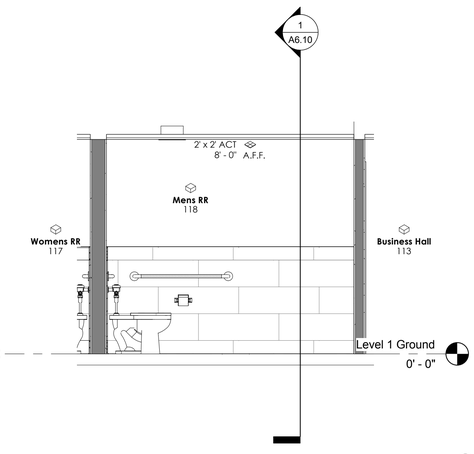
3/8" = 1'-0"

A5.12



1 Mens RR1 View 1
3/8" = 1'-0"



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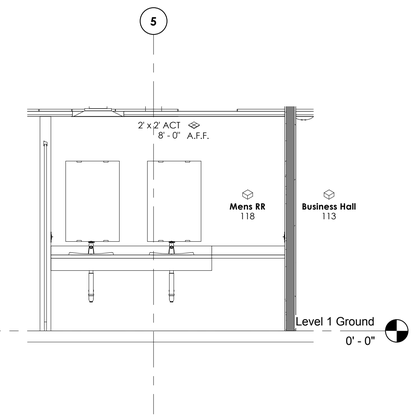
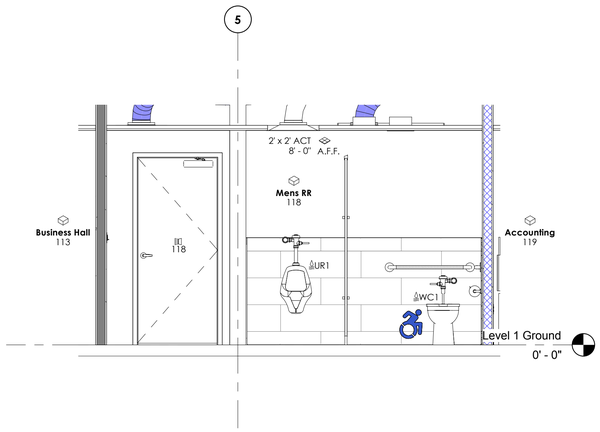
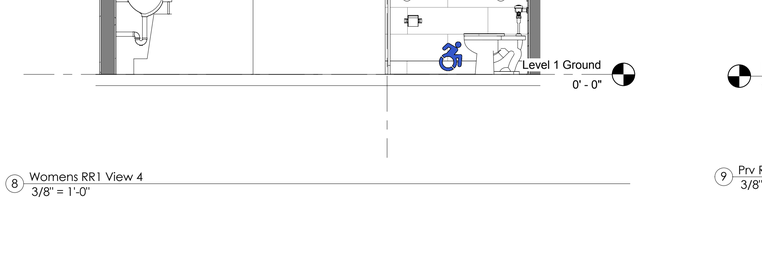


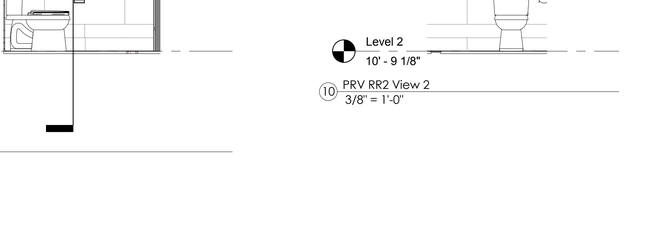
3 Mens RR1 View 3
3/8" = 1'-0"



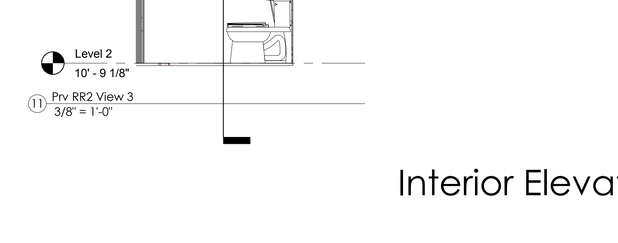
4 Mens RR1 View 4
3/8" = 1'-0"



5 Womens RR1 Veiw 1
3/8" = 1'-0"

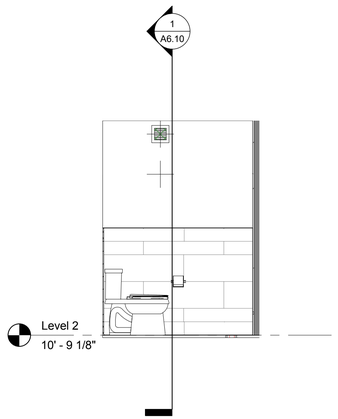


6 Womens RR1 View 2
3/8" = 1'-0"

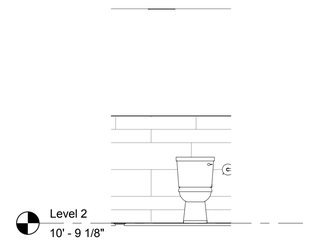


7 Womens RR1 View 3
3/8" = 1'-0"

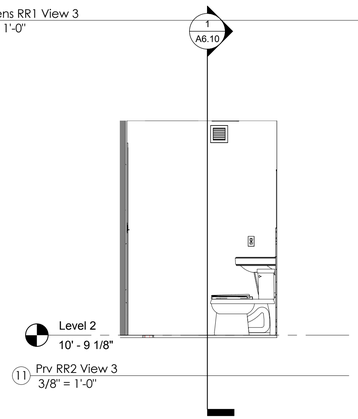
8 Womens RR1 View 4
3/8" = 1'-0"



9 Prv RR2 View 1
3/8" = 1'-0"



10 PRV RR2 View 2
3/8" = 1'-0"



11 Prv RR2 View 3
3/8" = 1'-0"

Interior Elevations

SYMMETRY DEVELOPMENT

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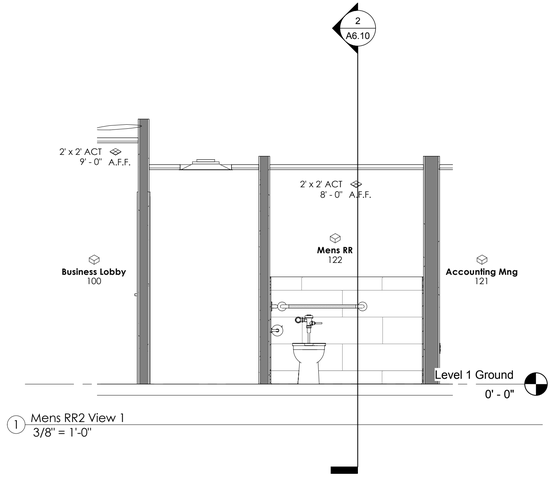
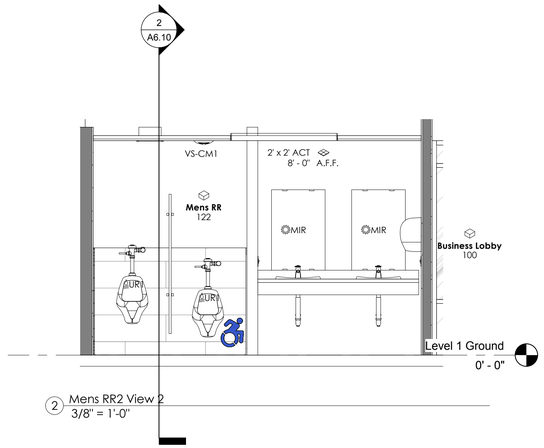
3/8" = 1'-0"

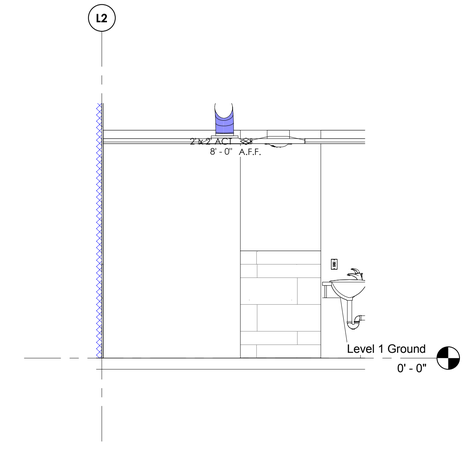
A5.14



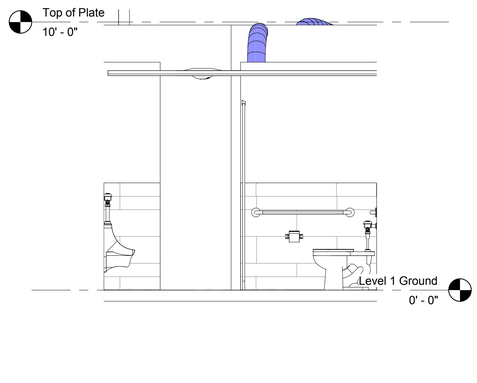
1 Mens RR2 View 1
3/8" = 1'-0"



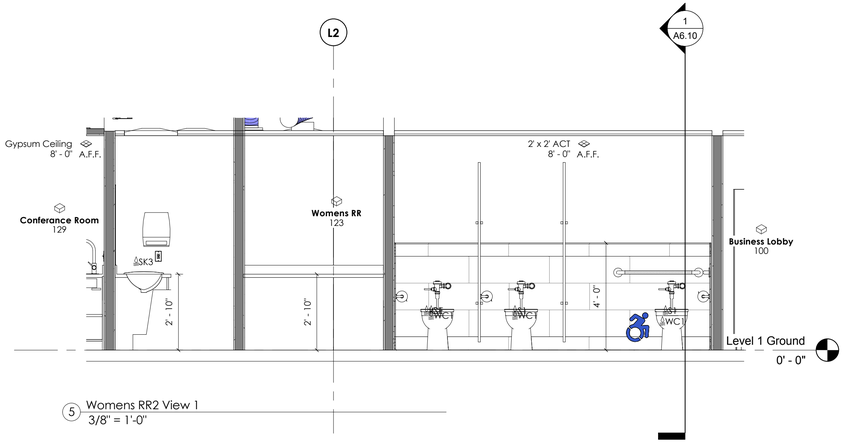
2 Mens RR2 View 2
3/8" = 1'-0"



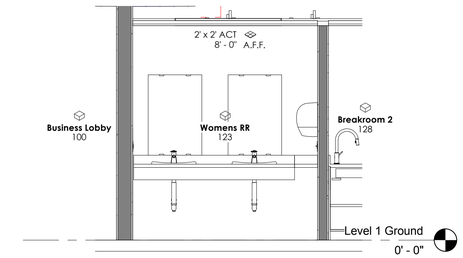
3 Mens RR2 View 3
3/8" = 1'-0"



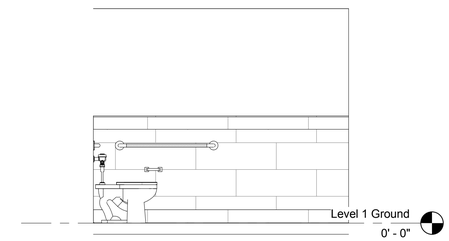
4 Mens RR2 View 4
3/8" = 1'-0"



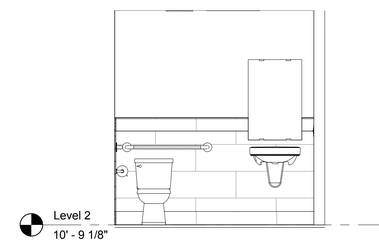
5 Womens RR2 View 1
3/8" = 1'-0"



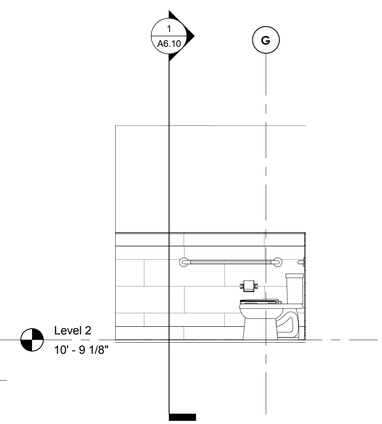
6 Womens RR2 View 2
3/8" = 1'-0"



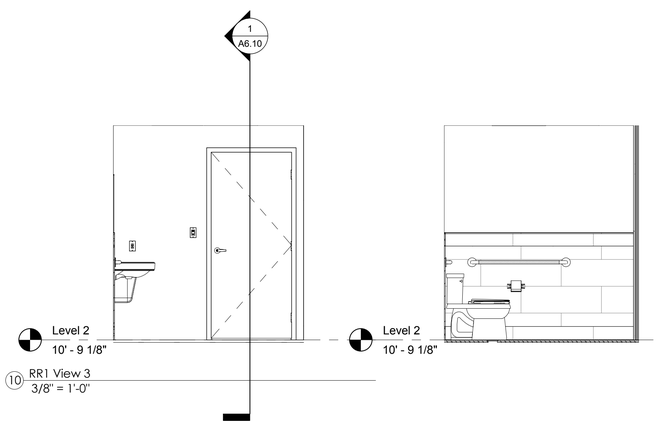
7 Womens RR2 View 3
3/8" = 1'-0"



8 RR1 View 1
3/8" = 1'-0"

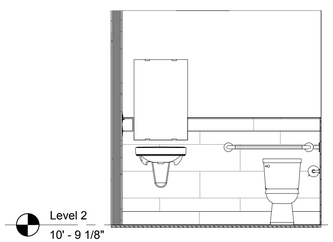


9 RR1 View 2
3/8" = 1'-0"

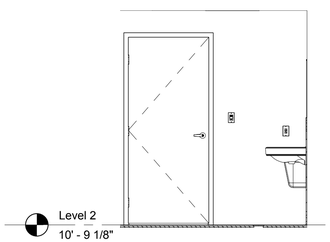


10 RR1 View 3
3/8" = 1'-0"

11 RR2 View 1
3/8" = 1'-0"



12 RR2 View 2
3/8" = 1'-0"



13 RR2 View 3
3/8" = 1'-0"

Interior Elevations

SYMMETRY DEVELOPMENT

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MOC (Oak Ridge) Phase 1 of 2

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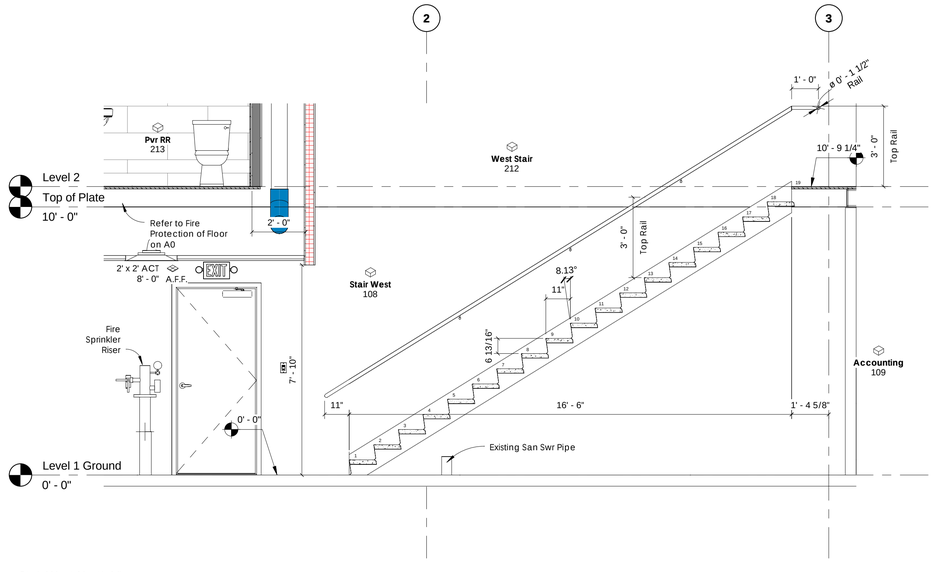
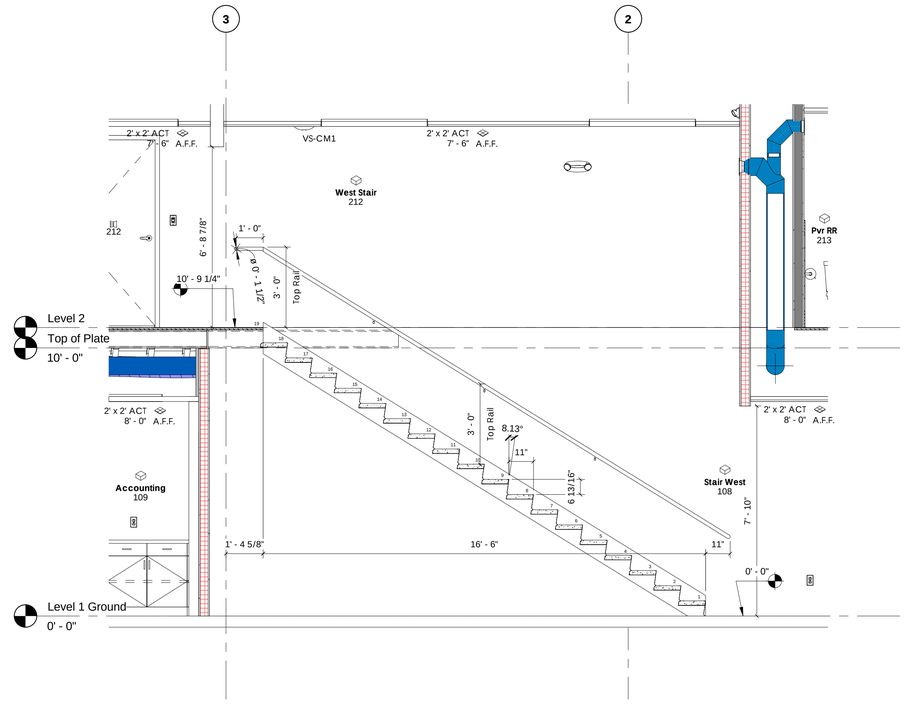
3/8" = 1'-0"

A5.15



1 Stair West-North View
3/8" = 1'-0"



2 Stair West-South View
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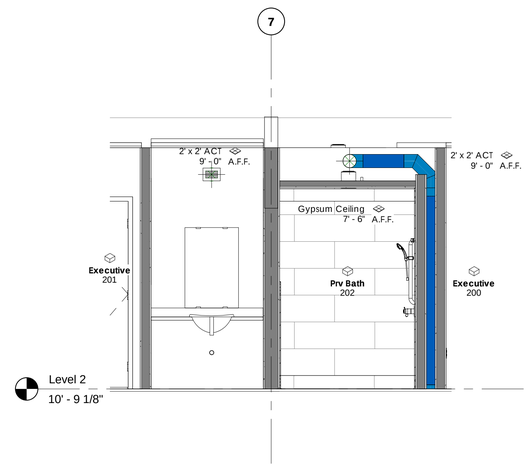
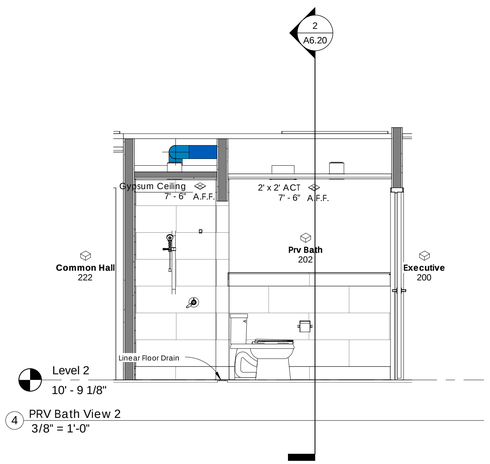
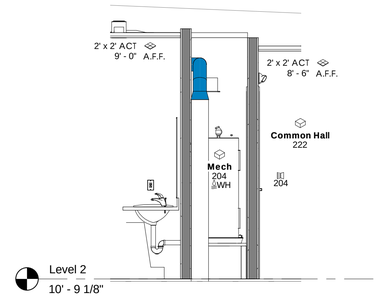


3 PRV Bath View 1
3/8" = 1'-0"



4 PRV Bath View 2
3/8" = 1'-0"



5 Prv Bath View 3
3/8" = 1'-0"

Interior Elevation

SYMMETRY DEVELOPMENT

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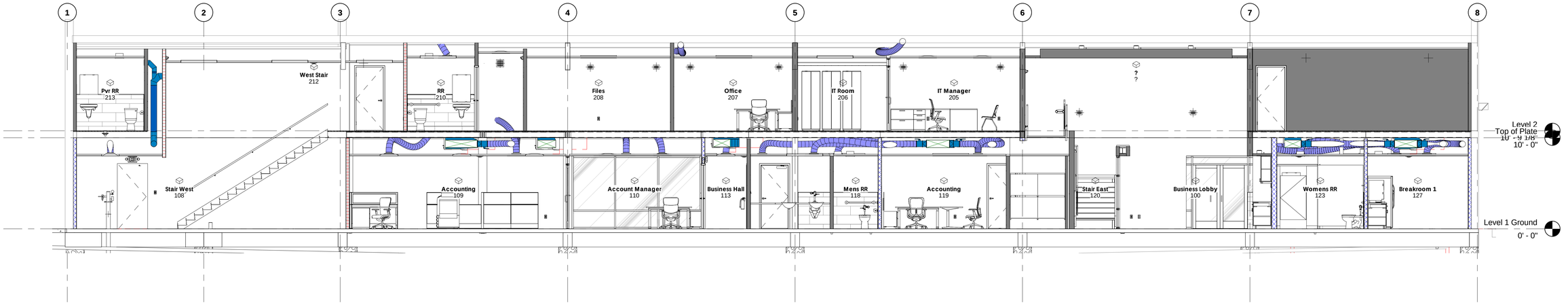
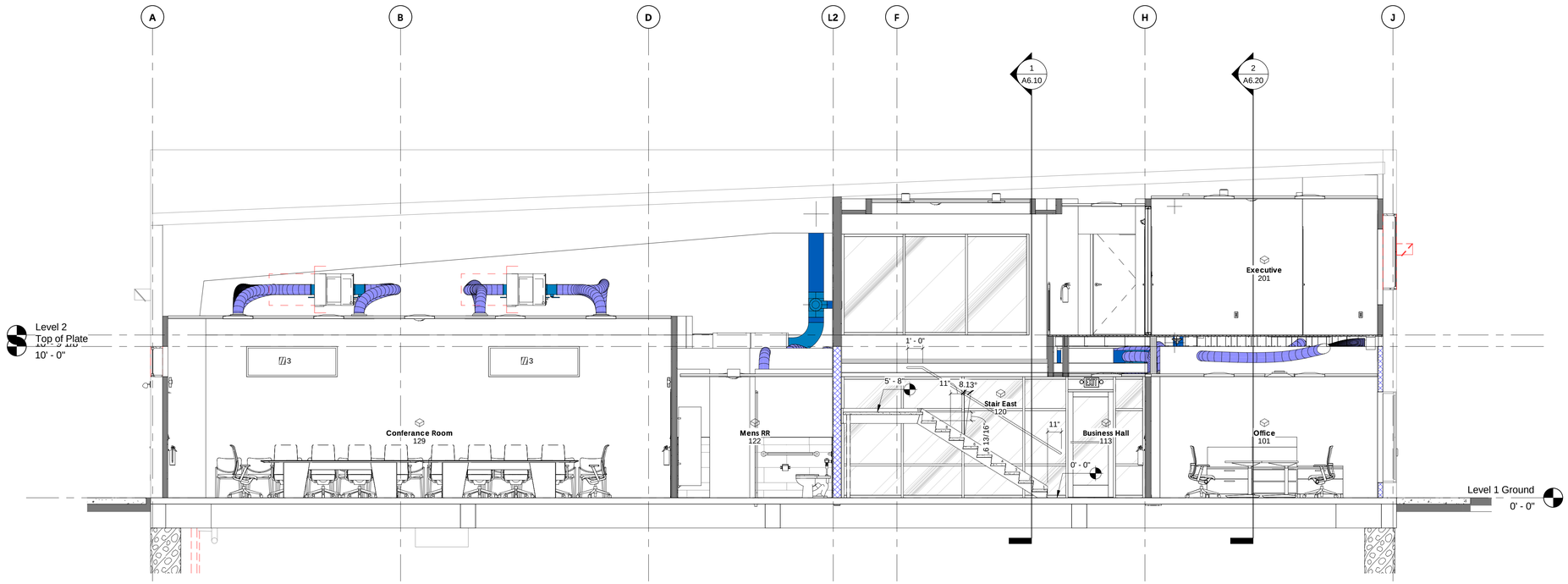
3/8" = 1'-0"

