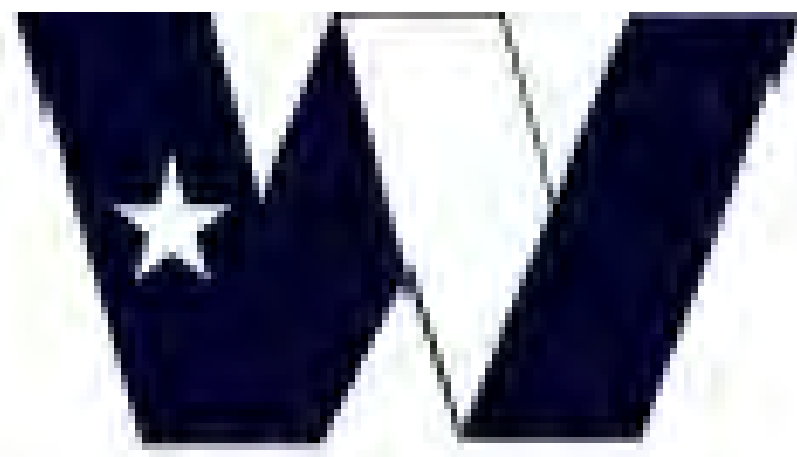


THE CITY OF WEATHERFORD, TEXAS



Weatherford

Texas

Utility Building Renovations

917 Eureka Street - Weatherford, Texas 76086



PROJECT INFORMATION

PROJECT SCOPE

RENOVATIONS OF APPROXIMATELY 2510 S.F. OF EXISTING SPACE FOR SERVICE CENTER OFFICES, BREAK ROOM, EQUIPMENT ROOMS, AND CONFERENCE ROOM.

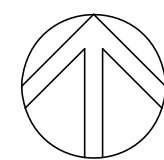
I. APPLICABLE CODES:

BUILDING: 2009 IBC	FIRE: 2009 IFC
PLUMBING: 2009 IPC	ENERGY: 2009 IECC
ELECTRICAL: 2014 NEC	EXISTING BUILDING COMPLIANCE: 2009 NFPA 101
MECHANICAL: 2009 IMC	

CITY OF WEATHERFORD AMENDMENTS AND DESIGN GUIDELINES AS APPLICABLE

NOTE: NO CHANGES TO EXTERIOR WALLS OR GLAZING. PROJECT IS AN ACTIVE WORK ENVIRONMENT OCCUPIED WITH CONSTRUCTION TO OCCUR ALONGSIDE OWNER. SCHEDULE ALL WORK TO MINIMIZE IMPACTS AND COORDINATE WITH OWNER AND ANY OWNER'S ACTIVITIES.

LOCATION MAP



CONSTRUCTION DOCUMENTS

August 29, 2017

Project No. 17-1004.00

OWNER

City of Weatherford
303 Palo Pinto Street
Weatherford, Texas 76086
817.598.4000

ARCHITECT

Elements Of Architecture, Inc.
1201 6th Avenue
Suite 100
Fort Worth, Texas 76104
817.333.2880
fax 817.333.2883

MEP

Torres Engineering Services, Inc.
8237 Delafield Dr.
Fort Worth, Texas 76131
682.556.0848

INDEX TO DRAWINGS

GENERAL

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A0.2 ACCESSIBILITY GRAPHICS

ARCHITECTURAL

A1.1 DEMOLITION PLAN
A2.1 FLOOR PLAN & REFLECTED CEILING PLAN
A2.2 FINISH SCHEDULE & INTERIOR ELEVATIONS
A4.1 INTERIOR DETAILS
A10.1 SPECIFICATIONS

MECHANICAL/ PLUMBING

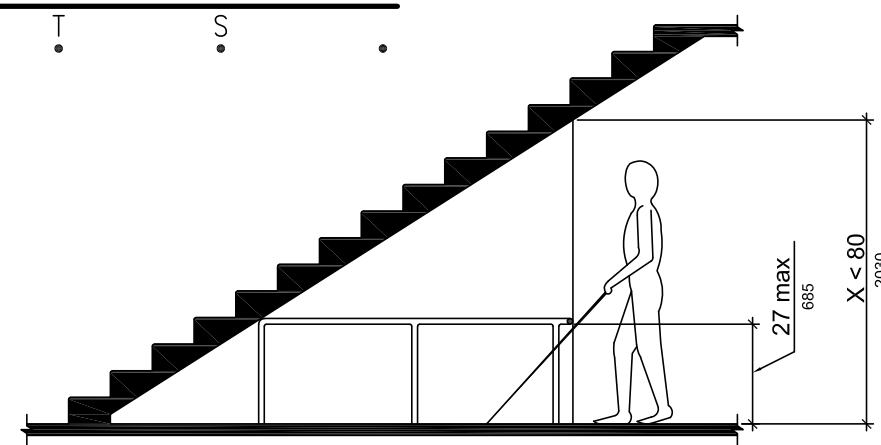
MPO.1 GENERAL NOTES, LEGENDS, SYMBOLS AND SCHEDULES
MPO.2 MECHANICAL AND PLUMBING SPECIFICATIONS
MP2.1 FLOOR PLANS- MECHANICAL AND PLUMBING