A5.16



1 Section 1
3/16" = 1'-0"



2 Section 2
1/4" = 1'-0"

Building Section

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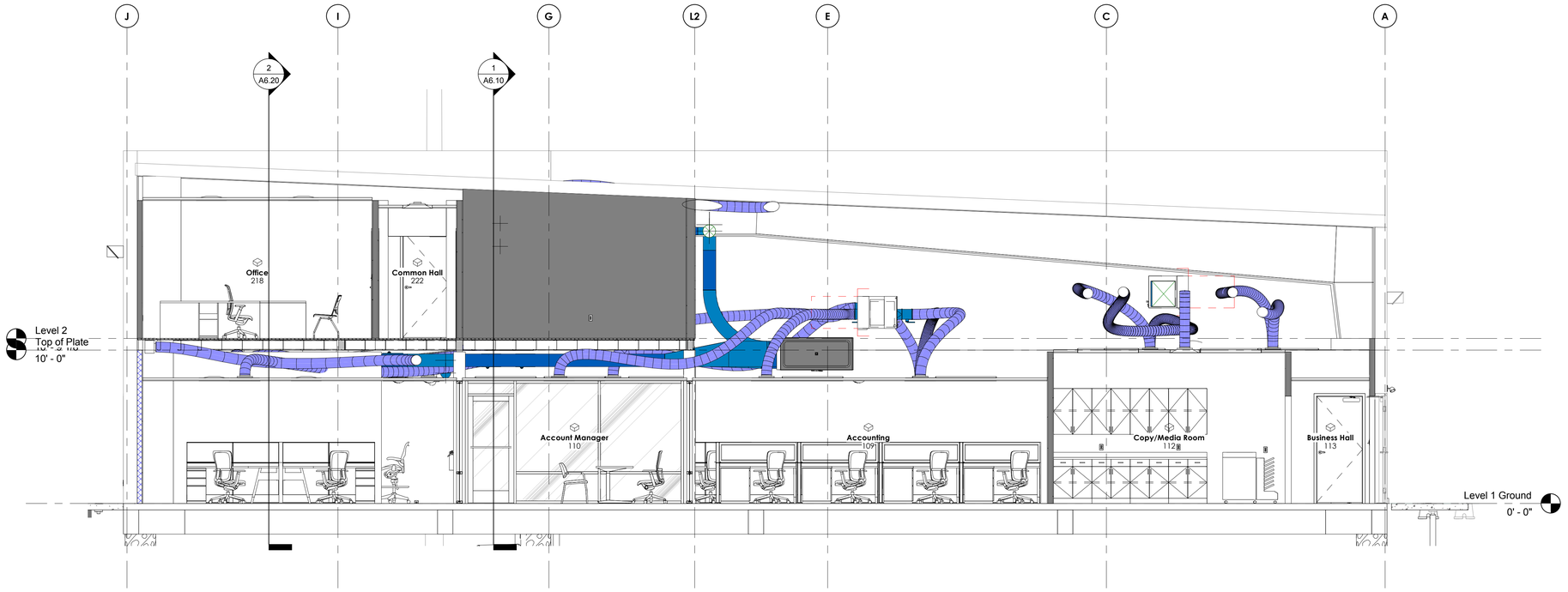
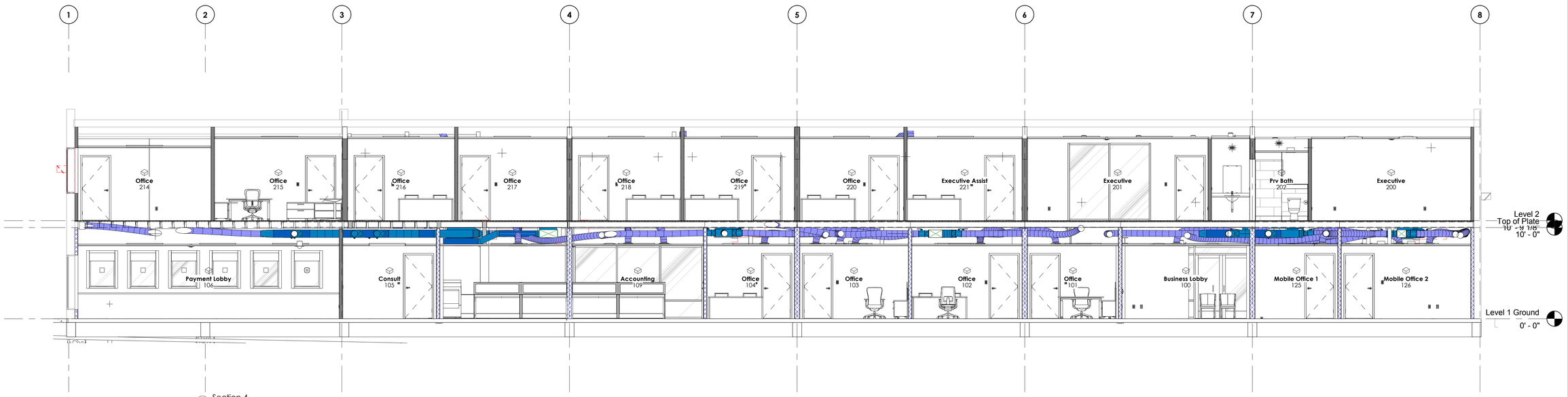


1 Section 3
1/4" = 1'-0"



2 Section 4
3/16" = 1'-0"

Building Sections

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
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Room Schedule 27316

Room Number	Room Type	Department	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
100	Business Lobby	Common	Carpet Tile	Cove Base	Paint		
101	Office	Office	C1	B1	P1	ACT1	Jolie/Chelce
102	Office	Office	C1	B1	P1	ACT1	Linda
103	Office	Office	C1	B1	P1	ACT1	Jette
104	Office	Office	C1	B1	P1	ACT1	Liz
105	Consult	Payment	C1	B1	P1	ACT1	
106	Payment Lobby	Payment	C1	B1	P1	ACT1	
107	Cashier	Payment	C1	B1	P1	ACT1	
108	Stair West	Common	C1	B1	P1	ACT1	
109	Accounting	Accounting	C1	B1	P1	ACT1	
110	Account Manager	Payment	C1	B1	P1	ACT1	Kathy
111	Compliance Stg	Office	T1	B1	P1	ACT1	
112	Copy/Media Room	Office	C1	B1	P1	ACT1	
113	Business Hall	Office	C1	B1	P1	ACT1	
114	Meeting Stg	Common	T1	B1	P1	ACT1	
115	Electricol	Common	T1	B1	P1	ACT1	
116	Mech	Common	T1	B1	P1	ACT1	
117	Womens RR	Common	T2	B2	P1	ACT1	
118	Mens RR	Common	T2	B2	P1	ACT1	
119	Accounting	Accounting	C1	B1	P1	ACT1	
120	Stair East	Common	C1	B1	P1	ACT1	
121	Accounting Mng	Common	C1	B1	P1	ACT1	
122	Mens RR	Common	T2	B2	P1	ACT1	
123	Womens RR	Common	T2	B2	P1	ACT1	
124	Mop Room	Common	T2	B2	P1	ACT1	
125	Mobile Office 1	Office	C1	B1	P1	ACT1	
126	Mobile Office 2	Office	C1	B1	P1	ACT1	
127	Breakroom 1	Common	T1	B1	P1	ACT1	
128	Breakroom 2	Assembly	T1	B1	P1	ACT1	
129	Conferance Room	Assembly	C1	B1	P1	ACT1	
130	Sm Conferance	Assembly	C1	B1	P1	ACT1	
Level 1 Ground: 31							
200	Executive	Executive	C1	B1	P1	ACT1	Lonnie
201	Executive	Executive	C1	B1	P1	ACT1	Beth
202	Prv Bath	Executive	T2	B2	P1	ACT1	
203	Executive Assit	Executive	C1	B1	P1	ACT1	Keith
204	Mech	Common	T1	B1	P1	ACT1	
205	IT Manager	IT	C1	B1	P1	ACT1	Stu
206	IT Room	IT	T1	B1	P1	ACT1	
207	Office	Executive	C1	B1	P1	ACT1	Eddie
208	Files	Executive	C1	B1	P1	ACT1	
209	RR	Common	T2	B2	P1	ACT1	
210	RR	Common	T2	B2	P1	ACT1	
211	Mech	Common	T1	B1	P1	ACT1	
212	West Stair	Common	T1	B1	P1	ACT1	
213	Pvr RR	Executive	T2	B2	P1	ACT1	
214	Office	Executive	C1	B1	P1	ACT1	John
215	Office	Executive	C1	B1	P1	ACT1	
216	Office	Executive	C1	B1	P1	ACT1	Leah
217	Office	Executive	C1	B1	P1	ACT1	
218	Office	Executive	C1	B1	P1	ACT1	Mike
219	Office	Executive	C1	B1	P1	ACT1	Michelle
220	Office	Executive	C1	B1	P1	ACT1	Jen/Claudia
221	Executive Assist	Executive	C1	B1	P1	ACT1	Pam
222	Common Hall	Executive	C1	B1	P1	ACT1	
222a	Open Below						
Level 2: 24							
Grand total							

Door Schedule

Mark	Door Description	Width	Height	Thickness	Fire Rating	Finish	Description
100	Single Door	3' - 0"	7' - 0"	0' - 1 3/4"			
101	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
102	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
103	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
104	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
105a	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
105b	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
106	Single Door	3' - 0"	7' - 0"	0' - 1 3/4"			
109	Single Door	3' - 0"	7' - 0"	0' - 1 3/4"			
109a	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
109b	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
110a	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
110b	SDI Storefront Door	3' - 0"	7' - 0"	0' - 1 3/4"			
111a	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
111b	Mtl Bldg Hollow Metal Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
113a	SDI Storefront Door	3' - 0"	7' - 0"	0' - 1 3/4"			
113b	Mtl Bldg Hollow Metal Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
113c	Mtl Bldg Hollow Metal Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
114	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
115	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
116	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
117	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
118	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
119	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
121	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
122	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
123	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
124	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
125	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
126	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
126a	Single Door	3' - 0"	7' - 0"	0' - 1 3/4"			
127	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
128	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
129a	SDI Double Doors no midrail	6' - 0"	7' - 0"	0' - 1 3/4"			
129b	Mtl Bldg Hollow Metal Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
130a	Mtl Bldg Hollow Metal Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
130b	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
136	Overhead Door-Roll Up	12' - 0"	12' - 0"				
137	Overhead Door-Roll Up	12' - 0"	12' - 0"				
138	Mtl Bldg Hollow Metal Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
139	Single Door	3' - 0"	7' - 0"	0' - 1 3/4"			
140	Mtl Bldg Hollow Metal Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
142	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
143	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
144	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
146	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
151	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
155	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
157	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
158	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
159	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
160	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
161	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
162	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
182	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
200	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
201	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
202a	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
202b	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
203	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
204	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
205	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
206	SDI Storefront Door	3' - 0"	7' - 0"	0' - 1 3/4"			
207	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
208	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
209	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
210	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
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213	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
214	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
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216	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
217	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
218	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
219	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
220	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
221	Int Door and Frame	3' - 0"	7' - 0"	0' - 1 3/4"			
Grand total							

SYMMETRY DEVELOPMENT

Services Prepared By:
SYMMETRY DEVELOPMENT, INC.
28510 Carley Cove Lane
Spring, Texas 77386
832.795.1553
symmetrydevelopment.com

MOC (Oak Ridge) Phase 1 of 2

27316 Spectrum Way
Oak Ridge, TX 77385

Project For:
MOCI

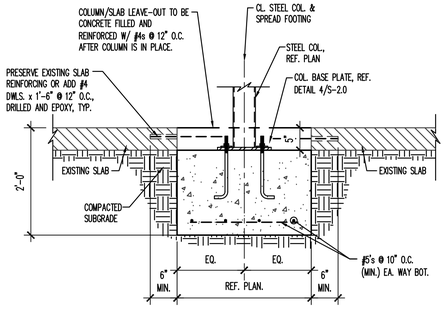
Revisions

Rev:	Date:	Description:

Sheet: D 24x36
4/13/2015 8:26:58 AM
Edition:
Permit 4/13/15
Project #
3031
Scale:

A7.10

Schedules



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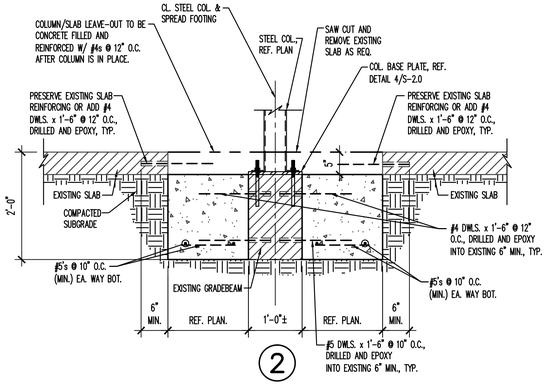

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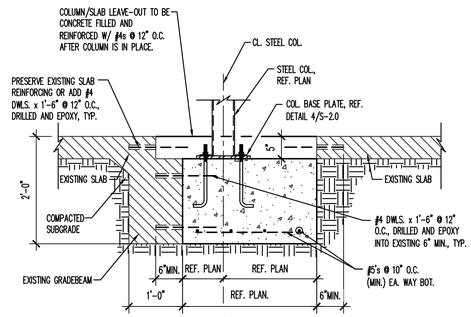

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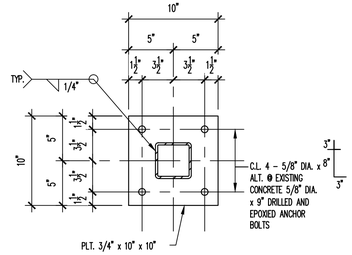


HSS 3x3 COL. BASE PLATE

4

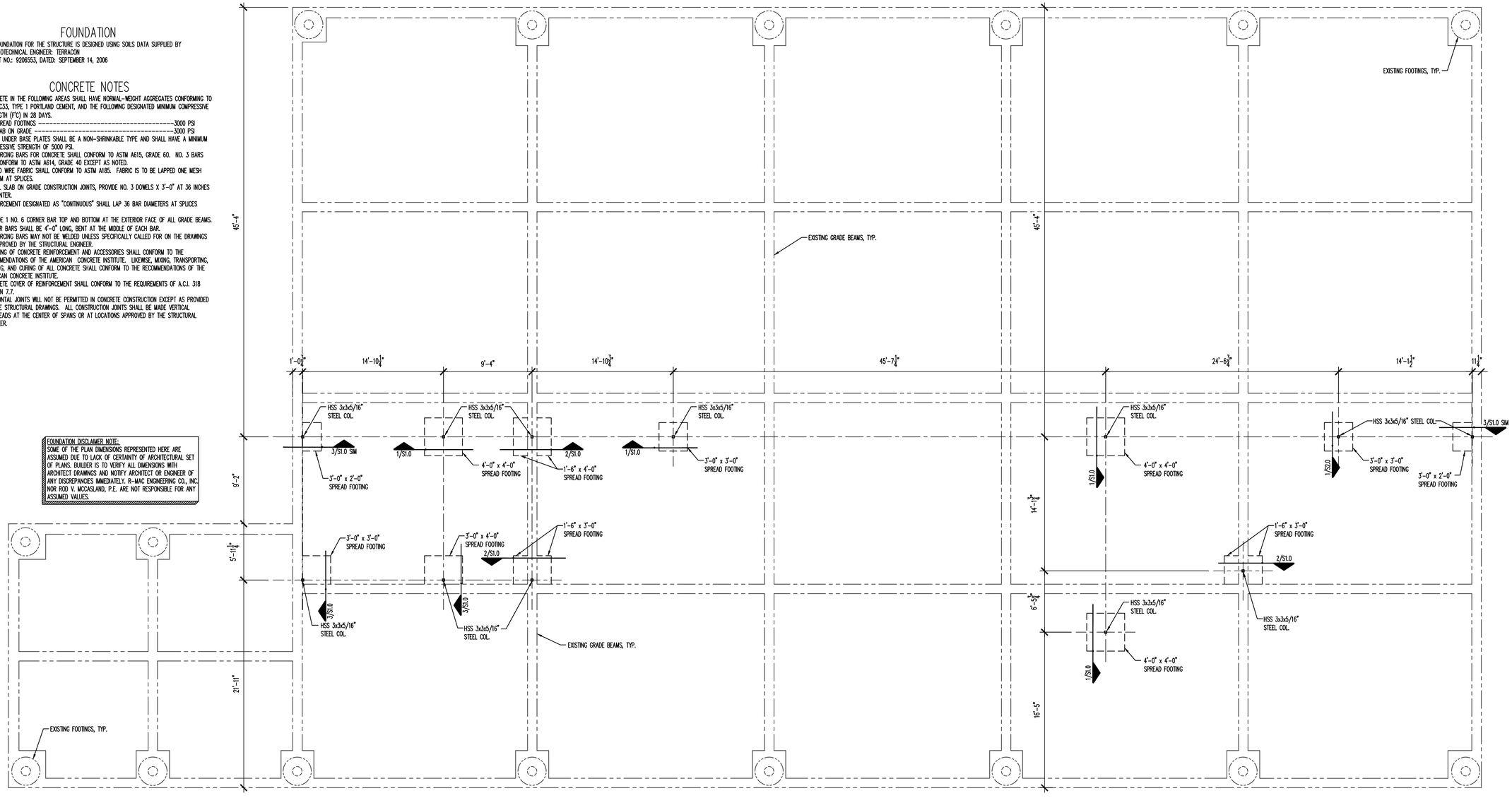
FOUNDATION

1. THE FOUNDATION FOR THE STRUCTURE IS DESIGNED USING SOILS DATA SUPPLIED BY THE GEOTECHNICAL ENGINEER: TERRACON
   REPORT NO.: 9206553, DATED: SEPTEMBER 14, 2006

CONCRETE NOTES

1. CONCRETE IN THE FOLLOWING AREAS SHALL HAVE NORMAL-WEIGHT AGGREGATES CONFORMING TO ASTM C33, TYPE 1 PORTLAND CEMENT, AND THE FOLLOWING DESIGNATED MINIMUM COMPRESSIVE STRENGTH (F'C) IN 28 DAYS.
   SPREAD FOOTINGS ----------3000 PSI
   SLAB ON GRADE ----------3000 PSI
2. GROUT UNDER BASE PLATES SHALL BE A NON-SHRINKABLE TYPE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.
3. REINFORCING BARS FOR CONCRETE SHALL CONFORM TO ASTM A615, GRADE 60. NO. 3 BARS MAY CONFORM TO ASTM A614, GRADE 40 EXCEPT AS NOTED.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. FABRIC IS TO BE LAPPED ONE MESH MINIMUM AT SPLICES.
5. AT ALL SLAB ON GRADE CONSTRUCTION JOINTS, PROVIDE NO. 3 DOWELS X 3'-0" AT 36 INCHES ON CENTER.
6. REINFORCEMENT DESIGNATED AS "CONTINUOUS" SHALL LAP 36 BAR DIAMETERS AT SPLICES U.O.N.
7. PROVIDE 1 NO. 6 CORNER BAR TOP AND BOTTOM AT THE EXTERIOR FACE OF ALL GRADE BEAMS. CORNER BARS SHALL BE 4'-0" LONG, BENT AT THE MIDDLE OF EACH BAR.
8. REINFORCING BARS MAY NOT BE WELDED UNLESS SPECIFICALLY CALLED FOR ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
9. DETAILING OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE. LIKEWISE, MIXING, TRANSPORTING, PLACING, AND CURING OF ALL CONCRETE SHALL CONFORM TO THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE.
10. CONCRETE COVER OF REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF A.C.I. 318 SECTION 7.7.
11. HORIZONTAL JOINTS WILL NOT BE PERMITTED IN CONCRETE CONSTRUCTION EXCEPT AS PROVIDED ON THE STRUCTURAL DRAWINGS. ALL CONSTRUCTION JOINTS SHALL BE MADE VERTICAL BULKHEADS AT THE CENTER OF SPANS OR AT LOCATIONS APPROVED BY THE STRUCTURAL ENGINEER.

FOUNDATION DISCLAIMER NOTE:
SOME OF THE PLAN DIMENSIONS REPRESENTED HERE ARE ASSUMED DUE TO LACK OF CERTAINTY OF ARCHITECTURAL SET OF PLANS. BUILDER IS TO VERIFY ALL DIMENSIONS WITH ARCHITECT DRAWINGS AND NOTIFY ARCHITECT OR ENGINEER OF ANY DISCREPANCIES IMMEDIATELY. R-MAC ENGINEERING CO., INC. NOR ROD V. MCCASLAND, P.E. ARE NOT RESPONSIBLE FOR ANY ASSUMED VALUES.



FOUNDATION PLAN

R-MAC ENGINEERING CO.
Consulting Engineers
P.O. Box 7827
The Woodlands, TX 77387
Texas Registered Engineering Firm: F-11358
PH: (281) 367-7161 FAX: (281) 362-0304
Email: rmaceng@rmaceng.com

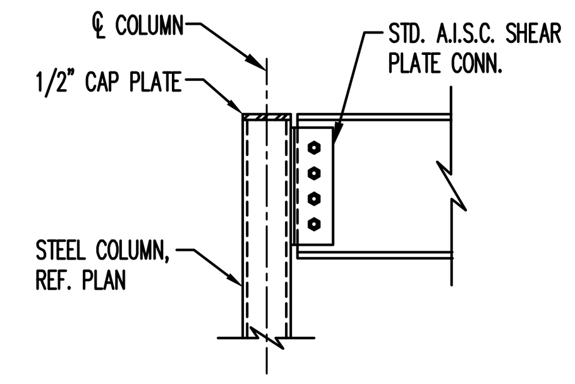
ROD V. MC CASLAND
48002
REGISTERED PROFESSIONAL ENGINEER
03-20-15

MOC BUILDING
27316 SPECTRUM WAY
OAK RIDGE NORTH, TEXAS

PROJECT	M15014
SCALE	3/16"=1'-0"
DSGN. BY	RVM
DWN. BY	DDH
CKD. BY	CLB/RVM
TOTAL COVERED	4,821 sq.ft.

REVISIONS/ISSUED
1 For Construction 03-20-15

SHEET
S1.0



TYPICAL STEEL BEAM TO COLUMN CONNECTION

GENERAL NOTES

1. THE STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE 2006 IBC CODE USING THE FOLLOWING LOADS:
   DEAD:
   FIXED PARTITIONS ---------------------------------------20 PSF
   MECHANICAL & CEILING ----------------------------------5 PSF
   MOVABLE PARTITIONS -----------------------------------10 PSF
   FINISHES ---AS REQUIRED
   LIVE:
   ROOF --25 PSF
   OFFICE ---50 PSF
   HALLWAYS & PUBLIC SPACES ---------------------------100 PSF
   MECHANICAL ROOMS -----------------------------------70 PSF
2. PRINCIPLE OPENINGS ARE SHOWN ON THE DRAWINGS. REFER TO ARCHITECTURAL AND M.E.P. DRAWINGS FOR OTHER OPENINGS, SLEEVES, CURBS, INSERTS, ETC.
3. GENERAL CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND DETAILS AND REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER PRIOR TO ANY CONSTRUCTION.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL ROLLED SHAPES AND PLATES SHALL CONFORM TO ASTM A36.
2. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B. STEEL PIPE USED AS COLUMNS SHALL CONFORM TO EITHER ASTM A501 OR ASTM A53, TYPE E OR S, GRADE B (MINIMUM YIELD STRENGTH OF 35,000 PSI), ELECTRIC FURNACE, OPEN-HEARTH, OR BASIC OXYGEN, SEAMLESS OR ELECTRIC WELDED.
3. CONNECTION BOLTS FOR STRUCTURAL STEEL MEMBERS SHALL CONFORM TO ASTM A325 UNLESS OTHERWISE NOTED. COLUMN CAP PLATES BOLTS MAY CONFORM TO ASTM A307.
4. ANCHOR BOLTS SHALL CONFORM TO ASTM A307 UNLESS OTHERWISE NOTED.
5. STRUCTURAL STEEL DETAILS AND CONNECTIONS SHALL CONFORM TO THE STANDARDS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. STRUCTURAL STEEL CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL BE DETAILED IN ACCORDANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION. TABLE I AND TABLE III IN PART MAY BE USED. THE END REACTION OF THE CONNECTED BEAMS SHALL BE DETERMINED FROM PART 2 "ALLOWABLE LOADS ON BEAMS". ALL CONNECTIONS SHALL BE DESIGNED TO DEVELOP A MINIMUM END REACTION OF 12.0 KIPS. BEAM REACTION GIVEN ON THE DRAWINGS SUPERSEDE THIS NOTE.
6. SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE STRUCTURAL DRAWINGS IS NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION AND TYPE OF SPLICE TO BE MADE. COLUMN SPLICES WILL NOT BE PERMITTED.
7. WELDING SHALL CONFORM TO THE STANDARDS OF THE AMERICAN WELDING SOCIETY. ELECTRODES FOR ALL FIELD AND SHOP WELDING SHALL CONFORM TO AWS STANDARDS (CLASS E70XX).
8. HEADED STUDS SHALL BE NELSON OR KSM HEADED ANCHORS WITH FLUXED ENDS, OR APPROVED EQUAL. STUDS ARE TO BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT. ALL WELDS SHALL BE MADE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE STUD MANUFACTURER.
9. OPEN-WEB STEEL BAR JOIST AND BRIDGING SHALL CONFORM TO THE STANDARDS OF THE STEEL JOIST INSTITUTE FOR THE JOIST SIZE AND TYPE SHOWN. BRIDGING SHALL BE WELDED TO STEEL BEAMS AND/OR EMBEDDED PLATES AT EACH END. JOIST AT COLUMN LINES SHALL BE FIELD BOLTED DURING ERECTION WHERE COLUMNS ARE NOT FRAMED IN AT LEAST TWO DIRECTIONS WITH STRUCTURAL STEEL MEMBERS. JOIST ENDS SHALL BE WELDED TO SUPPORTING ELEMENTS.

HANGER/BEAM SCHEDULE

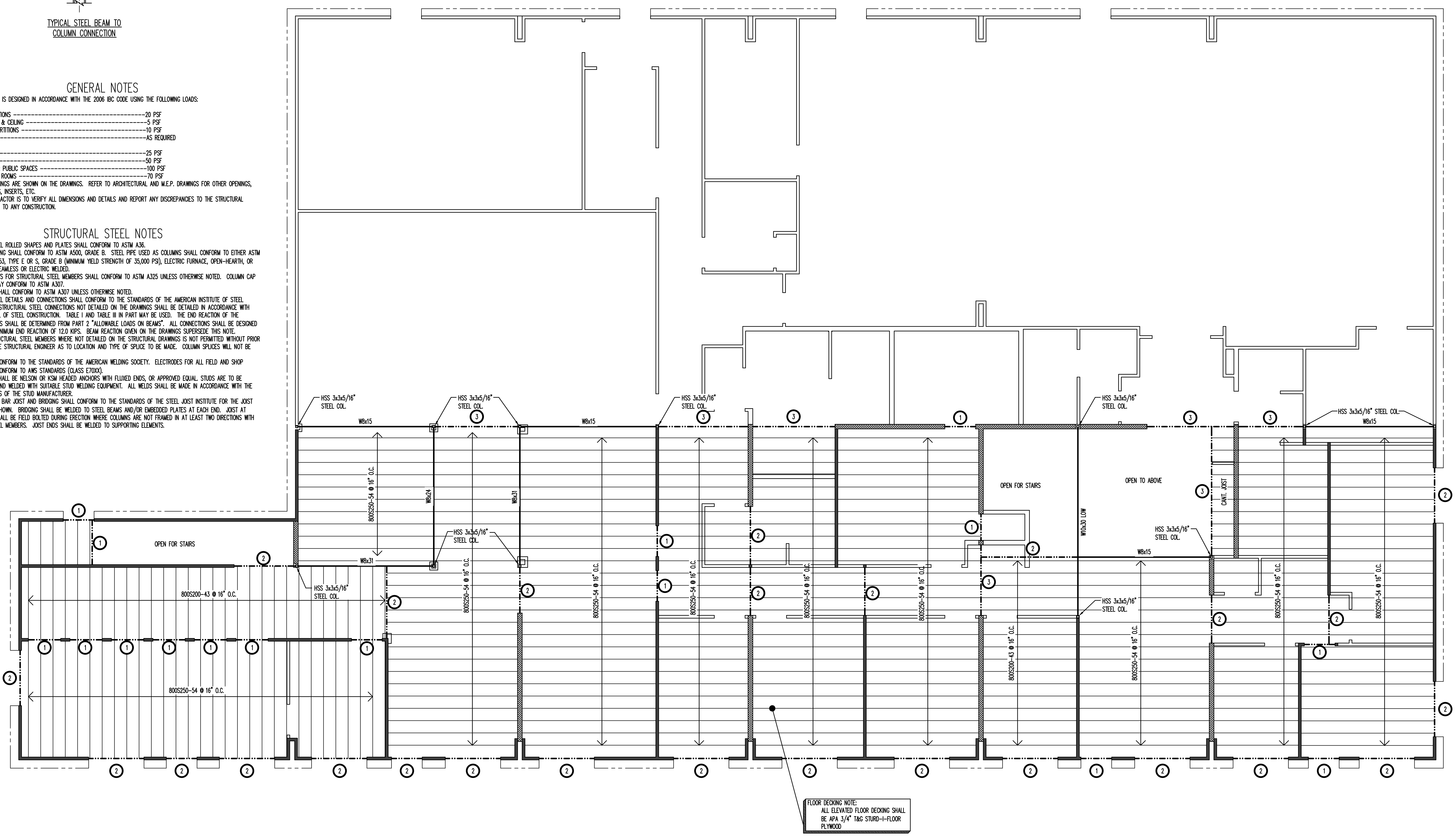
1. 2 - 800S162-54 (50 KSI) BACK TO BACK
2. 2 - 800S162-68 (50 KSI) BACK TO BACK
3. 2 - 800S200-97 (50 KSI) BACK TO BACK

WALL LEGEND: (UNLESS NOTED OTHERWISE: U.N.O)

3 5/8" LOAD BEARING WALL 362S200-43 @ 12" O.C. =

6" LOAD BEARING WALL 600S200-43 @ 16" O.C. =

NON-LOAD BEARING WALLS =



SECOND FLOOR FRAMING PLAN

ROD V. MC CASLAND
48002
REGISTERED PROFESSIONAL ENGINEER
03-20-15

R-MAC ENGINEERING CO.
Texas Registered Engineering Firm: F-11358
PH: (281) 367-7761 FAX: (281) 362-0304
Email: rmac@r-macengineering.com
Consulting Engineers
P.O. Box 7827
The Woodlands, TX 77387

MOC BUILDING
27316 SPECTRUM WAY
OAK RIDGE NORTH, TEXAS

PROJECT	M15014
SCALE	3/16"=1'-0"
DSGN. BY	RVM
DWN. BY	DDH
CKD. BY	CLB/RVM
TOTAL COVERED	4,821 sq,ft.
REVISIONS/ISSUED	
1	For Construction 03-20-15

SHEET
S2.0

GENERAL HVAC NOTES (APPLY TO ALL SHEETS)

- THE DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW APPROXIMATE LOCATIONS OF EQUIPMENT, DUCTWORK ETC. IT IS IT IS CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY LOCATIONS OF NEW EQUIPMENT, DUCTWORK ETC.
- CONTRACTOR SHALL GUARANTEE LABOR AND MATERIALS FOR ONE(1) YEAR.
- CONTRACTOR SHALL, AT HIS OWN EXPENSE, OBTAIN ALL NECESSARY PERMITS, PAY ALL LEGAL FEES AND CHARGES PERTAINING TO THE WORK UNDER THIS SECTION, AND COMPLY W/ ALL NATIONAL CODES, STATE AND LOCAL MUNICIPAL BUILDING CODES, SAFETY LAWS, ORDINANCES AND REGULATIONS REGARDING CODES, SAFETY LAWS APPLICABLE TO PROJECT.
- CONTRACTOR SHALL PRODUCE RECORD DRAWINGS ON REPRODUCIBLE MEDIA.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR TYPE OF CEILING AND LOCATION OF CEILING DEVICES.
- PLENUMS ARE CROWDED AND NOT ALL OBSTACLES ARE INDICATED. ALLOW FOR ADDITIONAL DUCT OR PIPE OFFSETS TRANSITIONS NOT INDICATED ON DRAWINGS.
- SEAL ALL NEW OR EXISTING PENETRATIONS OF RATED WALLS AND EXTERIOR WALLS.
- PROVIDE ANY REQUIRED TEMPORARY UTILITIES.
- SCHEDULE ALL SERVICE INTERRUPTIONS IN ADVANCE WITH THE OWNER.
- VISIT SITE PRIOR TO BIDDING. NO EXTRAS WILL BE ALLOWED FOR CONDITIONS THAT COULD BE READILY OBSERVED.
- DO NOT RUN DUCTS OVER ELECTRICAL PANELS.
- WHERE SUPPLY OR RETURN GRILLS OR DIFFUSERS ARE INSTALLED IN FIRE RATED WALL OR CEILING, INSTALL FIRE DAMPER AHEAD OF IT AS PART OF THE DIFFUSER OR GRILL.
- INSTALL FIRE DAMPER WHEREVER FIRE WALLS ARE PENETRATED BY DUCTWORK.

HVAC SPECIFICATIONS

DEMOLITION:

NOT APPLICABLE. THIS IS ALL NEW.

DUCTWORK:

DO NOT FABRICATE DUCT FROM THESE DRAWINGS, FIELD VERIFY ALL DIMENSIONS AND AVAILABLE SPACE. DIMENSIONS GIVEN ON DRAWINGS ARE INSIDE FREE AREA. BALANCE DAMPERS IN ALL SUPPLY AND RETURN BRANCHES. BRANCH TAKEOFFS SHALL HAVE 45° ENTRY FITTING W/ VOLUME DAMPER. PROVIDE ALL SUPPLY ELBOWS W/ TURNING VANES.

DUCT DIMENSIONS SHOWN ARE TYPICAL AND MAY BE ADJUSTED TO FIT CONSTRUCTION METHOD AND LOCATION WITHOUT DECREASING THE CROSS-SECTIONAL AREA SPECIFIED. VERIFY CLEARANCES THROUGH ALL STRUCTURAL OPENINGS BEFORE FABRICATION.

FIBERGLAS DUCT: FIBERGLAS 1.50" DUCTBOARD WITH FOIL-SCCRIM-KRAFT FACING CONSTRUCTED, REINFORCED AND CONFORMED TO SMACNA, NAIMA OR TIMA STANDARDS FOR LOW VELOCITY DUCT. (<2" STATIC).

PIPING:

A/C CONDENSATE DRAIN SHALL BE INSULATED COPPER OR GALVANIZED STEEL INSIDE BLDG, AND PVC SUPPORTED ON TREATED WOOD BLOCKS ON THE ROOF. SLOPE PIPE TO OUTLET AND PROVIDE 4" DEEP TRAP W/ CLEANOUT PLUGS.

ROUTE CONDENSATE DRAIN AS SHOWN OR TO NEAREST FLOOR DRAIN.

INSULATION:

ALL INSULATION SHALL HAVE FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 50 AS PER ASTM E84, NFPA 255, UL 273. EXTERNAL DUCT WRAP- 2" THICK, R=5.0 INSTALLED, FOIL FACE FLEXIBLE FIBER GLASS. ADHERE TO DUCT W/ VAPOR BARRIER-TYPE ADHESIVE. OVERLAP ALL JOINTS, COVER ALL JOINTS OR BREAKS W/ GLASS FAB IMBEDDED IN VAPOR BARRIER MASTIC.

SPLIT SYSTEM AIR CONDITIONING UNITS :

AC UNITS SHALL BE STD EFFICIENCY, ELECTRIC, DX, SINGLE ZONE, CONSTANT VOLUME UNITS, UL OR CSA LISTED AND ARI CERTIFIED, INSULATED CABINET. COILS SHALL BE COPPER TUBE W/ ALUMINUM FINS. MANUAL OUTSIDE AIR DAMPER, LOW AMBIENT OPERATION, CRANKCASE HEATERS AND OVERLOAD PROTECTION, TIME DELAY RELAY, ANTI-SHORT CYCLE, THRU-THE-BASE POWER AND CONTROL WIRING; ROOF CURB; STATICALLY AND DYNAMICALLY BALANCED, ADJUSTABLE SHEAVE SUPPLY FAN W/ VIBRATION ISOLATION. FILTER RACK FOR 2" CARTRIDGE TYPE. ROUTE CONTROL WIRES INSIDE UNIT; CONTROL WIRES SHALL BE IN CONDUIT IF ROUTED OUTDOORS. UNIT SHALL BE SINGLE POINT ELECTRICAL CONNECTION.

AC UNITS SHALL BE TRANE, OR EQUAL FROM CARRIER, YORK, BRYANT OR RUDD.

AIR BALANCE:

ADJUST SYSTEM TO ACHIEVE AIR QUANTITIES SHOWN, THEN ADJUST VOLUMES TO PROVIDE CONSTANT TEMPERATURE (+ 2 F°) THROUGHOUT THE ZONE. SUBMIT REPORT (NEBB OR AABC FORMAT) SHOWING CFM EACH SUPPLY, EXHAUST AND RETURN AIR GRILL AND ACTUAL ROOM TEMPERATURES VS SETPOINTS. INCLUDE OUTSIDE AIR TEMPERATURE, A/C UNIT SUPPLY AND RETURN AIR TEMP, SUPPLY FAN AMPS., RPM AND TOTAL CFM. CALIBRATE ALL THERMOSTATS. RETURN TO PROJECT @ 1 & 3-MONTH INTERVALS AFTER COMPLETION TO MAKE BALANCE ADJUSTMENTS IN RESPONSE TO OWNER'S PERCEIVED COMFORT.

WARRANTY:

FIVE(5) WARRANTY, PARTS ONLY, ON COMPRESSORS.

CONTROLS:

ELECTRICAL SYSTEM, INCLUDING REQUIRED WIRING. USE PLENUM RATED CABLING INDOORS, CONDUIT OUTDOORS. THERMOSTATS SHALL BE NON-PROGRAMMABLE, AUTOMATIC CHANGEOVER.
SEQUENCE OF CONTROL FOR A/C COOLING – FAN RUNS CONTINUOUSLY, COMPRESSOR(S) AND HEATING UNIT ARE SEQUENCED BY ZONE THERMOSTAT. FOR RTUS, INSTALL DUCT SMOKE STATS(PER DIVISION 16) THAT SHUT DOWN UNIT WHEN ACTIVATED BY PRODUCTS OF COMBUSTION

PLUMBING SPECIFICATIONS

DEMOLITION:

DAMAGE TO EXISTING MATERIAL/EQUIPMENT SHALL BE REPAIRED AT NO ADDITIONAL COST TO OWNER.
RESUPPORT ANY REMAINING PIPING THAT WAS SUPPORTED BY WALLS BEING REMOVED. GIVE DEMO'D EQUIPMENT TO OWNER OR DISPOSE OF SUCH IF THE OWNER DOES NOT WANT IT.

SHOP DRAWINGS:

SUBMIT ON ALL FIXTURES AND TRIM.

ACCESS DOORS:

MILCOR OR EQUAL AS REQUIRED FOR ACCESS TO ALL VALVES, CONTROLS, WATER HAMMER ARRESTORS, OR OTHER DEVICES REQUIRING ATTENTION. DOORS SHALL MATCH WALL OR CEILING RATING.ARCHITECT MUST APPROVE LOCATION AND APPEARANCE OF ALL ACCESS DOORS.

PIPING:

DOMESTIC HOT/COLD WATER – ASTM B88 TYPE L COPPER. SYSTEM SHALL BE DRAINABLE.
WASTE AND VENT – DWV PVC

FLUSH AND STERILE WATER PIPE – FOR PIPE 1" OR LARGER SUPPORT PIPING EVERY 10'-0"; FOR PIPING 3/4" OR SMALLER SUPPORT EVERY 6'-0". WITH COPPER PIPE USE COPPER HANGRERS OR TAPE AT CONTACT POINT.

INSULATION:

ALL INSULATION SHALL HAVE FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 50 AS PER ASTM E84, NFPA 255, UL 273. GALVANIZED SHEET METAL SHIELDS AT PIPE HANGERS FOR PIPES 1-1/2" OR LARGER.

FOR DOMESTIC COLD WATER IN EXTERIOR WALLS, PLENUM ABOVE BLDG INSULATION OR OTHER AREAS SUBJECT TO FREEZING – USE 1" FIBER GLASS.
FOR DOMESTIC HOT WATER – USE 1" FIBER GLASS W/ ALL SERVICE JAC.

PLUMBING FIXTURES:

PROVIDE STOP VALVES; WATER HAMMER ARRESTER OR 18" LONG AIR CHAMBER, TAIL PIECES, P-TRAP W/ CLEANOUT PLUG AND GRD JOINT UNIONS @ EVERY FIXTURE. CONFIRM ALL FAUCETS/FITTINGS ARE COMPATIBLE W/ FIXTURES PRIOR TO ORDERING.

GENERAL NOTE RE PLUMBING FIXTURE WATER USE: FIXTURE SHALL BE CERTIFIED TO MEET THE WATER SAVING PERFORMANCE STANDARDS OF TEXAS CIVIL STATUTES SECTION 337.252 AND SHALL BE LISTED WITH THE STATE AS COMPLYING WITH SUCH. ALL FIXTURES SHALL COMPLY WITH THE MORE RESTRICTIVE OF ANSI OR THE FOLLOWING (WHEN TESTED PER ANSI TESTING PROCEDURES): A) MAXIMUM FLOW FROM SINK OR LAVATORY FAUCET OR FAUCET AERATOR SHALL BE 2.20 GALLONS PER MINUTE (GPM) AT A PRESSURE OF 60 PSI. B) MAX VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED EXCEED 1.60 GALLONS.

GENERAL NOTE RE HANDICAP PLUMBING FIXTURES: FIXTURES SHALL COMPLY WITH REQMNTS OF THE AMERICANS WITH DISABILITIES ACT. PUBLIC LAW 101-336 AND WITH STATE OF TEXAS CIVIL STATUS ARTICLES 7, 601B. FLUSH CONTROLS SHALL BE NO MORE THAN 44" ABOVE FLOOR & ON THE WIDE SIDE OF STALLS. EXPOSED HOT WATER & DRAIN PIPES SHALL BE CONFIGURED TO PROTECT AGAINST CONTACT & SHALL BE INSULATED. DRINKING FOUNTAIN SPOUTS SHALL BE NO HIGHER THAN 36"; FLOW SHALL BE PARALLEL TO UNIT FRON & ARC AT LEAST 4" HIGH. LAVATORIES SHALL BE MINIMUM 17" FRONT TO BACK AND SHALL ALLOW MINIMUM 27" HIGH KNEE CLEARANCE.

HANDICAP WATER CLOSET WC-1 --FLOOR MOUNT, TANK TYPE, 18" RIM HEIGHT, OPEN FRONT PLASTIC WHITE SEAT, NO COVER.
HANDICAP LAVATORY LAV-1 4" CENTERS, VITREOUS CHINA, WALL HUNG CONCEALED ARMS. GRID DRAIN DELTA #500-WF AND SOFT FLO AERATOR. MOUNT AT HANDICAPPED HEIGHT.
FLOOR DRAIN FD-1: J.R. SMITH #2005A-P CASH IRON, NICKEL BRONZE STRAINER, TRAP PRIMER
ELECTRIC WATER HEATER EWH-1: A.O SMITH #DEL-6 6 GALLON STORAGE, 120V/1/60HZ, 3 KW.

GENERAL NOTES: (APPLY TO ALL SHEETS)

G1 ALL CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY. FIELD VERIFY ACTUAL CIRCUIT NUMBERS REQD AND ADJUST ACCORDINGLY. PROVIDE NEW TYPE-WRITTEN DIRECTORIES REFLECTING ACTUAL CIRCUIT NUMBERS USED, W/NEW AND/OR RELOCATED CIRCUITS CLEARLY INDICATED. NERW DIRECTORIES SHALL INCLUDE DATE AND PROJECT DESCRIPTION, EXAMPLE: 1997 NEW LEASE. DO NOT DISCARD OLD DIRECTORIES. PLACE NEW DIRECTORIES OVER OLD.