ELECTRICAL

E0.0 SYMBOLS AND GENERAL NOTES
E1.1 DEMOLITION PLAN ELECTRICAL
E2.1 LIGHTING AND POWER ELECTRICAL
E4.1 SPECIFICATIONS ELECTRICAL

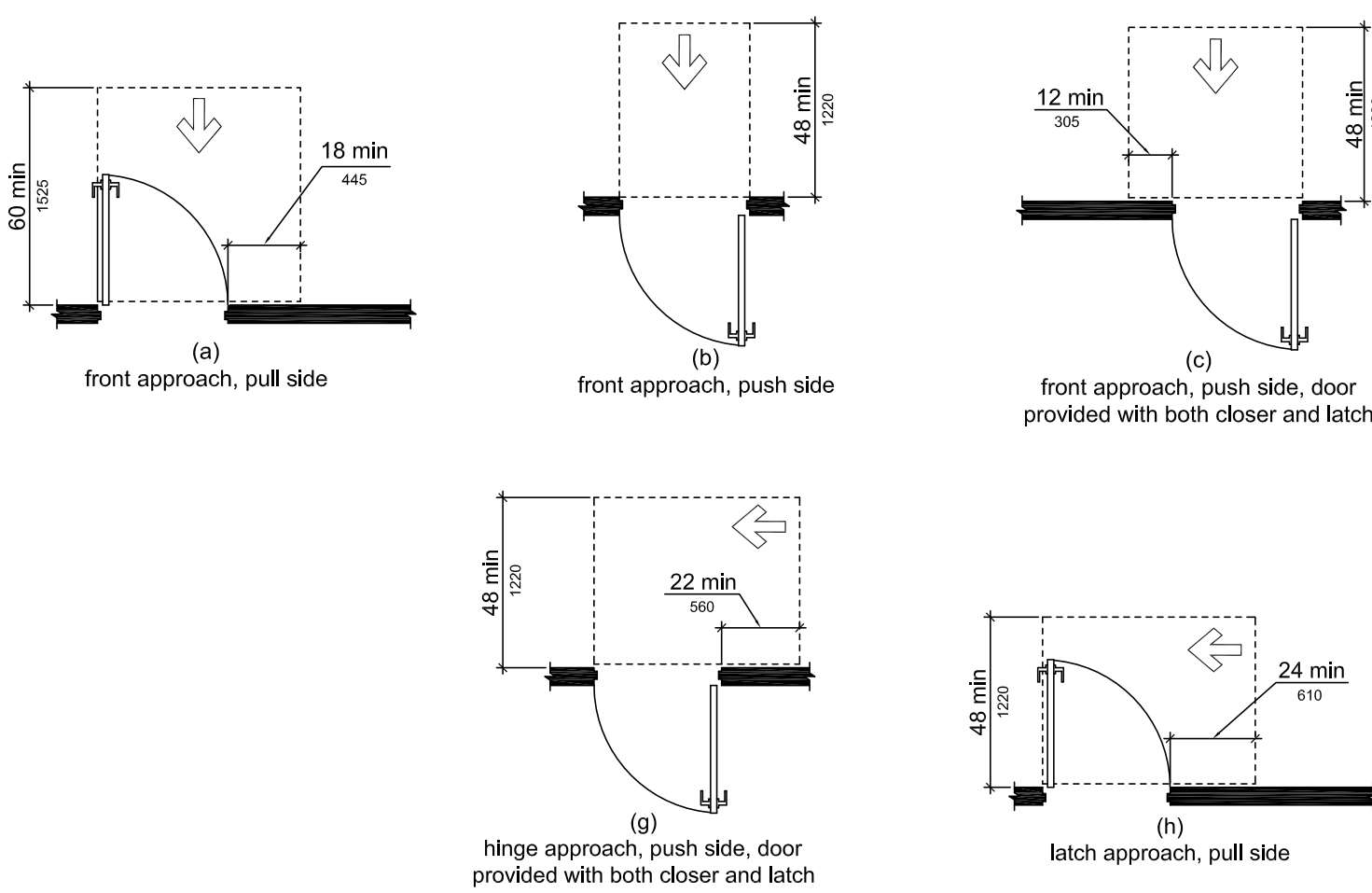
Convention	Description
	dimension showing English units (in inches unless otherwise specified) above the line and SI units (in millimeters unless otherwise specified) below the line
	dimension for small measurements
	dimension showing a range with minimum - maximum
	minimum maximum
	greater than less than
	greater than or equal to less than or equal to
	boundary of clear floor space or maneuvering clearances
	centerline
	a permitted element or its extension
	direction of travel or approach
	a wall, floor, ceiling or other element cut in section or plan
	a highlighted element in elevation or plan
	location zone of element, control or feature