G2 EACH CIRCUIT IS SHOWN W/AN INDIVIDUAL HOMERUN. E.C. MAY ELECT TO COMBINE TWO OR MORE CIRCUITS IN ONE COMMON CONDUIT AND W/ COMMON NEUTRAL WHERE ALLOWED (CIRCUITS W/ HIGH CONTENT OF HARMONIC CURRENTS MAY NOT USE COMMON NEUTRAL, EXAMPLE: LIGHTING CIRCUITS W/ELECTRONIC BALLASTS, CIRCUITS W/NON-LINEAR ELECTRONIC POWER SUPPLIES, ETC).
NOTE: AMPACITIES OF CONDUCTORS SHALL BE REDUCED IF MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE INSTALLED IN A RACEWAY. SEE N.E.C. ARTICLE 310-15,8(a) "NOTES TO AMPACITY TABLES OF 0 TO 2000 VOLTS". CONDUCTORS SHALL BE DERATED IF 4 OR MORE WIRES ARE INSTALLED IN ONE CONDUIT (SEE RELATED NOTE "G3" ON TEMPERATURE LIMITATION OF CONDUCTOR AMPACITY), TYP. EXAMPLES FOR 20-AMP. CIRCUITS ARE SHOWN BELOW:

NO. OF CURRENT CARRYING CONDUCTORS	% OF VALUE IN TABLES AS ADJUSTED FOR TEMPERATURE IF NECESSARY	WIRE SIZE, 4 OR MORE WIRES IN ONE CONDUIUT 60°C WIRE (E.G: TW)	WIRE SIZE, 4 OR MORE WIRES IN ONE CONDUIT 75°C WIRE (E.G: THWN)	WIRE SIZE, 4 OR MORE WIRES IN ONE CONDUIT 90°C WIRE (E.G: THHN)
4 THRU 6	80 %	# 12	# 12	# 12
7 THRU 9	70 %	# 10	# 10	# 12
10 THRU 20	50 %	# 8	# 8	# 10
21 THRU 30	45 %	# 6	# 8	# 8
31 THRU 40	40 %	# 6	# 8	# 8
41 & ABOVE	35 %	# 4	# 6	# 6

G3 TEMPERATURE LIMITATIONS ON AAMPACITY OF CONDUCTOR:
THE AMPACITY OF A CONDUCTOR SHALL BE SELECTED BASED ON THE NATIONAL ELECTRICAL CODE ARTICLES 310-15 AND 110-14-(C)-(1),(2),(3). THE TEMPERATURE LIMITATIONS NOTED IN 110-14-(C)-(1),(2),(3) MAY BE PARAPHRASED AS FOLLOWS:
(A) CIRCUITS RATED 100 AMPS. OR LESS:
USE 60°C RATED CONDUCTORS ONLY; 75°C AND 90°C CONDUCTOR MAY BE USED BUT ONLY @ 60°C AMPACITY.
EXCEPTIONS: HIGHER TEMPERATURE CABLES ARE ALLOWED PROVIDED THE EQUIPMMENT IS LISTED AND IDENTIFIED FOR USE WITH THE HIGHER RATED CONDUCTORS.
(B) CIRCUITS RATED MORE THAN 100 AMPS. OR CONDUCTOR LARGER THAN NO. 1:
USE 75°C RATED CONDUCTORS ONLY; 90°C CONDUCTOR MAY BE USED BUT ONLY @ 75°C AMPACITY.
EXCEPTIONS: HIGHER TEMPERATURE CABLES ARE ALLOWED PROVIDED THE EQUIPMMENT IS LISTED AND IDENTIFIED FOR USE WITH THE HIGHER RATED CONDUCTORS.

G4 ALL CONDUIT AND WIRE MUST BE CONCEALED FROM VIEW. EXPOSED CONDUIT AND WIRE ARE NOT ACCEPTABLE.

G5 ALL ELECTRICAL AND COMMUNICATION DEVICES(LIGHT SWITCHES, RECEPTACLES, TELEPHONE, DATA, ETC.) SHALL BE RECESSED MOUNTED UNLESS NOTED OTHERWISE. FIELD VERIFY RECEPTACLE MOUNTING REQUIREMENTS WITH OWNER/ARCHITECT. IF NO REQUIREMENTS, MOUNT ALL DUPLEX RECEPTACLES WITH THE "U" GROUND TERMINAL ON TOP. UNLESS NOTED OTHERWISE OR AS REQUIRED BY OWNER/ARCHITECT.

G6 EQUIPMENT LAYOUT IS BASED ON SQUARE D AND/OR SIEMENS, OTHER MANUFACTURERS SUCH AS GE MAY HAVE LARGER DIMENSIONS. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE EQUIPMMENT WITH SIMILAR DIMENSIONS THAT WOULD FIT IN THE SPACE NOTED.

G7 VERIFY LOCATION OF ALL OUTLETS (POWER & COMMUNICATION) WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN. OWNER RESERVES THE RIGHT TO MOVE ANY OUTLETS 5 FT. IN ANY DIRECTION PRIOR TO ROUGH-IN. ALL RECEPTACLES WITHIN 6 FEET OF ANY WET AREA (EXAMPLE: SINK, DISHWASHER, ETC.) SHALL HAVE GROUND FAULT PROTECTION, WHETHER SPECIFICALLY INDICATED OR NOT ON DRAWINGS.
MOUNTING HEIGHTS OF ALL OUTLETS (RECEPTACLES, SWITCHES, TELEPHONE, DATA, ETC.) IN AREAS WITH COUNTERTOP SHALL BE VERIFIED W/ ARCHITECT/OWNER. GENERALLY ALL OUTLETS ARE TO BE MOUNTED ABOVE COUNTERTOP EXCEPT TELEPHONE, DATA, AND OUTLETS FOR DISPOSERS, UNDERCOUNTER DISHWASHER, UNDERCOUNTER REFRIGERATORS ETC. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS.
ALL WEATHERPROOF/WET LOCATION AND/OR OUTDOOR RECEPTACLES SHALL HAVE "WEATHERPROOF-WHILE-IN-USE" COVERS (NEC ARTICLE 410-57(b). PROVIDE RACO BELL RAYNTITE II COVERS OR EQUAL.

G8 SWITCHES/STARTERS FOR MECH AND OTHER EQUIPMENT: LOCATION OF DISCONNECT SWITCHES, STARTERS, CONTROL STATIONS ETC ARE SHOWN DIAGRAMMATICALLY ON THE DWGS. E.C. SHALL INSTALL SUCH DEVICES IN COMPLIANCE WITH CODE CLEARANCE REQUIREMENTS. REMOVE AND RE-INSTALL DEVICES THAT ARE INACCESSIBLE OR WITH INADEQUATE CODE CLEARANCE.

G9 HVAC EQUIPMENT: OVERCURRENT DEVICES, DISCONNECT SWITCHES, CONDUIT/WIRE ARE SELECTED BASED ON EQUIPMENT SHOWN ON MECH. DRAWINGS. FIELD VERIFY RATINGS OF EQUIP. SUPPLIED BY HVAC CONTRACTOR AND REVISE ELECT. AS REQUIRED TO MATCH ACTUAL EQUIP. SUPPLIED BY MECH. CONTRACTOR.

G10 PROVIDE HOUSE KEEPING CONCRETE PAD (MIN. 4" HIGH) FOR ALL FLOOR MNTD ELECTRICAL EQIP. INCLUDING TRANSFORMERS, SWITCHBOARDS,M.C.C., SWITCHES ETC. PROVIDE ALL REQD. AND NECESSARY UNISTRUT SUPPORT FOR ALL INDOOR/OUTDOOR ELECTRICAL EQUIPMENT.

G11 FIRE WALL: DO NOT INSTALL RECEPTACLES, TELEPHONE, DATA OUTLETS ETC. BACK-TO-BACK IN FIRE/SMOKE PARTITIONS OR WITHIN THE SAME SPACE ENCLOSED BY TWO ADJACENT STUDS. SAME RESTRICTION APPLIES TO ALL CORRIDOR WALLS.

G12 EACH HOMERUN CIRCUIT SHALL BE 2 #10 THWN, 1 #12 GROUND, 1/2" CONDUIT TO NEW 20 AMP./1-POLE BREAKER TYPICAL UNLESS NOTED OTHERWISE IN THE PANEL SCHEDULES. NEW BREAKERS SHALL EXISTING IN STYLE, MAKE AND A.I.C. RATINGS.
ELECT. CONTRACTOR MAY USE EXISTING SPARE BREAKERS IF AVAILABLE.

G13 EXISTING PANEL(S) HAVE LIMITED NUMBER OF SPACES/SPARES. FIELD VERIFY AVAILABILITY OF SPACES/SPARES IN PANEL(S). PROVIDE NEW SUB PANEL(S) IF SPACE/SPARES ARE NOT AVAILABLE. TYPICAL NEW SUB-PANEL(S): 100 AMP. M.L.O. 208Y/120 VOLT, 3-PHASE, 4-WIRE WITH GROUNG BUS, 24-POLE, W/ (24) 20A/1P BREAKERS. INSTALL 100A/3P BREAKERS IN EXISTING PANEL TO FEED NEW SUB-PANEL(S). FEEDER SHALL BE 4 #1 THWN, 1-#8 THWN GROUND, 1-1/2" CONDUIT. RELOCATE ANY DISPLACED CIRCUITS DUE TO INSTALLATION OF FEEDER BREAKER TO NEW SUB-PANEL(S), PROVIDE CONDUIT/WIRE EXTENSION AS REQUIRED. SUB-PANEL(S) MAY BE MOUNTED REMOTELY IF SPACE IS NOT AVAILABLE IN VICINITY OF EXISTING PANEL(S). PROVIDE PANELBOARD BONDING, SEE NOTE ABOVE. LOADCENTER TYPE PANEL IS NOT ACCEPTABLE AND SHALL NOT BE USED.

G14 RELOCATION OF EXISTING DEVICES: RELOCATION WORK SHALL INCLUDE BUT NOT LIMITED TO RELOCATION OF ALL ASSOCIATED CONDUIT/WIRE AND CONTROL. PROVIDE ADDITIONAL CONDUIT/WIRE AS REQUIRED. WIRE MAY NOT BE SPLICED IN INACCESSIBLE FITTINGS/JUNCTION BOXES. RE-PULL NEW WIRES AS REQUIRED TO MAKE SPLICES ACCESSIBLE. COMMUNICATION/ /DATA WIRES MAY NOT BE SPLICES. PULL NEW WIRES FOR ALL RELOCATED COMMUNICATION/ DATA DEVICES.

GENERAL NOTES (LIGHTING-APPLY TO ALL SHEETS)

A. REFER TO ARCH. REFLECTED CLG PLAN FOR EXACT LOCATION OF LIGHTING FIXTURES.

B.

C. EXISTING FIXTURES: EXISTG FIXTURES INDICATED TO BE RE-USED SHALL BE CLEANED AND RE-LAMPED. E.C. TO EXAMINE CONDITION OF EXISTING BALLASTS, REPLACE IF NOISY/OR INOPERABLE. ALL BALLASTS DATED BEFORE 1976 ARE PRESUMED TO CONTAIN PCB AND SHALL BE REMOVED BY E.C. DISPOSE OF SUCH BALLASTS IN STRICT COMPLIANCE W/APPLICABLE FEDERAL AND STATE LAWS AND LOCAL CODES.
FIXTURES NOT INDICATED TO BE REUSED SHALL BE DELIVERED TO A LOCATION TO BE SPECIFIED BY THE OWNER.

GENERAL NOTES AND ELECTRICAL SPECIFICATIONS

1. PERMITS AND CODES: OBTAIN AND PAY FOR ALL NECESSARY PERMITS. COMPLY W/ALL NATIONAL, STATE & MUNICIPAL LAWS, CODES & ORDINANCES RELATING TO BUILDING & PUBLIC SAFETY. PROVIDE ANY REQD TEMPORARY POWER & UTILITIES. APPLICABLE CODES INCLUDE BUT ARE NOT LIMITED TO: STANDARD BUILDING CODE, NEC 1996, LIFE SAFETY CODE(NFPA 101), TEXAS ACCESSIBILITY STDS.
2. MATERIAL: ALL MATERIALS SHALL BE NEW, MADE IN USA & UL LISTED. MATERIAL INSTALLATION SHALL COMPLY W/ NEC REQUIREMENTS & BE PERFORMED BY CRAFTMAN SKILLED IN THIS PARTICULAR WORK.
3. EQUIPMENT PROTECTION: PROTECT EQUIP. & WORK FROM DAMAGE DURING HANDLING & INSTALLATION UNTIL COMPLETION OF CONSTRUCTION.
4. GROUNDING: ALL CONDUIT WORK & ELECT. EQUIPMENT SHALL BE EFFECTIVELY AND PERMANENTLY GROUNDED IN ACCORDANCE W/ NEC. PROVIDE GREEN EQUIP.GROUNDING CONDUCTOR W/ ALL POWER, RECEPT., & LIGHTING CIRCUITS.
5. RELATION W/OTHER TRADES: COOPERATE WITH OTHER TRADES TO ACCOMPLISH THE FULL INTENT OF THE DOCUMENTS.
6. ACCESS PANEL: PROVICE ACCESS PANELS OR DOORS FOR ALL DEVICES REQUIRING ADJUSTMENT.
7. PLENUMS: PLENUMS ARE CROWDED AND NOT ALL OBSTACLES ARE INDICATED. ALLOW FOR CIRCUIT OFFSETS & PULL BOXES NOT INDICATED ON DRAWINGS.
8. PLASTER, GYPSUM BOARD OR OTHER NON-ACCESSABLE CEILINGS: MINIMIZE CUTTING & PATCHING BY INSTALLING CONDUIT PRIOR TO CEILING/WALL/PARTITION COVER-UP.
9. WORK IN OCCUPIED AREAS: WORK IN, ABOVE, BELOW OR NEAR OCCUPIED AREAS SHALL BE @ OWNER'S CONVENIENCE & MAY BE DURING EVENINGS OR WEEKENDS. SCHEDULE ALL REQUIRED POWER OUTAGES A MINIMUM OF 7 DAYS IN ADVANCE W/ FACILITY ENGINEER. DO NOT TURN OFF ANY POWER SOURCE. ONLY FACILITY ENGR OR HIS AUTHORIZED REPRESENTATIVE MAY DO SO.
10. DRAWINGS: DRAWINGS ARE DIAGRAMMATIC. CONFIRM DIMENSIONS & LOCATIONS IN THE FIELD. IF CONFLICTING DIMENSIONS ARE SHOWN, USE LARGER DIMENSIONS AND VERIFY W/ ARCHITECT. SEE ARCHITECTURAL PLANS & ELEVATIONS FOR EXACT LOCATION OF FIXTURES AND WALL MOUNTED DEVICES.
11. CLEAN UP: I) PROVIDE FOR ISOLATION OF WORK AREAS AND DAILY REMOVAL OF DEBRIS. B) CLEAN ALL EQUIPMENT & FIXTURE LENSES. C) REPLACE ALL BURNED OUT LAMPS. D) TOUCH UP WITH PAINT WHERE REQUIRED.
12. COMPLETE SYSTEM: ALL SYSTEMS SHALL BE COMPLETE AND WORKING AT COMPLETION OF CONSTRUCTION.
13. PANELBOARD DIRECTORIES: IDENTIFY EACH CIRCUIT W/LOAD AND LOCATIONS AND INDICATE W/ TYPED DIRECTORIES.
14. GUARANTEE: GUARANTEE ALL WORK AND MATERIALS FURNISHED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY OWNER AND ARCHITECT.
15. CONDUIT: SHALL BE RIGID GALVANIZED STEEL (RGS) OR ELECTRICAL METALLIC TUBING (EMT) AS MANUFACTURED BY ALLIED, TRIANGLE OR WHEATLAND. INDOOR ABOVE GRADE: EMT OR RGS; OUT DOOR ABOVE GRADE: RGS, IMC OR RIGID ALUMINUM; BELOW GRADE: SCH. 40 PVC OR RGS; UNDER SLAB: SCH 80 PVC. PROVIDE PULL WIRE IN ALL CONDUITS (POWER, FIRE ALARM, TELEPHONE AND OTHER COMMUNICATION CONDUITS). PULL WIRE REQD IN ALL SPARE CONDUITS.
16. WIRE: (TRIANGLE, AMERICAN INSULATED CABLE CO., OR CABLEC)
ALL WIRING SHALL BE IN CONDUIT.
A.) MINIMUM SIZE #12 EXCEPT CONTROLS MAY BE #14. B.) TYPE THHN/THWN STRANDED COPPER THERMOPLASTIC IN DRY LOCATIONS. C.) TYPE THWN IN WET LOCATIONS (OUTDOOR, UNDERGROUND, OR ON ROOF, ETC.). D.) ALL WIRE SHALL BE 98% CONDUCTIVITY COPPER , 600 VOLT. NO ALUMINUM WIRES. E.) WIRE #10 AND SMALLER MAY BE SOLID OR STRANDED, #8 OR LARGER SHALL BE STRANDED. F.) COMMUNICATION WIRE (FIRE ALARM, TELEPHONE, DATA, ETC): PLENUM RATED LOW-SMOKE CABLE MAY BE USED IN LIEU OF WIRE/CONDUIT TYPE INSTALLATION. ALL PLENUM RATED CABLE SHALL BE PROPERLY SUPPORTED BY CABLE TIES, CLIPS ETC. DO NOT LAY COMMUNICATION CABLE DIRECTLY ON TOP OF CEILING TILES.
17. WIRING DEVICES: FURNISH & INSTALL WHERE INDICATED ON DRAWINGS. STYLE AND COLOR TO BE SELECTED BY ARCHITECT. ALL RECEPTACLES SHALL BE "SPEC GRADE" TYPE. ISOLATED POWER RECEPTACLES(IF USED) TO BE ORANGE COLOR, W/CIRCUIT NUMBER & PANEL NAME ENGRAVED ON FACE PLATE. COVER PLATES: HIGH ABUSE NYLON OR STAINLESS STEEL. ALL ELECTRICAL BOXES ON OPPOSITE SIDES OF CORRIDOR WALLS AND FIREWALLS MUST BE SEPARATED BY HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES (1991 B.B.C. 4304(f).
18. TESTING & CERTIFICATION: CONTRACTOR SHALL DELIVER A WRITTEN REPORT CERTIFYING THAT EVERY RECEPTACLE HAS BEEN TESTED AS FOLLOWS & FOUND ACCEPTABLE:(a) THE PHYSICAL INTEGRITY OF EACH RECEPTACLE SHALL BE CONFIRMED BY VISUAL INSPECTION. (b) THE CONTINUITY OF THE GROUNDING CIRCUIT IN EACH ELECT. RECEPTACLE SHALL BE VERIFIED. (c) CORRECT POLARITY OF THE HOT & NEUTRAL CONNECTIONS IN EACH ELECT. RECEPTACLE SHALL BE CONFIRMED. (d) THE RETENTION FORCE OF THE GROUNDING BLADE OF EACH ELECTRICAL RECEPTACLE (EXCEPT LOCKING-TYPE RECEPTACLES) SHALL BE NOT LESS THAN 115 GRAMS (4 OZ).
19. OUTLET BOXES: SHALL BE GALV. STEEL SUITABLE FOR LOCATION. CEILING OUTLET BOXES SHALL BE 4" OCTAGON. WALL OUTLET BOXES SHALL BE PROPER DESIGN TO ACCOMODATE THE DEVICES REQUIRED – 4 INCH SQUARE W/ RAISED COVER. PROVIDE RACO, STEEL CITY OR APPLETON.
20. IDENTIFICATION: LABEL ALL JUNCTION & PULL BOXES W/PANELS & CIRCUIT NUMBERS. LABEL ALL HOMERUN AND MAJOR CONDUIT W/ HOME PANELS/SWITCHES ETC. AT EVERY 10-FT INTERVAL. MARK ALL BRANCH CONDUIT WITH CIRCUIT NUMBERS AT EACH SURFACE MNTD PANEL LOCATION. FOR RECESSED PANELS, MARK BRANCH CONDUIT IN CEILING PLENUM JUST ABOVE PANELS. ALL PANELS SHALL BE IDENTIFIED WITH 4 ROWS OF TEXT (LETTER HEIGHT SHALL BE 1/4" MINIMUM, WHITE LETTER ON BLACK BACKGROUND), EXAMPLE:
PANEL "XXX" 225 AMPS
120/240V, 1-PHASE, 3-WIRE
FEEDER SIZE: 3# 4/0 THWN, 1-#4 G, 2"C.
FED FROM PANEL "XXX"
21. SWITCHGEAR, TRANSFORMERS, PANELBOARDS: SHALL BE SQUARE D, WESTINGHOUSE/CUTLER HAMMER, SIEMENS/ITE OR GE. MATCH EXISTING WHERE REQUIRED BY OWNER. ALL EQUIPMENT SHALL HAVE COPPER BUSES OR WINDINGS. LOAD-CENTER TYPE PANELBOARDS ARE NOT ACCEPTABLE AND SHALL NOT BE USED. ALL EQUIPMENT SHALL BE LABELED. FOR EACH PANEL: FURNISH & INSTALL ONE SPARE 3/4" CONDUIT FOR EVERY 6 SPARES &/OR SPACES IN THE PANEL. EACH SPARE CONDUIT SHALL BE INSTALLED W/ PULL STRING STUBBED TO J-BOX LOCATED IN ACCESSIBLE CEILING/ PLENUM SPACE. INSTALL A MINIMUM OF ONE SPARE 3/4" CONDUIT FOR EVERY PANEL SHOWN ON PLANS, EVEN IF THERE IS NO SPARES/SPACES IN SOME PANELS.
22. ELECTRICAL SERVICE OUTAGE: SERVICE TO THE EXISTING BLDG SHALL BE MAINTAINED DURING NORMAL WORKING HOURS. ANY SERVICE OUTAGE REQUIRED TO COMPLETE THE WORK SHALL BE THE TIME & FOR THE LENGTH OF TIME AS DIRECTED BY OWNER. ALL PREMIUM TIME SHALL BE INCLUDED IN CONTRACTOR'S BID.
23. RECORD DRAWINGS: MAINTAIN A CONTINUOUS RECORD DURING CONSTRUCTION OF ALL CHANGES IN THE WORK FROM THE ACCOMPANYING DRAWINGS. UPON COMPLETION OF WORK, PURCHASE A SET OF MYLAR REPRODUCIBLES & MAKE CORRECTIONS AS REQUIRED TO REFLECT THE ELECTRICAL SYSTEMS AS INSTALLED. SUBMIT THREE PRINTS OF THE TRACINGS FOR APPROVAL. MAKE CORRECTIONS TO TRACINGS AS DIRECTED & DELIVER MYLAR TRACINGS TO OWNER.
24. JOB SITE VISIT: CONTRACTOR SHALL VISIT THE JOB SITE & GET FAMILIAR W/ ALL EXISTING CONDITIONS THAT WILL AFFECT HIS WORK. NO ADDITIONAL COMPENSATE WILL BE ALLOWED FOR WORK OR ITEMS OMITTED FROM CONTRACTOR'S BID DUE TO FAILURE TO INFORM HIMSELF OF ALL FACTORS AFFECTING HIS WORK.
25. EXISTING FACILITIES: CONTRACTOR SHALL BE RESPONSIBLE FOR LOSS OR DAMAGE TO EXISTING FACILITIES CAUSED BY HIS WORKMEN, AND SHALL BE RESPONSIBLE FOR RAPAIRING OR REPLACING SUCH DAMAGE OR LOSS. CONTRACTOR SHALL ERECT TEMPORARY BARRICADES, W/ NECESSARY SAFETY DEVICES, AS REQUIRED TO PROTECT PERSONNEL & THE GENERAL PUBLIC FROM INJURY, REMOVING ALL SUCH TEMPORARY PROTECTION UPON COMPLETION OF THE WORK. SALVAGE MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE DELIVERED TO SUCH DESTINATION AS DIRECTED BY THE OWNER.
WHERE EXISTING CONSTRUCTION IS REMOVED TO PROVIDE WORKING & EXTENSION ACCESS TO EXISTING UTILITIES, CONTRACTOR SHALL REMOVE CEILING GRID, TILES, DOORS, PIPING, AC DUCTWORK & EQUIPMENT, ETC TO PROVIDE THIS ACCESS & SHALL REINSTATE SAME UPON COMPLETION OF WORK IN AREAS AFFECTED.
26. FIRE STOPS & PENETRATION STOPS: ALL PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS SHALL BE SEALED WITH CHASE-FOAM, CTC PR-855 FIRE RESISTANT FOAM SEALANT, TO PREVENT THE SPREAD OF SMOKE, FIRE, TOXIC GASES OR WATER THROUGH THE PENETRATION EITHER BEFORE, DURING OR AFTER A FIRE. THE FIRE RATING OF THE PENETRATION SEAL SHALL BE AT LEAST THAT OF THE FLOOR OR WALL INTO WHICH IT IS INSTALLED, SO THAT THE ORIGINAL FIRE RATING OF THE FLOOR OR WALL IS MAINTAINED AS REQUIRED BY ARTICLE 300-21 OF THE NATIONAL ELECTRICAL CODE.
27. TELEPHONE, DATA SYSTEMS: PROVIDE & INSTALL WALL OUTLET BOXES, COVER PLATES AND 3/4' CONDUIT AND PULL STRING STUBBED TO A J-BOX ABOVE ACCESSIBLE CEILING FOR INSTALLATION OF WIRING BY OTHERS.
28. COLOR CODE: CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS (FOLLOW CITY OF OAKRIDGE COLOR CODES IF APPLICABLE)–

	480Y/277V 3-PHASE, 4W	208Y/120V 3-PHASE, 4W	240/120V, 3-PHASE, 4W (DELTA HIGH LEG SYSTEM)	120/240V 1-PH., 3W
PHASE A	BROWN	BLACK	BLACK	BLACK
PHASE B	PURPLE	RED	ORANGE(HIGH LEG)	RED
PHASE C	YELLOW	BLUE	BLUE	– –
NEUTRAL	GRAY OR WHITE	WHITE	WHITE	WHITE
GROUND	GREEN	GREEN	GREEN	GREEN

29. FINAL INSPECTION: AT THE TIME DESIGNATED BY ARCHITECT, THE ENTIRE SYSTEM SHALL BE INSPECTED BY ARCHITECT & THE ENGINEER. CONTRACTOR OR HIS REPRESENTATIVE SHALL BE PRESENT AT THIS INSPECTION. CONTRACTOR SHALL PROVIDE A SET OF AS-BUILT DRAWINGS AND MYLAR REPRODUCIBLES TO OWNER/ARCH. AFTER THE INSPECTION ITEMS NOTED AS NEEDING CHANGES OR CORRECTION TO MEET CONTRACT DOCUMENT SHALL BE CORRECTED OR CHANGED WITHOUT DELAY.

M. S. ESIERE ENGINEERS
REGISTERED # F-11441
MECHANICAL ELECTRICAL PLUMBING
435 FM 1092, # B1-136, STAFFORD
TX 77477
(832) 987-1928.E-MAIL: msemep@gmail.com

Written dimensions on these drawings shall have precedence over scale dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job and this office must be notified of any variation from the dimensions and conditions shown by these drawings.

MOC (Oak Ridge)

27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

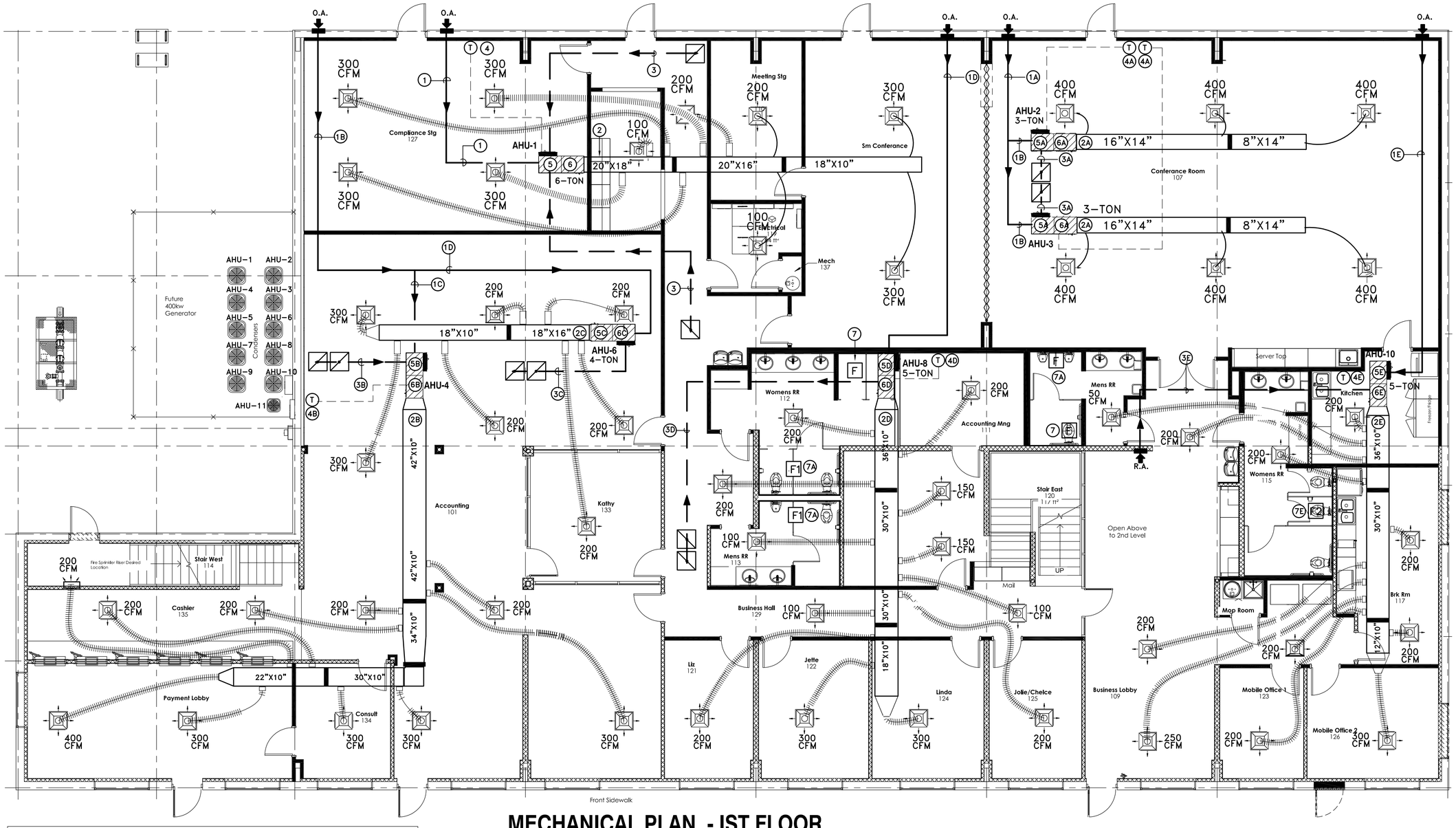
APRIL 10, 2015

REVISIONS:

DATE ISSUED:

SHEET:

MEP



MECHANICAL PLAN - IST FLOOR

SCALE: 3/16"= 1'-0"

LEGEND:

- DUCT SIZE TRANSITION
- AIR MOVEMENT
- F — TOILET EXHAUST FAN
- 2X2 SUPPLY AIR GRILL, 4-WAY THROW.
- 2X2 RETURN AIR GRILL W/NO VOL. DAMPER.
- 2-22X22 R.A. GRILL W/OUT VOL. DAMPER.
- T — PROGRAMMABLE THERMOSTAT
- R.A. — RETURN AIR
- S — SMOKE-CO2 COMBO DETECTOR
- AIR HANDLING UNIT (AHU)
- AIR COOLED CONDENSING UNIT (CDU)
- 12"Ø — DIAMETER OF FLEX DUCT
- SUPPLY AIR DUCT
- RETURN AIR DUCT

ALL AIR HANDLING UNITS & DUCT WORK SHOWN ON SHEETS M-1 & M-2 ARE LOCATED ON THIS LEVEL.

FOR KEYED NOTES THIS SHEET, SEE SHEET M-3

M. S. ESIERE ENGINEERS
REGISTERED # F-11441
MECHANICAL ELECTRICAL PLUMBING
435 FM 1092, # B1-136, STAFFORD
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MOC (Oak Ridge)

27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

REGISTERED PROFESSIONAL ENGINEER
M. S. ESIERE
52078
STATE OF TEXAS

APRIL 10, 2015

REVISIONS:

DATE ISSUED:

SHEET:

M-1

M. S. ESIERE ENGINEERS
REGISTERED # F-11441
MECHANICAL ELECTRICAL PLUMBING
435 FM 1092, # B1-136, STAFFORD
TX 77477
(832) 987-1928.E-MAIL: msemep@gmail.com

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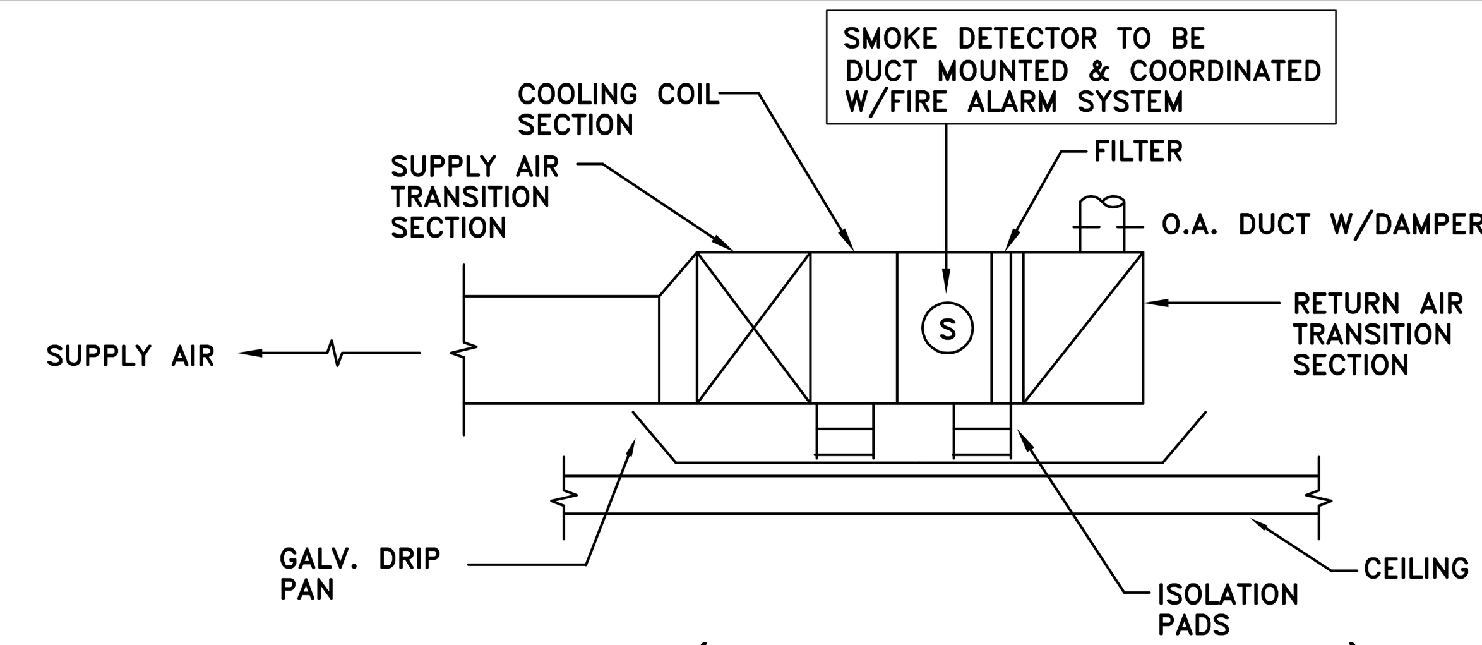
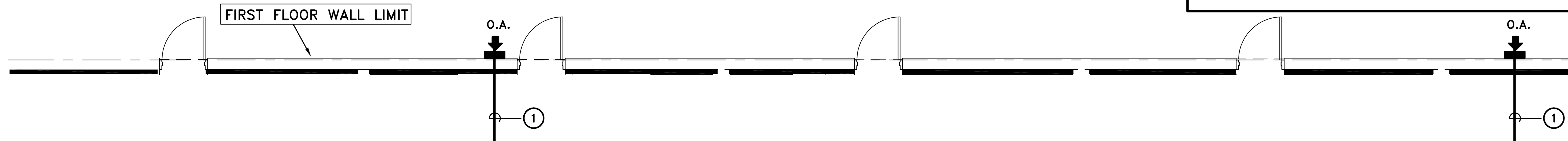
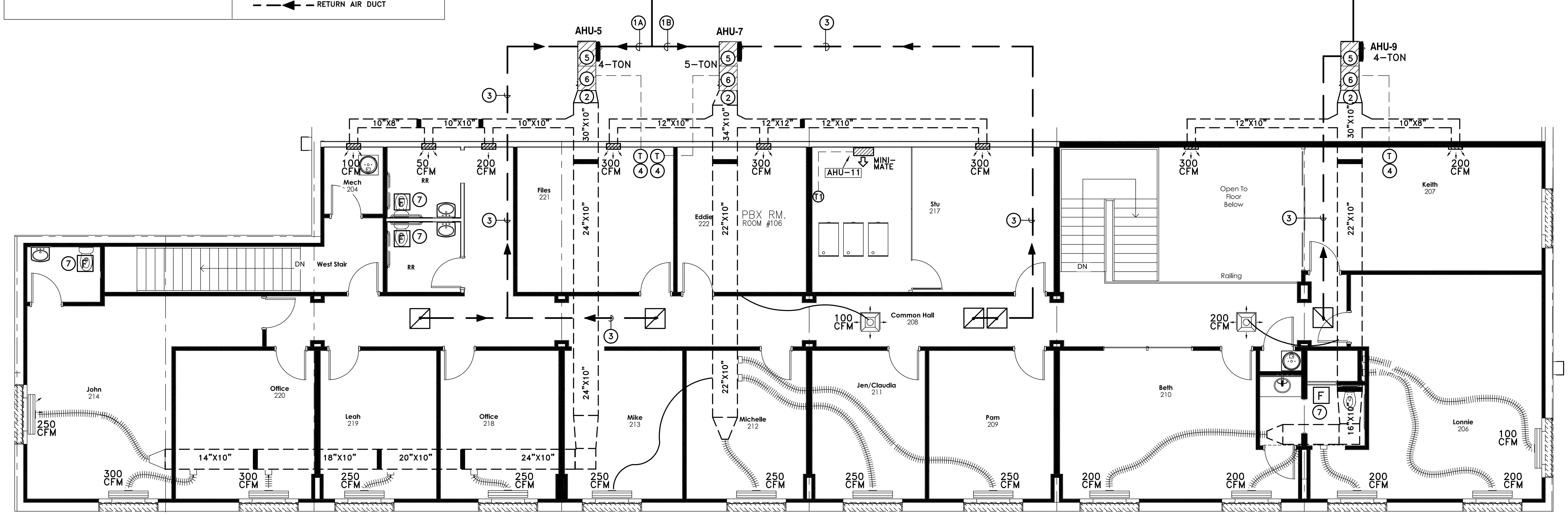
- RETURN AIR DUCT



AHU DETAIL(UNIT ABOVE CEILING)
NTS





ALL AIR HANDLING UNITS & DUCT WORK SHOWN HERE ARE LOCATED ON IST FLOOR LEVEL.

FOR KEYED NOTES THIS SHEET, SEE SHEET M-3

MECHANICAL PLAN - 2ND FLOOR

SCALE: 3/16"= 1'-0"

MOC (Oak Ridge)

27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

APRIL 10, 2015

REVISIONS:

DATE ISSUED:

SHEET:

M-2

HVAC EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ELECT.
AHU–#1 1ST FLOOR OFFICE AREAS	6.0–TON, FAN COIL UNIT, 73.0 MBTUH GROSS COOLING, 64.1 MBTUH SENSIBLE, 2,200 CFM SUPPLY AIR, 300 CFM O.A., 1.5 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=0.70", MCA=26.0, MAX FUSE=30A., 15.0 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#1 1ST FLOOR OFFICE AREAS	6.0–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, LRA=90, RLA= 14.5, FAN FLA=3.1, MCA=19.7, MAX FUSE=50A LENNOX , HIGH EFFFICIENCY (SEER=13 MIN).	460/3/60
AHU–#2 1ST FLOOR OFFICE AREAS	3.0–TON, FAN COIL UNIT, 36.0 MBTUH GROSS COOLING, 23.4 MBTUH SENSIBLE, 1,200 CFM SUPPLY AIR, 200 CFM O.A., , LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=0.70", MCA=17.4, MAX FUSE=20A., 9.60 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#2 1ST FLOOR OFFICE AREAS	3.0–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, RLA= 6.1, FAN FLA=1.4, MCA=9.5, MAX FUSE=15A LENNOX , HIGH EFFFICIENCY (SEER=13 MIN).	460/3/60
AHU–#3 1ST FLOOR OFFICE AREAS	3.0–TON, FAN COIL UNIT, 36.0 MBTUH GROSS COOLING, 23.4 MBTUH SENSIBLE, 1,200 CFM SUPPLY AIR, 200 CFM O.A., , LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=0.70", MCA=17.4, MAX FUSE=20A., 9.60 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#3 1ST FLOOR OFFICE AREAS	3.0–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, RLA= 6.1, FAN FLA=1.4, MCA=9.5, MAX FUSE=15A LENNOX , HIGH EFFFICIENCY (SEER=13 MIN).	460/3/60
AHU–#4 1ST FLOOR OFFICE AREAS	5–TON, FAN COIL UNIT, 60 MBTUH GROSS COOLING, 48.1 MBTUH SENSIBLE, 2,000 CFM SUPPLY AIR, 400 CFM O.A., 1.5 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=1.0", MCA=17.0, MAX FUSE=20A., 9.6 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#4 1ST FLOOR OFFICE AREAS	5–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, LRA=165.0, RLA= 28.8, FAN FLA=1.4, MCA=35.0, MAX FUSE=35A LENNOX , HIGH EFFFICIENCY.	460/3/60
AHU–#5 I2ND FLOOR OFFICE AREAS	4–TON, FAN COIL UNIT, 48.0MBTUH GROSS COOLING, 35.1 MBTUH SENSIBLE, 1,600 CFM SUPPLY AIR, 300 CFM O.A., 1.0 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=1.0", MCA=27.8, MAX FUSE=30A., 15.36 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#5 I2ND FLOOR OFFICE AREAS	4–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, RLA= 21.1, FAN FLA=1.4, MCA=27, MAX FUSE=30A LENNOX , HIGH EFFFICIENCY.	460/3/60
AHU–#6 1ST FLOOR OFFICE AREAS	4–TON, FAN COIL UNIT, 48.0MBTUH GROSS COOLING, 35.1 MBTUH SENSIBLE, 1,600 CFM SUPPLY AIR, 300 CFM O.A., 1.0 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=1.0", MCA=20.0, MAX FUSE=20A., 9.6 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#6 1ST FLOOR OFFICE AREAS	4–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, RLA= 21.1, FAN FLA=1.4, MCA=27, MAX FUSE=30A TRANE, CARRIER OR EQUAL, HIGH EFFFICIENCY.	460/3/60
AHU–#7 2ND FLOOR OFFICE AREAS	5–TON, FAN COIL UNIT, 60 MBTUH GROSS COOLING, 48.1 MBTUH SENSIBLE, 2,000 CFM SUPPLY AIR, 400 CFM O.A., 1.5 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=1.0", MCA=25.0, MAX FUSE=30A., 15.36 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#7 2ND FLOOR OFFICE AREAS	5–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, LRA=165.0, RLA= 28.8, FAN FLA=3.1, MCA=35.0, MAX FUSE=35A LENNOX EQUAL, HIGH EFFFICIENCY.	460/3/60
AHU–#8 1ST FLOOR OFFICE AREAS	5–TON, FAN COIL UNIT, 60 MBTUH GROSS COOLING, 48.1 MBTUH SENSIBLE, 2,000 CFM SUPPLY AIR, 400 CFM O.A., 1.5 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=1.0", MCA=25.0, MAX FUSE=30A., 15.36 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#8 1ST FLOOR OFFICE AREAS	5–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, LRA=165.0, RLA= 28.8, FAN FLA=3.1, MCA=35.0, MAX FUSE=35A LENNOX EQUAL, HIGH EFFFICIENCY.	460/3/60

HVAC EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ELECT.
AHU–#9 2ND FLOOR OFFICE AREAS	4–TON, FAN COIL UNIT, 48.0MBTUH GROSS COOLING, 35.1 MBTUH SENSIBLE, 1,600 CFM SUPPLY AIR, 300 CFM O.A., 1.0 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=1.0", MCA=27.8, MAX FUSE=30A., 15.36 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#9 2ND FLOOR OFFICE AREAS	4–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, RLA= 21.1, FAN FLA=1.4, MCA=27, MAX FUSE=30A LENNOX, HIGH EFFICIENCY (SEER 13 MIN)	460/3/60
AHU–#10 1ST FLOOR OFFICE AREAS	5–TON, FAN COIL UNIT, 60 MBTUH GROSS COOLING, 48.1 MBTUH SENSIBLE, 2,000 CFM SUPPLY AIR, 400 CFM O.A., 1.5 STD MOTOR, LENNOX, HIGH EFFICIENCY (SEER 13 MIN) ESP=1.0", MCA=25.0, MAX FUSE=30A., 15.36 KW ELECTRIC HEAT; UNIT IS HORIZONTAL SUPPLY AND HORIZONTAL RETURN.	460/3/60
CDU–#10 1ST FLOOR OFFICE AREAS	5–TON AIR–COOLED ONDENSING UNIT, SINGLE COMPRESSOR, LRA=165.0, RLA= 28.8, FAN FLA=3.1, MCA=35.0, MAX FUSE=35A LENNOX , HIGH EFFFICIENCY.	460/3/60
AHU #11 ELECT/ PBX ROOM	LIEBERT MINI–MATE 2 OR EQUAL, CEILING MNTD, 600 CFM, NO HEATING COIL. INSTALL COMPLETE WITH HUMIDIFIER. MCA=15, MAX FUSE=20A.	208/1/60
CDU–11 ELECT/ PBX ROOM	LIEBERT MINI–MATE 2 OR EQUAL, AIR COOLED CONDENSING UNIT. MCA=20, MAX FUSE=25A.	208/1/60
F	CEILING MOUNTED EXHAUST FAN, 50 CFM, 2.5 SONES, FLA=0.7, 3" ROUND EXHAUST DUCT W/BACK DRAFT DAMPER, INSTALL APPROVED ROOF CAP.	120/1/60
F1	CEILING MOUNTED EXHAUST FAN, 100 CFM, 2.5 SONES, FLA=0.85, 6" ROUND EXHAUST DUCT W/BACK DRAFT DAMPER, INSTALL APPROVED ROOF CAP.	120/1/60
F2	CEILING MOUNTED EXHAUST FAN, 150 CFM, 2.5 SONES, FLA=0.91, 7" ROUND EXHAUST DUCT W/BACK DRAFT DAMPER, INSTALL APPROVED ROOF CAP.	120/1/60

KEYED NOTES FOR SHEET M-2, AHU–#9

1. 10"X8" OUTSIDE AIR DUCT FROM WALL LOUVERED OPENING W/ VOLUME DAMPER SET AT 200 CFM.
2. 32"X10" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 1,600 CFM.
3. 26"X10" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,400 CFM.
4. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #9. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.
5. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#9 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.
6. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.
7. CEILING MOUNTED EXHAUST FAN, F, 50 CFM, 2.5 SONES, FLA=0.87, BROAN OR EQUAL.

KEYED NOTES FOR SHEET M-1, AHU–#1.

1. 10" RD OUTSIDE AIR DUCT FROM WALL LOUVERED OPENING W/ MOTORIZED VOLUME DAMPER SET AT 400 CFM. DAMPER SHALL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACE IS NOT IN USE. VENTILATION OUTDOOR AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY SHUTTING OFF DURING PREOCCUPANCY BUILDING WARM–UP, COOL–DOWN, AND SET BACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (E.G. NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.
2. 20"X18" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 2,200 CFM.
3. 14"X14" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 900 CFM. TYPICAL FOR 2.
4. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #1. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.
5. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#1 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.
6. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.

KEYED NOTES FOR SHEET M-1, AHU–#2 , AHU–#3.

1A. 12"X10" OUTSIDE AIR DUCT FROM WALL LOUVERED OPENING W/ MOTORIZED VOLUME DAMPER SET AT 400 CFM. DAMPER SHALL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACE IS NOT IN USE. VENTILATION OUTDOOR AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY SHUTTING OFF DURING PREOCCUPANCY BUILDING WARM–UP, COOL–DOWN, AND SET BACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (E.G. NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

1B. 8" RD DUCT W/VOLUME DAMPER SET AT 200 CFM. TYPICAL FOR 2.

2A. 20"X18" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 1,200 CFM.

3A. 14"X14" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,000 CFM. TYPICAL FOR 2.

4A. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #1. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1. TYPICAL FOR 2.

5A. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#1 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM. TYPICAL FOR 2.

6A. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE. TYPICAL FOR 2.

KEYED NOTES FOR SHEET M-1, AHU–#4.

1B. 12"X10" OUTSIDE AIR DUCT FROM WALL LOUVERED OPENING W/ MOTORIZED VOLUME DAMPER SET AT 500 CFM. DAMPER SHALL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACE IS NOT IN USE. VENTILATION OUTDOOR AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY SHUTTING OFF DURING PREOCCUPANCY BUILDING WARM–UP, COOL–DOWN, AND SET BACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (E.G. NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

1C. 10"X10" DUCT W/VOLUME DAMPER SET AT 300 CFM.

2B. 32"X10" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 1,600 CFM.

3B. 16"X14" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,300 CFM.

4B. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #4. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.

5B. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#4 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.

6B. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.

KEYED NOTES FOR SHEET M-1, AHU–#6.

1D. 10"X10" DUCT W/VOLUME DAMPER SET AT 300 CFM.

2C. 42"X10" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 1,600 CFM.

3C. 18"X14" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,400 CFM.

4C. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #6. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.

5C. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#6 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.

6C. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.

KEYED NOTES FOR SHEET M-1, AHU–#8.

1D. 12"X10" OUTSIDE AIR DUCT FROM WALL LOUVERED OPENING W/ MOTORIZED VOLUME DAMPER SET AT 400 CFM. DAMPER SHALL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACE IS NOT IN USE. VENTILATION OUTDOOR AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY SHUTTING OFF DURING PREOCCUPANCY BUILDING WARM–UP, COOL–DOWN, AND SET BACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (E.G. NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

2D. 36"X10" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 2,000 CFM.

3D. 30"X10" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,600 CFM.

4D. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #8. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.

5D. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#8 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.

6D. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.

7. CEILING MOUNTED EXHAUST FAN, F, 50 CFM, 2.5 SONES, FLA=0.87, BROAN OR EQUAL.

7A. CEILING MOUNTED EXHAUST FAN, F1, 100 CFM, 2.5 SONES, FLA=0.97, BROAN OR EQUAL. TYPICAL FOR 2.

KEYED NOTES FOR SHEET M-1, AHU–#10.

1E. 12"X10" OUTSIDE AIR DUCT FROM WALL LOUVERED OPENING W/ MOTORIZED VOLUME DAMPER SET AT 400 CFM. DAMPER SHALL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACE IS NOT IN USE. VENTILATION OUTDOOR AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY SHUTTING OFF DURING PREOCCUPANCY BUILDING WARM–UP, COOL–DOWN, AND SET BACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (E.G. NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

2E. 36"X10" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 2,000 CFM.

3E. 30"X10" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,600 CFM.

4E. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #10. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.

5E. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#10 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.

6E. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.

7E. CEILING MOUNTED EXHAUST FAN, F2, 150 CFM, 2.5 SONES, FLA=0.97, BROAN OR EQUAL.

KEYED NOTES FOR SHEET M-2, AHU–#5.

1. 12"X10" OUTSIDE AIR DUCT FROM WALL LOUVERED OPENING W/ MOTORIZED VOLUME DAMPER SET AT 500 CFM. DAMPER SHALL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACE IS NOT IN USE. VENTILATION OUTDOOR AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY SHUTTING OFF DURING PREOCCUPANCY BUILDING WARM–UP, COOL–DOWN, AND SET BACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (E.G. NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

1A. 10"X8" DUCT W/VOLUME DAMPER SET AT 200 CFM.

2. 32"X10" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 1,600 CFM.

3. 18"X14" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,400 CFM.

4. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #5. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.

5. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#5 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.

6. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.

7. CEILING MOUNTED EXHAUST FAN, 50 CFM, 2.5 SONES, FLA=0.87, BROAN OR EQUAL. TYPICAL FOR 2.

KEYED NOTES FOR SHEET M-2, AHU–#7.

1B. 10"X10" DUCT W/VOLUME DAMPER SET AT 300 CFM.

2. 36"X10" HORIZONTAL SUPPLY AIR DUCT W/VOLUME DAMPER SET AT 2,000 CFM.

3. 32"X10" HORIZONTAL RETURN AIR DUCT, W/VOLUME DAMPER SET AT 1,600 CFM.

4. SOLID STATE PROGRAMMABLE THERMOSTAT W/ LOCKABLE COVER FOR AHU #7. THERMOSTAT SHALL BE CAPABLE TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY. FOR ADDITIONAL REQUIREMENT REFER TO IECC SECTION 803.2.3.1.

5. PRIMARY AC CONDENSATE DRAIN : ROUTE FULL SIZE INSULATED AC UNIT CONDENSATE DRAIN FROM AHU–#7 TO CONNECT TO LAVATORY TAIL PIPE DRAIN VIA TEE FITTING IN NEAREST REST ROOM.

6. AUXILLIARY AC CONDENSATE DRAIN: ROUTE 1" INSULATED AUXILLIARY AC CONDENSATE DRAIN TO SPILL OVER LAV IN NEAREST REST ROOM CEILING. PROVIDE CEILING ESCUTCHEON PLATE.

M. S. ESIERE ENGINEERS
REGISTERED # F-11441
MECHANICAL ELECTRICAL PLUMBING
435 FM 1092, # B1–136, STAFFORD
TX 77477
(832) 987–1928.E–MAIL: msemep@gmail.com

Written dimensions on these drawings shall have precedence over scale dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job. Any discrepancies must be notified of prior to fabrication from the dimensions and conditions shown by these drawings.

MOC (Oak Ridge)

27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

STATE OF TEXAS
M. S. ESIERE
52078
REGISTERED
PROFESSIONAL ENGINEER
APRIL 10, 2015

REVISIONS:

DATE ISSUED:

SHEET:

M-3

LIGHTING PLAN - IST FLOOR

3/16"=1'-0"

HA-5

M. S. ESIERE ENGINEERS
REGISTERED # F-11441
MECHANICAL ELECTRICAL PLUMBING
435 FM 1092, # B1-136, STAFFORD
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MOC (Oak Ridge)

27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

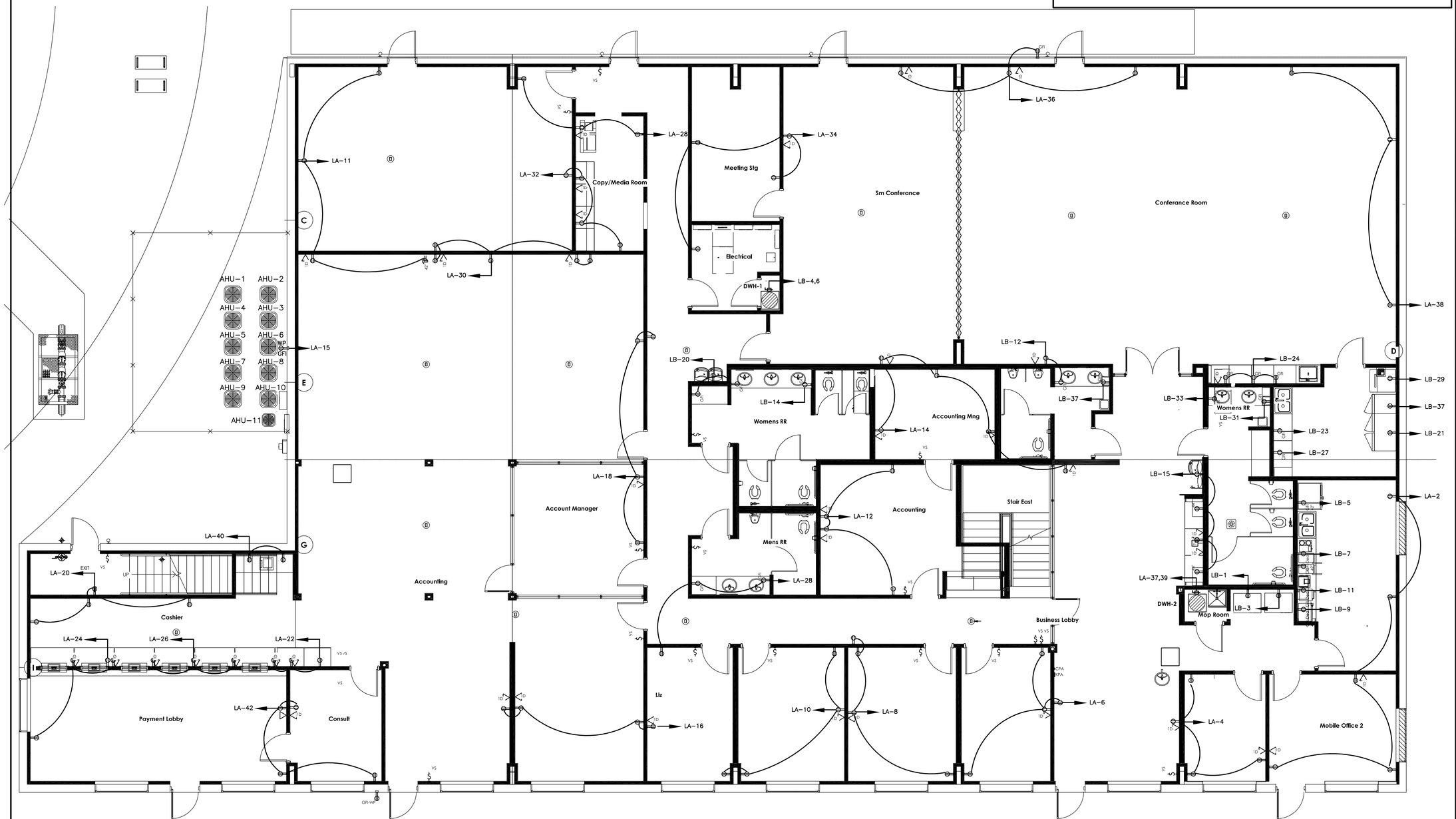
STATE OF TEXAS
M. S. ESIERE
52078
REGISTERED PROFESSIONAL ENGINEER
APRIL 10, 2015

REVISIONS:

DATE ISSUED:

SHEET:

E-1



ELECTRICAL POWER PLAN - IST FLOOR

3/16"=1'-0"

M. S. ESIERE ENGINEERS
REGISTERED # F-11441
MECHANICAL ELECTRICAL PLUMBING
435 FM 1092, # B1-136, STAFFORD
TX 77477
(832) 987-1928.E-MAIL: msemep@gmail.com

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27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

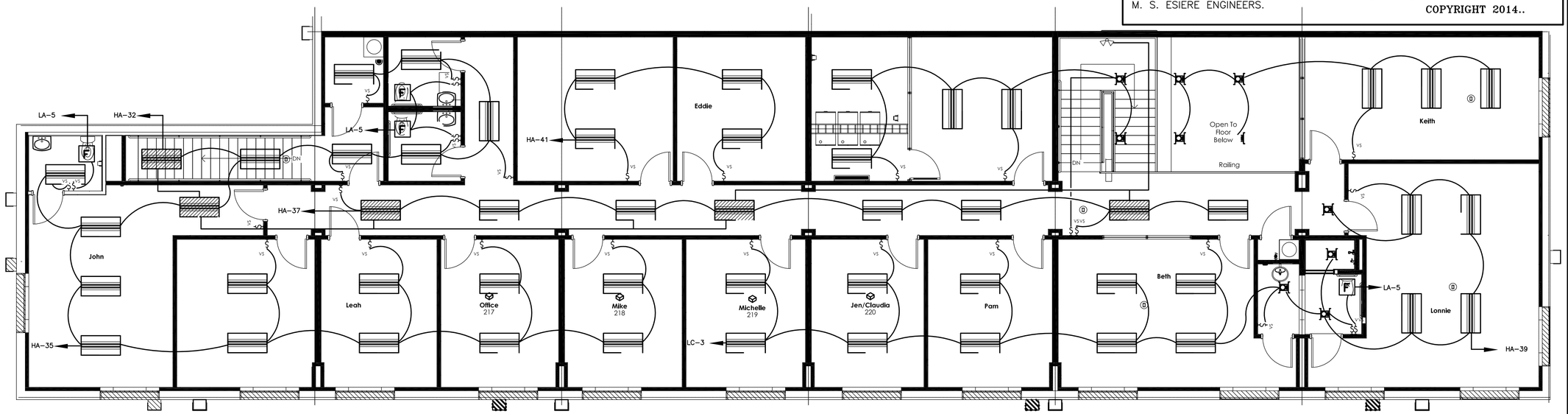
STATE OF TEXAS
M. S. ESIERE
52078
REGISTERED
PROFESSIONAL ENGINEER
APRIL 10, 2015

REVISIONS:

DATE ISSUED:

SHEET:

E-2



LIGHTING PLAN - 2ND FLOOR

3/16"=1'-0"

NEMA-1 PANEL, SURFACE-MOUNTED

120/208 VOLT,3ϕ,4W WIRE SIZE: #2/0 CU **PANEL "LA"** MCB=150A BUSS AMPS: 150

CKT	TRIP/ POLE	WIRE	SERVES	WATTS		LOAD WATTS A	B	C		WATTS	SERVES	WIRE	TRIP/ POLE	CKT
	20/1		SPARE	0	1	900			2	900	RECEPTACLES (5)	12	20/1	
	20/1	12	R R FANS	686	3		1406		4	720	RECEPTACLES (4)	10	20/1	
	20/1	12	R R FANS	760	5			1480	6	720	RECEPTACLES (4)	12	20/1	
	20/2	10	AHU-11	1560	7	2280			8	720	RECEPTACLES (4)	12	20/1	
	20/2	10	AHU-11	1560	9		2280		10	720	RECEPTACLES (4)	12	**20/1**	
	25/2	12	CDU-11	2080	11			2280	12	720	RECEPTACLES (4)	12	20/1	
	25/2	12	CDU-11	2080	13	2980			14	900	RECEPTACLES (5)	12	20/1	
	20/1	12	GFI AC RECEPTACLE	1500	15		2400		16	900	RECEPTACLES (5)	12	20/1	
	20/1		SPARE	0	17			900	18	900	RECEPTACLES (5)	12	20/1	
	50/3	6	PANEL LC	6004	19	6724			20	720	RECEPTACLES (4)	12	20/1	
	↓	↓	↓	↓	21		6544		22	540	RECEPTACLES (3)	12	20/1	
	↓	↓	↓	↓	23			6544	24	540	RECEPTACLES (3)	12	20/1	
			SPACE		25	540			26	540	RECEPTACLES (3)	12	20/1	
	20/1	12	TENANT SIGN	1200	27		1740		28	540	RECEPTACLES (3)	12	20/1	
			SPACE		29			900	30	900	RECEPTACLES (5)	12	20/1	
	20/1	12	TELEPHONE	200	31	920			32	720	RECEPTACLES (4)	12	20/1	
	20/1	12	SECURITY SYSTEM	200	33		920		34	720	RECEPTACLES (4)	12	20/1	
			SPACE		35			720	36	720	RECEPTACLES (4)	12	20/1	
	25/2	10	ELECTRIC WATER HEATER	2250	37	2970			38	720	RECEPTACLES (4)	12	20/1	
	25/2	10	ELECTRIC WATER HEATER	2250	39		2610		40	380	RECEPTACLES (2)	12	20/1	
	20/1	12	RECEPTCLES (5)	900	41			1800	42	900	RECEPTACLES (5)	12	20/1	
			CONN. WATTS PER PHASE			17,314	17,900	14,624						
			TOTAL AMPS PER PHASE			144	149	122						

NOTE: BALANCE ALL LOADS

NEMA-1 PANEL, SURFACE-MOUNTED

120/208 VOLT,3ϕ,4W WIRE SIZE: #2/0 CU **PANEL "LB"** MCB=150A BUSS AMPS: 150

CKT	TRIP/ POLE	WIRE	SERVES	WATTS		LOAD WATTS A	B	C		WATTS	SERVES C.	WIRE	TRIP/ POLE	CKT
	20/1	12	VENDING MACHINE	1800	1	1800			2		SPACE			
	20/1	12	VENDING MACHINE	1800	3		4050		4	2250	ELECTRIC WATER HEATER	10	25/2	
	20/1		REFRIGERATOR	1200	5			3450	6	2250	ELECTRIC WATER HEATER	10	25/2	
	20/1	12	REFRIGERATOR	1200	7	3450			8	2250	ELECTRIC WATER HEATER	10	25/2	
	20/1	12	DED RECEPTCLE	1400	9		3650		10	2250	ELECTRIC WATER HEATER	10	25/2	
	20/1	12	DED RECEPTCLE	1400	11			2900	12	1500	RR GFI RECEPTACLE	12	20/1	
	20/1	12	DED RECEPTCLE	1400	13	2900			14	1500	RR GFI RECEPTACLE	12	20/1	
	20/1	12	DED RECEPTCLE	1400	15		2900		16	1500	DED GFI RECEPTACLES (3)	12	20/1	
	30/2	8	RANGE	2500	17			3500	18	1000	DED GFI RECEPTACLES (4)	12	20/1	
	30/2	8	RANGE	2500	19	3500			20	1000	DED GFI RECEPTACLES (3)	12	20/1	
	20/1	12	FREZEER	1500	21		3000		22	1500	WP GFI RECEPTACLE	12	20/1	
	20/1	12	COFFEE MACHINE	1200	23			1740	24	540	RECEPTACLES (3)	12	20/1	
			SPACE		25	2250			26	2250	ELECTRIC WATER HEATER	10	25/2	
	20/1	12	MICROWAVE OVEN	1200	27		3450		28	2250	ELECTRIC WATER HEATER	10	25/2	
	20/1	12	ICE MACHINE	1208	29			1208	30		SPARE		20/1	
	20/1	12	RR GFI RECEPTACLE	1000	31	1000			32		SPARE		20/1	
	20/1	12	RR GFI RECEPTACLE	1000	33		1000		34		SPARE		20/1	
	20/1	12	RR GFI RECEPTACLE	1500	35			1500	36		SPARE		20/1	
			SPACE		37	0			38		SPACE			
			SPACE		39		0		40		SPACE			
			SPACE		41			0	42		SPACE			
			CONN. WATTS PER PHASE			14,900	18,050	14,298						
			TOTAL AMPS PER PHASE			124	150	119						

NOTE: BALANCE ALL LOADS

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TX 77477
(832) 987-1928.E-MAIL: msemep@gmail.com

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MOC (Oak Ridge)

27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

APRIL 10, 2015

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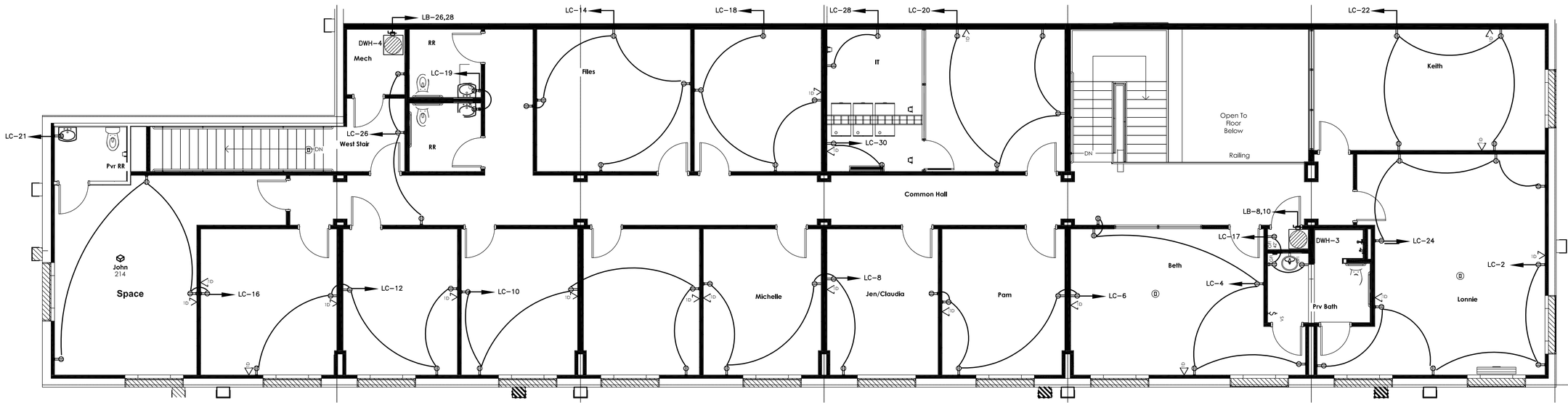
E-3



ELECTRICAL POWER PLAN - 2ND FLOOR

3/16"=1'-0"

NEMA-1 PANEL, SURFACE-MOUNTED

120/208 VOLT,3ϕ,4W WIRE SIZE: #6 CU **PANEL "LC"** MCB=50A BUSS AMPS: 225

CKT	TRIP/ POLE	WIRE	SERVES	WATTS		LOAD WATTS A	LOAD WATTS B	LOAD WATTS C		WATTS	SERVES	WIRE	TRIP/ POLE	CKT
			SPACE		1	900			2	900	RECEPTACLES (5)	12	20/1	
					3		900		4	900	RECEPTACLES (5)	10	20/1	
					5			900	6	900	RECEPTACLES (5)	12	20/1	
					7	900			8	900	RECEPTACLES (5)	12	20/1	
					9		900		10	900	RECEPTACLES (5)	12	20/1	
					11			900	12	900	RECEPTACLES (5)	12	20/1	
					13	900			14	900	RECEPTACLES (5)	12	20/1	
	20/1	12	EMERG LIGHTS	480	15		720		16	720	RECEPTACLES (4)	12	20/1	
	20/1	12	DED GFI RECEPTACLES (3)	1500	17			2220	18	720	RECEPTACLES (4)	12	20/1	
	20/1	12	DED GFI RECEPTACLES (2)	1500	19	2220			20	720	RECEPTACLES (4)	12	20/1	
	20/1	12	RR GFI RECEPTACLE	1500	21		2220		22	720	RECEPTACLES (4)	12	20/1	
	20/1		SPARE		23			720	24	720	RECEPTACLES (4)	12	20/1	
	20/1		SPARE		25	540			26	540	RECEPTACLES (3)	12	20/1	
	20/1		SPARE		27		360		28	380	RECEPTACLES (2)	10	20/1	
	20/1		SPARE		29			360	30	380	RECEPTACLES (2)	12	20/1	
			SPACE		31	10688			32		SPACE			
					33				34					
					35				36					
					37	0			38					
					39		0		40					
					41			0	42					
			CONN. WATTS PER PHASE			25,842	25,397	24747						
			TOTAL AMPS PER PHASE			216	212	208						

NOTE: BALANCE ALL LOADS

NEMA-1 PANEL, SURFACE-MOUNTED

277/480 VOLT,3ϕ,4W WIRE SIZE: #250MCM CU **PANEL "HB"** MCB=250A BUSS AMPS: 300

CKT	TRIP/ POLE	WIRE	SERVES	WATTS		LOAD WATTS A	LOAD WATTS B	LOAD WATTS C		WATTS	SERVES	C.	WIRE	TRIP/ POLE	CKT
	30/3	8	AHU-1	6905	1	12136			2	5231	CDU-1		6	50/3	
					3		12136		4						
					5			12136	6						
	20/3	10	AHU-2	4621	7	7144			8	2523	CDU-2		12	15/3	
					9		7144		10						
					11			7144	12						
	20/3	10	AHU-3	4621	13	7144			14	2523	CDU-3		12	15/3	
					15		7144		16						
					17			7144	18						
	20/3	10	AHU-4	4621	19	13916			20	9295	CDU-4		8	35/3	
					21		13916		22						
					23			13916	24						
	30/3	8	AHU-5	7383	25	14553			26	7170	CDU-5		8	30/3	
					27		14553		28						
					29			14553	30						
	20/3	10	AHU-6	5311	31	12481			32	7170	CDU-6		8	30/3	
					33		12481		34						
					35			12481	36						
			SPACE		37	00			38		SPACE				
			SPACE		39		00		40		SPACE				
			SPACE		41			00	42		SPACE				
			CONN. WATTS PER PHASE			67,374	67,374	67,374							
			TOTAL AMPS PER PHASE			243	243	243							

ELECTRICAL NOTES

1. INSTALLATION SHALL COMPLY WITH NEC AND LOCAL CODES IN EVERY RESPECT.
2. FIELD VERIFY EXACT LOCATION OF ELECT. CO. SERVICE POLE. VERIFY EXACT LOCATION OF SERVICE WIREWAY AND PANELS ON BUILDING WITH ARCHITECT.
3. ALL CONDUITS SHALL BE RGS OR EMT ABOVE GROUND AND SCHEDULE 40 PVE UNDERGROUND. ALL CONDUCTORS SHALL BE COPPER THW, THHN OR THWN. INSTALL PULL WIRE IN ALL SPARE CONDUITS.
4. GROUND ALL SERVICE EQUIPMENT ETC PER NEC AND LOCAL CODES.
5. SUBMIT SHOP DRAWINGS ON ALL EQUIPMENT, SWITCHES, FIX-TURES, ETC FOR APPROVAL BY ENGINEER BEFORE PURCHASING.
6. COORDINATE LOCATION OF SWITCHES AND OUTLETS WITH ARCH. PLANS.
7. FUSES AND DISCONNECT SWITCHES SHALL BE RATED FOR ELECT. CO. MAX. AVAILABLE FAULT CURRENT PER ELECT. CO. OUTLET LOCATION REPORT.
8. ALL SWITCHES, RECEPTACLES AND PLATES ARE TO BE IVORY IN COLOR UNLESS NOTED OTHERWISE ON PLANS.
9. FURNISH AND INSTALL ALL TELEPHONE AND CABLE TV EQUIPMENT AND CABLES. VERIFY LOCATIONS W/ OWNER AND OR ARCHITECT.
10. INSTALL GROUND FAULT INTERRUPTING RECEPTACLES WHERE LOCATED NEAR SINKS, LAVATORIES AND WHERE LOCATED OUTSIDE.
11. COORDINATE INSTALLATION OF ALL AC UNITS CONDUCTORS WITH THE HVAC CONTRACTOR. CONDUCTORS AND CONDUITS MAY BE ADJUSTED DOWN IF UNITS FLA IS LESS THAN PROVIDED FOR IN THESE PLANS COORDINATE LOCATION OF AC DISCONNECTS WITH HVAC CONTRACTOR.
12. VERIFY LOADS OF ALL APPLIANCES AND HVAC EQUIPMENT WITH VENDOR PRIOR TO INSTALLING CIRCUITS AND ADJUST WIRE, CONDUIT AND CIRCUIT BREAKER SIZES ACCORDINGLY.
13. PROVIDE AND INSTALL IECC 805.2.2.2 COMPLIANT CLOCK. ALL INTERIOR LIGHTING CIRCUITS SHALL BE CONTROLLED BY TIMECLOCK. TIMECLOCK SHALL HAVE A COMBINATION 7-DAY AND SEASONAL DAYLIGHT PROGRAM SCHEDULE AND A MINIMUM 4-HOUR POWER BACKUP.
14. PROVIDE AND INSTALL IECC 805.2.2.2 COMPLIANT TIME CLOCK. ALL EXTERIOR LIGHTING CIRCUITS SHALL BE CONTROLLED BY TIMECLOCK. TIMECLOCK SHALL HAVE A COMBINATION 7-DAY AND SEASONAL DAYLIGHT PROGRAM SCHEDULE AND A MINIMUM 4-HOUR POWER BACKUP.
15. PROVIDE AND INSTALL OCCUPANT SENSOR SWITCH IN THE EMPLOYEE ROOM AND ALL REST ROOMS. SWITCH SHALL AUTOMATICALLY TURN LIGHTING OFF WITHIN 30 MINUTES OF ALL OCCUPANTS LEAVING THE ROOM.

FOR ADDITIONAL GENERAL NOTES & SPECIFICATIONS SEE SHEET MEP

M. S. ESIERE ENGINEERS
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435 FM 1092, # B1-136, STAFFORD
TX 77477
(832) 987-1928.E-MAIL: msemep@gmail.com

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Oak Ridge, TX 77385

APRIL 10, 2015

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E-4

ELECTRICAL LOAD ANALYSIS FOR MOC					
SERVICE VOLTAGE: 480/277V, 3-PHASE, 4-WIRE, 60 HZ MOC (OAKRIDGE) AREA: 15,000 SF					
LOAD DESCRIPTION	CODE LOAD (KVA)	CONNECTED LOAD (KVA)	DIVERSITY (%)	DESIGN LOAD (KVA)	REMARK
120/208V, 3-PHASE, 4W LOADS:					
LIGHTING:	-	0	125	0	
RECEPTACLES: 145 @ 180 WATTS	-	26,10	100	26.10	
MISC	-	0.40	100	0.40	
ICE MACHINE	-	1.21	100	1.21	
TENANT SIGN	-	1.20	100	1.20	
COFFEE MAKERS (1)	-	1.20	100	1.20	
DED. RECEPTACLES	-	13.50	100	13.50	
MICROWAVE(1)	-	1.20	100	1.20	
REFRIGERATOR(2)	-	2.40	100	2.40	
GFI/WP AC RECEPTACLE(1)	-	1.50	100	1.50	
FREEZER	-	1.50	100	3.20	
RANGE	-	5.00	100	5.00	
RR RECEPTACLES	-	8.00	100	8.00	
WATER HEATERS(4)	-	18.00	100	18.00	
VENDING MACHINES(2)	-	3.60	100	3.60	
MINI MATE AC	-	4.16	100	4.16	
			SUB TOTAL:	88.98	USE 2-50 KVA XFMRS
277/480V, 3-PHASE, 4W LOADS:				100.00	
LIGHTING: CODE LOAD PER 220.12 NEC: = 15,000 SF X3 = 45.00 KVA	-	45.00	125	56.25	
5 AHUS (HEATING)	-	92.50	100	92.50	
5 CDUS (COOLING)	-	124.06	100	124.06	
25% OF LARGEST MOTOR	-	2.98	100	2.98	
EXPECTED MAX. DEMAND: 375.79 X1000/(480X1.732) = 452 AMPS			SUB TOTAL:	375.79	
			EXIST. DEMAND:	0	
			TOTAL DEMAND:	375.79	
	PROPOSED SERVICE : 500 AMPS.				

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NEMA-1 PANEL, SURFACE-MOUNTED

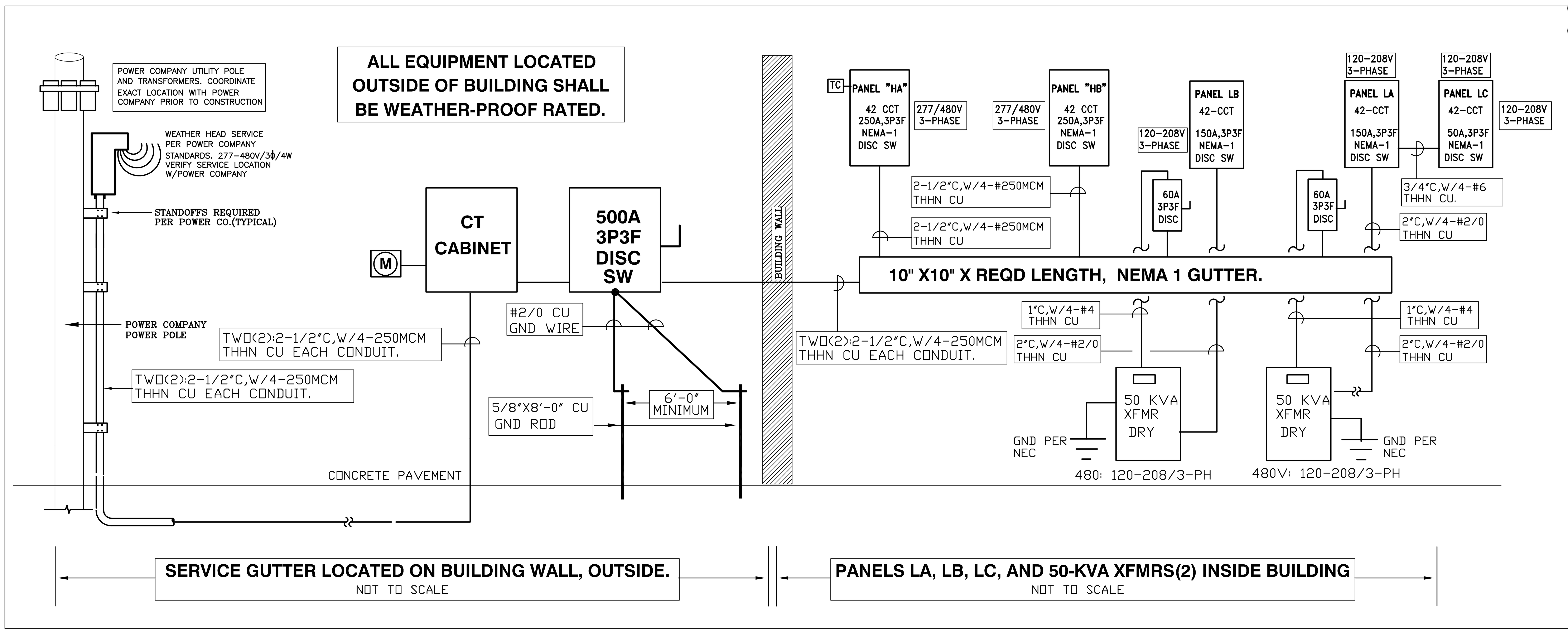
277–480 VOLT,3Φ,4W WIRE SIZE: 250MCM CU — **PANEL "HA"** — MCB=250A BUSS AMPS: 300

CKT	TRIP/POLE	WIRE	SERVES	WATTS		LOAD WATTS A	LOAD WATTS B	LOAD WATTS C		WATTS	SERVES C.	WIRE	TRIP/POLE	CKT
	20/1	12	LIGHTING	1612	1	3724			2	2112	LIGHTING	12	20/1	
	20/1	10	EXIT–EMERGENCY LIGHTING	768	3		3080		4	2312	LIGHTING	12	20/1	
	20/1	10	EXTERIOR LIGHTING	800	5			3356	6	2556	LIGHTING	12	20/1	
	30/3	8	AHU–8	6639	7	14934			8	8295	CDU–8	8	35/3	
	↓	↓	↓	↓	9		14934		10	↓	↓	↓	↓	
	↓	↓	↓	↓	11			14934	12	↓	↓	↓	↓	
	30/3	8	AHU–9	7383	13	14553			14	7170	CDU–9	8	30/3	
	↓	↓	↓	↓	15		14553		16	↓	↓	↓	↓	
	↓	↓	↓	↓	17			14553	18	↓	↓	↓	↓	
	30/3	8	AHU–10	6639	19	14939			20	8295	CDU–10	8	35/3	
	↓	↓	↓	↓	21		14939		22	↓	↓	↓	↓	
	↓	↓	↓	↓	23			14939	24	↓	↓	↓	↓	
	20/1		SPARE		25	6639			26	6639	AHU–7	8	30/3	
	20/1		SPARE		27		6639		28	↓	↓	↓	↓	
	20/1	12	LIGHTING	760	29			7399	30	↓	↓	↓	↓	
	20/1	12	LIGHTING	1152	31	1728			32	576	EXIT–EMERGENCY LIGHTS	12	20/1	
	20/1	12	LIGHTING	1960	33		10255		34	6639	CDU–7	8	35/3	
	20/1	12	LIGHTING	1920	35			1021	36	↓	↓	↓	↓	
	20/1	12	LIGHTING	768	37	9063			38	↓	↓	↓	↓	
	20/1	12	LIGHTING	1720	39		1720		40		SPACE			
	20/1	12	LIGHTING	1632	41			1632	42		SPACE			
			CONN. WATTS PER PHASE			65,575	69,115	67,023						
			TOTAL AMPS PER PHASE			237	250	242						

LEGEND

$3	3–WAY SWITCH, LEVITON DECORA BRAND, IVORY COLOR.
$D	DIMMER SWITCH, LEVITON DECORA BRAND, IVORY COLOR.
$	SINGLE POLE SWITCH, LEVITON DECORA BRAND, IVORY COLOR.
◀	DATA OUTLET.
◁	TELEPHONE OUTLET @ 12" A.F.F. W/ PULL STRING IN 3/4" CONDUIT TERMINATING ABOVE CEILING. PROVIDE BACK BOX W/FACE PLATE.
GFI WP	INSTALL GFI RECEPTACLE IN CAST "FS" BOX W/WP COVER MOUNTED 6" ABOVE ROOF.
	DUPLEX RECEPTACLE @ 18" AFF
GFI	GFI RECEPTACLE
(J)	JUNCTION BOX
	DISCONNECT SWITCH
D	DEDICATED 110V, DUPLEX RECEPTACLE @ 18" AFF.
	NOT USED
220V	220V, 1–PHASE OUTLET
VS $	LEVITON ODS WALL SWITCH INFRARED OCCUPANCY AND VACANCY SENSOR; LEVITON CAT # ODS15–ID.
	LEVITON ODC SERIES CEILING–MNTD VACANCY SENSOR; MODEL # 03C20–MDW. WALL SWITCH INFRARED OCCUPANCY

1



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Oak Ridge, TX 77385

M. S. ESIERE
52078
APRIL 10, 2015

REVISIONS:

1 5–12–15: REVISED ELECTRICAL LEGEND.

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HOSE BIBB W/VACUUM BREAKER.

2" C.W. (85.5 F.U.) RE: CIVIL SITE UTILITIES FOR CONTINUATION.

2" GLOBE VALVE IN CITY APPROVED VALVE BOX.

KEYED NOTES THIS SHEET

1. UP TO 3"FD-1.
2. 4" WASTE UP TO FLOOR MNTD WC-2.
3. 2" VENT UP.
4. 2" WASTE UP TO LAVATORY L-1.
5. 4" WASTE DN.
6. 2" VENT DN.
7. 3" TOILET FLANGE FOR FLOOR MOUNTED W.C. (TYPICAL).
8. 2" VENT DN.
9. 2" WASTE DN, 1-1/2" VENT UP, 1/2" H & C.W. DN.
10. 2" WASTE DN, 1-1/2" VENT UP.
11. 3 VENT UP.
12. 4" WASTE DN.
13. 2" WASTE DN, 1-1/2" VENT UP, 1/2" C.W. DN.
14. 1-1/2" C.W. UP.
15. DROP 1/2" H & C.W. IN WALL AND ROUTE TO LAVATORIES.
16. 1/2" C.W. DN TO WALL VALVE BOX FOR REFRIGERATOR.
17. 2" WASTE UP TO TD-1.

Compliance Stg
Copy/Media Room 112
Meeting Stg 114
Sm Conferance
Electrical
Mech
WH
DWH-1
3"FD-1
EDF-1
Womens RR
Mens RR
Accounting Mng
Account Manager
Accounting
Stair East
Stair West
Cashier
Business Hall
Business Lobby
Payment Lobby
Consult
Liz
Jette
Linda
Jolie/Chelce
Breakroom 2
Breakroom 1
Mobile Office 1
Mobile Office 2
SK-1
SK-2
WC-1
WC-2
W.CO.
F.CO.
C.O.
2-WAY C.O.
UP
TYP FOR 3.
TYP.

4" SANITARY. RE: CIVIL SITE UTILITIES FOR CONTINUATION.

PLUMBING PLAN - FIRST FLOOR

3/16" = 1'-0"

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27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

STATE OF TEXAS
M. S. ESIERE
52078
REGISTERED PROFESSIONAL ENGINEER
APRIL 10, 2015

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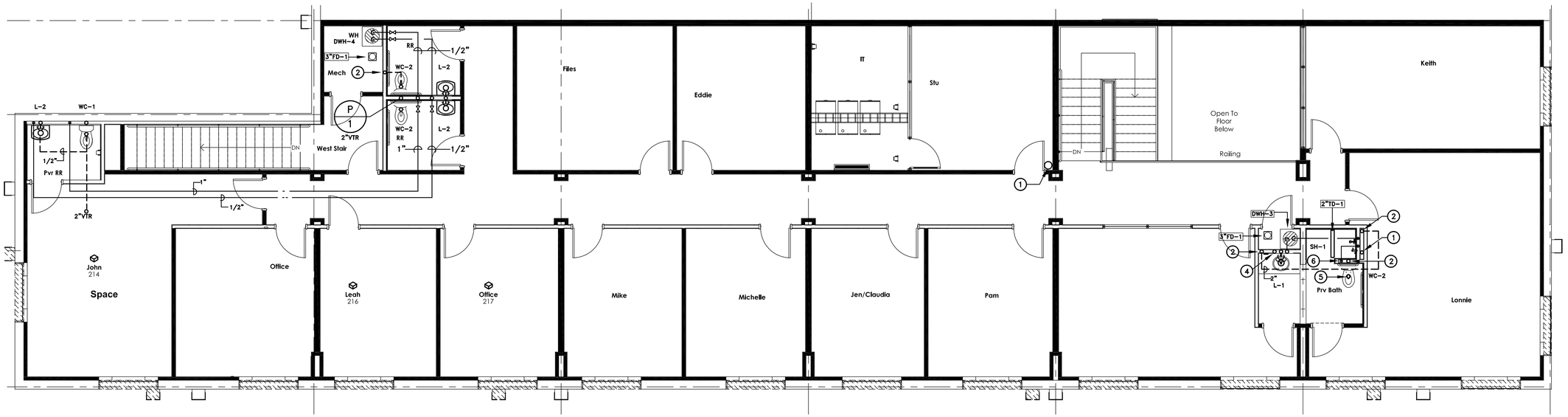

PLUMBING PLAN - 2ND FLOOR

3/16" = 1'-0"

KEYED NOTES THIS SHEET

1. 3" VENT DN & UP THRU ROOF.
2. 2" VENT DN.
3. 3" CLOSET FLANGE FOR FLOOR MOUNTED WC-2.
4. 2" WASTE DN, 1-1/2" VENT UP & 1/2" H & C.W. DN.
5. 4" WASTE DN FROM FLOOR MNTD WC-2.
6. 1" C.W. FROM BELOW.
7. 1-1/2" C.W. FROM BELOW.

M. S. ESIERE ENGINEERS
REGISTERED # F-11441
MECHANICAL ELECTRICAL PLUMBING
435 FM 1092, # B1-136, STAFFORD
TX 77477
(832) 987-1928.E-MAIL: msemep@gmail.com

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MOC (Oak Ridge)

27312 & 27316 Spectrum Way
Oak Ridge, TX 77385

APRIL 10, 2015

REVISIONS:

DATE ISSUED:

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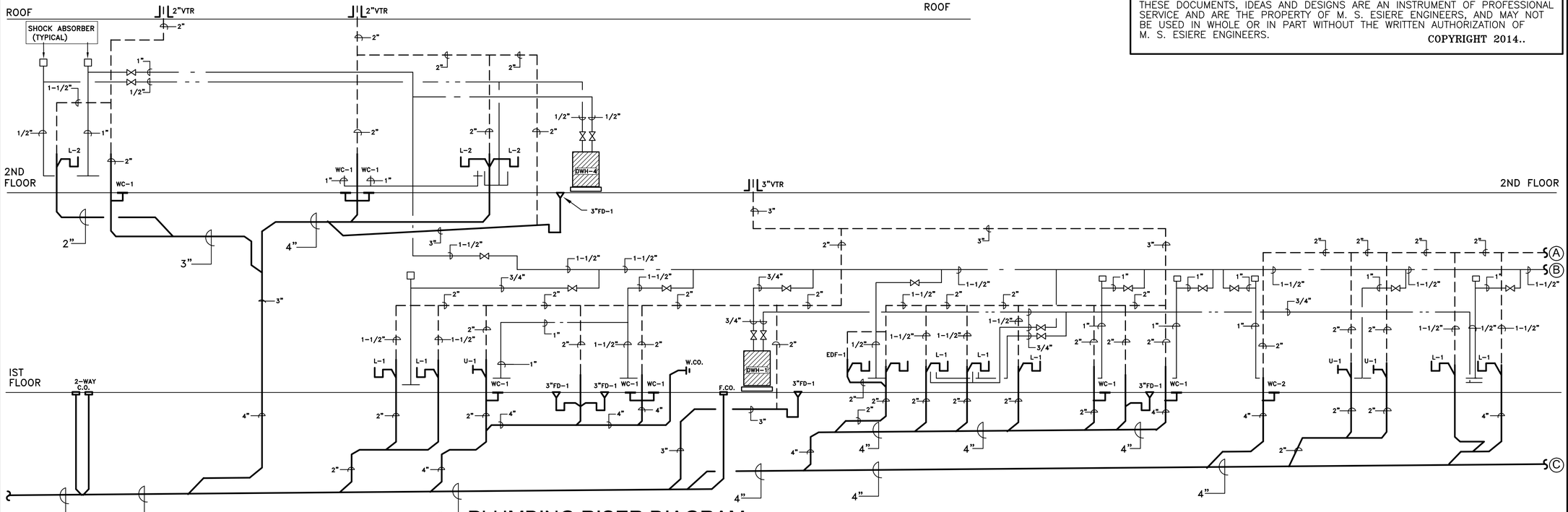
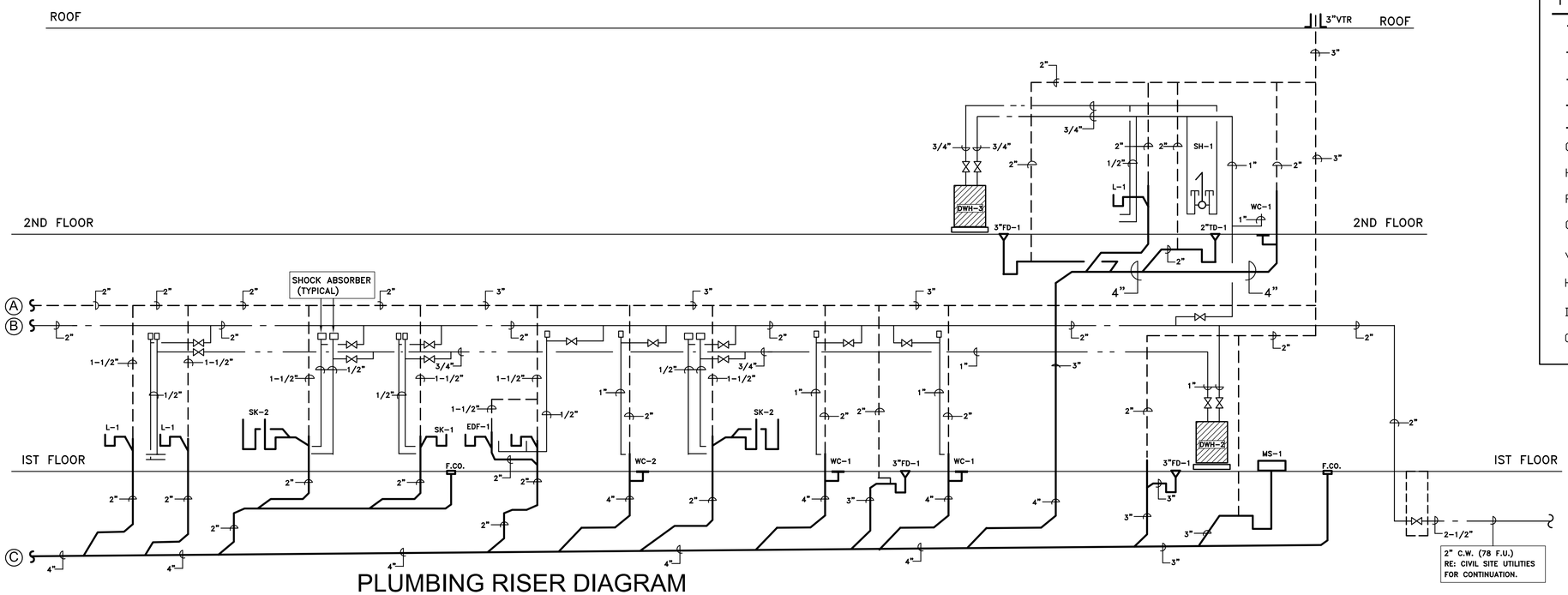


PLUMBING RISER DIAGRAM

NTS



PLUMBING RISER DIAGRAM

NTS

PLUMBING SYMBOLS

——— ———	SANITARY SEWER
— — — —	VENT PIPING
——— - ———	COLD WATER LINE
——— - - ———	HOT WATER LINE
——— - - ———	WATER CIRCULATION
CW	COLD WATER
HW	HOT WATER
FD	FLOOR DRAIN
C.O.	CLEAN OUT
VTR	VENT THRU ROOF
HB	HOSE BIBB
DWH	WATER HEATER
G	GAS LINE

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435 FM 1092, # B1-136, STAFFORD
TX 77477
(281) 712-1957. E-MAIL: msemep@aol.com

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27312 & 27316 Spectrum Way
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STATE OF TEXAS
M. S. ESIERE
52078
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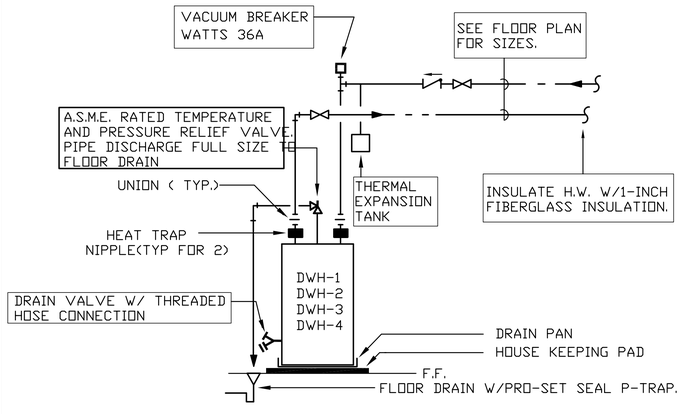
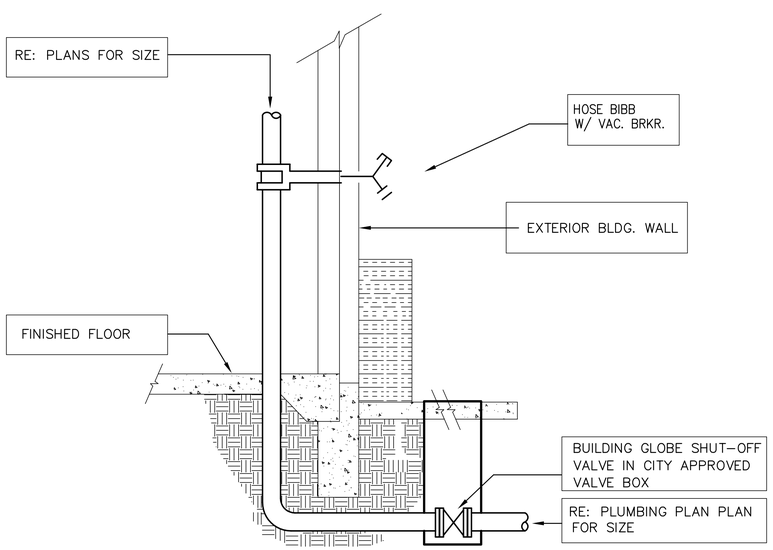


ELECTRICAL WATER HEATER PIPING DIAGRAM

NOT TO SCALE



COLD WATER ENTRY DETAIL

NO SCALE

PLUMBING FIXTURE SCHEDULE

	SYMBOL	DESCRIPTION	PROVIDE THE FOLLOWING SIZE BRANCH CONNECTION TO THE DISTRIBUTION MAIN UNLESS OTHERWISE SPECIFIED. CW	HW	SAN.	VENT	REMARKS	P-TRAP SIZE	SPECIFICATIONS
	WC-1	FLOOR MNTD WATER CLOSET 1.28 GPF	1"	–	4"	2"	–	INTEGRAL	AMERICAN STD 3461.001 "MODERA" FLOWISE, REGULAR HEIGH, ELONGATED WITH 1.28, SLOAN ROYAL #111-1.28 FLUSHOMETER.
	WC-2	FLOOR MNTD WATER CLOSET 1.28 GPF (BARRIER FREE)	1"	–	4"	2"	–	INTEGRAL	SAME AS WC-1, BUT ADA COMPLIANT.
	U-1	ADA URINAL	3/4"	–	4"	2"	–	INTEGRAL	AMERICAN STD. ALLBROKE MODEL #6550.510-0.5GPF, SLOAN # 186-0.5 GPF FLUSHOMETER.
*	L-1	COUNTERTOP ADA LAVATORY	1/2"	1/2"	2"	1-1/2"	–	1-1/4"	AMERICAN STD "AQUALGN" DROP-IN SINK. ADA COMPLIANT, P-TRAP , 1/2" H & C.W. ANGLE STOP VALVES WITH ESCUTCHEON PLATES; FAUCET SHALL BE ----------
*	L-2	WALL-HUNG ADA LAVATORY	1/2"	1/2"	2"	1-1/2"	–	1-1/4"	AMERICAN STD MURRO UNIVERSAL DESIGN, WALL HUNG WITH EVERCLEAN; P-TRAP, 1/2" H & C.W. STOP VALVES WITH ESCUTCHEON PLATES; FAUCET SHALL BE ----------
	EDF-1	ADA HI/LO DRINKING FOUNTAIN.	1/2"	–	2"	1-1/2"	–	1-1/4"	HALSEY TAYLOR HTV-8-BL-Q-TTG
	MS-1	MOP SINK	1/2"	1/2"	3"	2"	–	3"	SUBMIT CUTSHEETS FOR PROPOSED FIXTURE TO OWNER FOR APPROVAL.
**	FD-1	FLOOR DRAIN	–	–	2"	1-1/2"	–	2"	TRUE SET COMMERCIAL DRAIN MODEL TP311B.
	SK-1	SINGLE COMP. SINK	1/2"	1/2"	2"	1-1/2"	–	1-1/2"	ELKAY MODEL LR 2521, STAINLESS STEEL CONSTRUCTION; P-TRAP, 1/2" H & C.W. ANGLE STOP VALVES WITH ESCUTCHEONS, LK-35 STRAINER, FAUCET LK 320 CAST SWING SPOUT WITH AERATOR.
	SK-2	DOUBLE COMP. SINK	1/2"	1/2"	2"	1-1/2"	–	1-1/2"	ELKAY MODEL LR 3322, STAINLESS STEEL CONSTRUCTION; P-TRAP, 1/2" H & C.W. ANGLE STOP VALVES WITH ESCUTCHEONS, LK-35 STRAINER, FAUCET LK 231 CAST SWING SPOUT WITH AERATOR AND SPRAY NOZZLE.
	SH-1	ADA SHOWER	1/2"	1/2"	2"	1-1/2"	–	2"	REFER TO ARCHITECTURAL DETAILS FOR SHOWER ENCLOSURE. CHICAGO FAUCET 2500-VOCCP, ADA COMPLIANT. TEMPSHIELD SHOWER VALVE WITH TRIM 151-CP HAND SPRAY WITH 778-009 VACUUM BREAKER. INSTALL 2" FD-1 SHOWER FLOOR DRAIN.
	TD-1	LINEAR SHOWER DRAIN	–	–	2"	2"	–	2"	ZURN ZS880-36 FABRICATED STAINLESS STEEL LINEAR SHOWER DRAIN.

** PROVIDE PRO-SEAL INSERT TRAP PRIMER.
* INSULATE UTILITIES UNDER LAVATORTIES WITH TRUEBRO LAV GUARD.

WATER HEATER SCHEDULE

ITEM	GALS.	LITERS	RECOVERY RATE/PER/HR.	ELECTRICAL DATA KW	VOLTS/PHASE/CYCLE	MANUFACTURERS MODEL NUMBER
DWH-1	30.00	–	–	4.50	208 / 1 / 60	A.O. SMITH MODEL # ELJF-30D OR EQUAL. TWO ELEMENTS WIRED NON-SIMULTANEOUSLY.
DWH-2	40.00	–	–	9.0	208 / 1 / 60	A.O. SMITH MODEL # ELJF-40D OR EQUAL. TWO ELEMENTS WIRED SIMULTANEOUSLY.
DWH-3	30.00	–	–	4.50	208 / 1 / 60	A.O. SMITH MODEL # ELJF-30D OR EQUAL. TWO ELEMENTS WIRED NON-SIMULTANEOUSLY.
DWH-4	20.00	–	–	4.50	208 / 1 / 60	A.O. SMITH MODEL # ELJF-20D OR EQUAL.

PLUMBING PIPING MATERIALS:

A. DOMESTIC HOT AND COLD WATER SHALL BE TYPE "L" COPPER (ASTM B88) WITH WROUGHT COPPER SOLDER FITTINGS (ANSIB16.22) USING 95/5 SOLDER, OR CPVC PIPING.

B. SANITARY WASTE & VENT PIPING WITH FITTING SHALL BE SCHEDULE 40 PVC CONFORMING TO ASTM-1785.

C. PROVIDE ISOLATION FITTINGS WHENEVER DISSIMILAR MATERIALS ARE USED.

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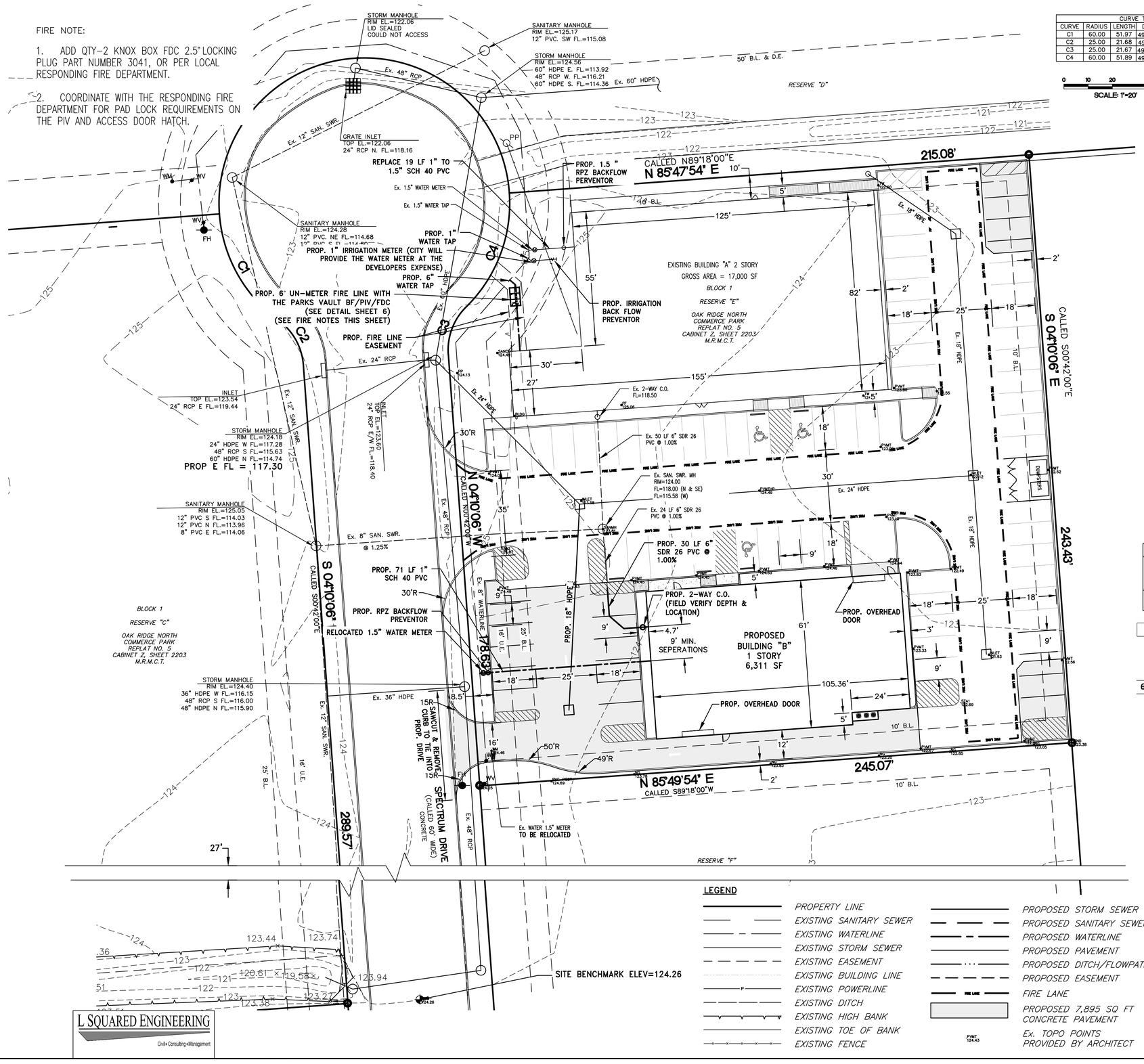
FIRE NOTE:

1. ADD QTY-2 KNOX BOX FDC 2.5" LOCKING PLUG PART NUMBER 3041, OR PER LOCAL RESPONDING FIRE DEPARTMENT.

2. COORDINATE WITH THE RESPONDING FIRE DEPARTMENT FOR PAD LOCK REQUIREMENTS ON THE PIV AND ACCESS DOOR HATCH.



CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	CHD. BRG	CHD.
C1	60.00	51.97	49°37'41"	S29°02'22"E	50.36
C2	25.00	21.68	49°41'13"	S29°00'42"E	21.01
C3	25.00	21.67	49°40'26"	N20°40'07"E	21.00
C4	60.00	51.89	49°33'10"	N20°43'45"E	50.29

0 10 20 40
SCALE 1"=20'

BENCHMARK
NGS BENCHMARK C1513
ELEV=118.27 (2001 ADJ.)
STAINLESS STEEL ROD W/O SLEEVE

SITE BENCHMARK #1
ELEV=124.26
"X" SET IN CONRETE NEAR CENTER OF ROAD AS SHOWN

FLOODPLAIN
THIS PROPERTY IS LOCATED IN ZONE X AND THIS PROPERTY IS OUTSIDE THE 100-YEAR FLOODPLAIN AS SHOWN ON FIRM COMMUNITY PANEL NUMBER 48339C0541 F, EFFECTIVE DATE: 12/19/1996

SYMBOLS LEGEND

- IRON ROD
- BENCHMARK
- PP EXISTING POWER POLE
- FH EXISTING FIRE HYDRANT
- WV EXISTING WATER VALVE
- EXISTING TELEPHONE PED.
- PROPOSED MANHOLE
- PROPOSED CLEANOUT
- PROPOSED STORM INLET
- PROPOSED WATER METER

NOTES:

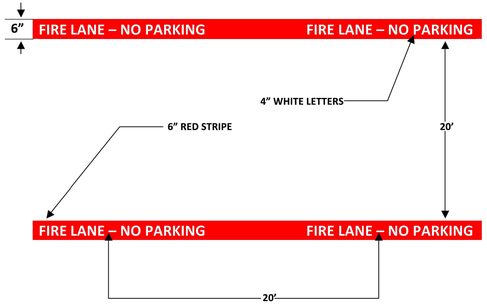
1. THE CITY OF OAK RIDGE NORTH IS NOT RESPONSIBLE FOR REPLACING PARKING LOT PAVEMENT SHOULD A REPAIR OF THE PUBLIC UTILITY, LOCATED UNDER THE PAVEMENT, BE NECESSARY.

2. EXISTING FLOWLINES SHOWN HAVE NOT BEEN VERIFIED AND ARE BASED ON PREVIOUS PLANS.

PARKING REQUIREMENTS

USE:	REQ'D RATE	AMT REQ'D
17,000 SF OFFICE (CLASS 4.c)	2.5/1000	42.5
7,425 SF WAREHOUSE (CLASS 4.b)	1/5000	1.49
TOTAL PROVIDED = 80		TOTAL REQUIRED=43.99

PROPER STRIPING OF FIRE LANES



FIRE LANE DETAIL
N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING WATERLINE
- EXISTING STORM SEWER
- EXISTING EASEMENT
- EXISTING BUILDING LINE
- EXISTING POWERLINE
- EXISTING DITCH
- EXISTING HIGH BANK
- EXISTING TOE OF BANK
- EXISTING FENCE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERLINE
- PROPOSED PAVEMENT
- PROPOSED DITCH/FLOWPATH
- PROPOSED EASEMENT
- FIRE LANE
- PROPOSED 7,895 SQ FT CONCRETE PAVEMENT
- Ex. TOPO POINTS PROVIDED BY ARCHITECT

CITY ENGINEER — DATE
CITY OF OAK RIDGE NORTH
SIGNATURE VALID FOR ONE (1) YEAR

DRAWING ISSUE/REVISIONS

No.	DATE	BY	COMMENT

L SQUARED ENGINEERING
Civil • Consulting • Management

CLIENT
TEXAS EQUITY VENTURES

PROJECT TITLE
TEXAS EQUITY VENTURES - SPECTRUM DRIVE PROPOSED SITEPLAN

ENGINEER CONTACT INFO.:
L Squared Engineering, LLC
21123 EVA ST. SUITE 210-H
MONTGOMERY, TX 77356
936-647-0420

PROJECT LOCATION
27316 SPECTRUM WAY
OAK RIDGE NORTH, TEXAS

PROJECT LEGAL DESCRIPTION
RESERVE "E" BLOCK 1 OAK RIDGE NORTH COMMERCE PARK REPLAT No. 5 CABINET Z, SHEET 2203 M.R.M.C.T. IN THE MONTGOMERY COUNTY SCHOOL LAND SURVEY, A-350 MONTGOMERY COUNTY, TEXAS
1.3437 Ac. (PLAT)

SEAL
STATE OF TEXAS
E. LEVI LOVE, JR.
99340
LICENSED PROFESSIONAL ENGINEER
03/27/2015

FIRM No.	11235
DATE	3/27/2015
PROJECT No.	10078
DRAWN BY	CBJ
SCALE	1"=20'
DRAWING No.	3