1 Graphic Conventions



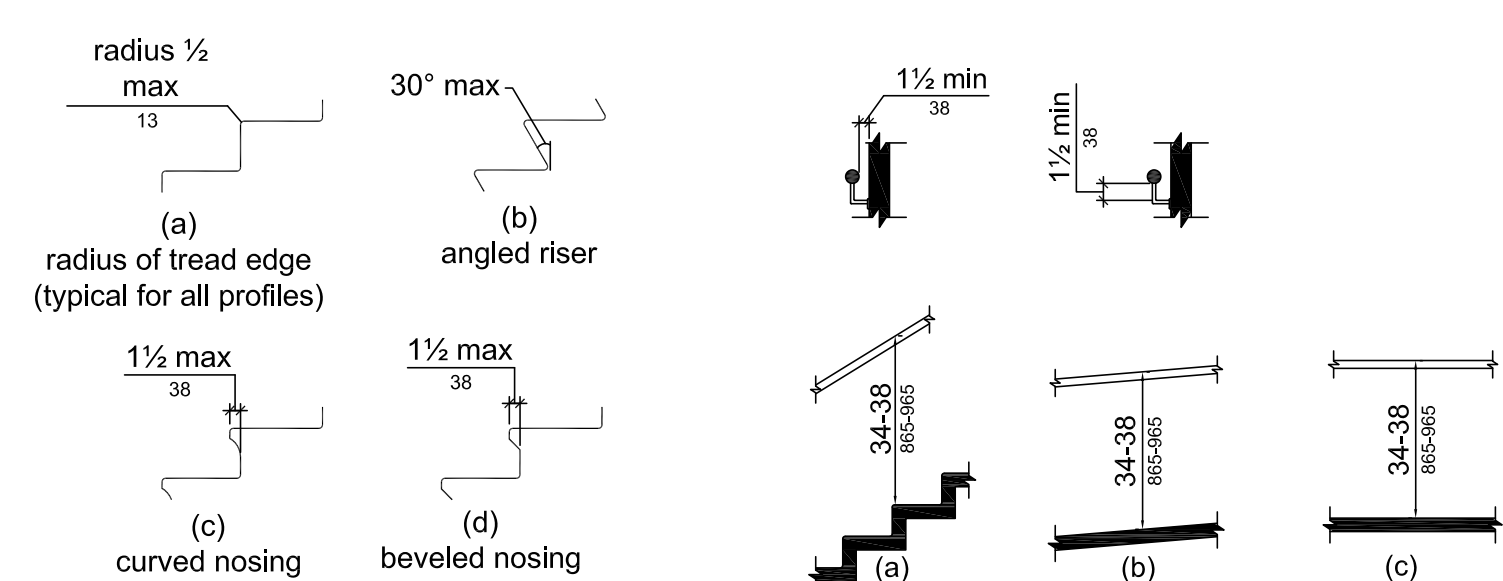
7 Vertical Clearance

(TAS FIGS. 307.4)



16 Ramp Standards

(TAS FIGS. 405.9.1, 405.9.2)



17 Stair Nosings

(TAS FIG. 504.5)

18 Handrails

(TAS FIG. 505.4-505.6)

13 Swinging Door Clearances

(TAS FIG. 404.2.4.1)

14 Sliding Door/Opening Clearances

(TAS FIG. 404.2.4.2)

19 Non-Circular Handrails

(TAS FIG. 505.4-505.6)

20 Handrail Extensions

(TAS FIG. 505.10.1-505.10.3)

21 Drinking Fountains

(TAS FIG. 602.5)

2 Floor or Ground Surfaces

(TAS FIGS. 302.2, 302.3, 303.2, 303.3)

3 T-Shaped Turning Space

(TAS FIG. 304.3.2)

4 Clear Floor Or Ground Space

(TAS FIGS. 305.3, 305.5, 305.7)

5 Knee and Toe Clearances

(TAS FIGS. 306.2, 306.3)

6 Protruding Objects

(TAS FIGS. 307.2, 307.3)

11 Clear Width At Doorways

(TAS FIGS. 404.2.3)

10 Walking Surfaces

(TAS FIGS. 403.5.1, 403.5.2)

12 Doors In A Series

(TAS FIG. 404.2.4.2)

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76086

SEAL(S) / CONSULTANT:

8/29/17

PROJECT NUMBER:
17-1004.00

ISSUE DATE:
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SHEET NAME:
Accessibility
Graphics

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Accessibility Graphics

SHEET NUMBER:

A0.2

1 Dispenser Locations

(TAS FIG. 604.7)

2 Water Closet Location

(TAS FIG. 604.2, 604.3.1, 604.3.2)

3 Water Closet Clearance

(TAS FIG. 604.2, 604.3.1, 604.3.2)

4 Grab Bar Locations

(TAS FIG. 604.2, 604.3.1, 604.3.2)

5 Toilet Compartments

(TAS FIG. 604.8.1.1)

6 Toilet Compartments

(TAS FIG. 604.8.1.2)

7 Toe Clearances

(TAS FIG. 604.8.1.4)

8 Ambulatory Compartment

(TAS FIG. 604.8.2)

9 Urinals

(TAS FIG. 605.2)

10 Shower Compartments

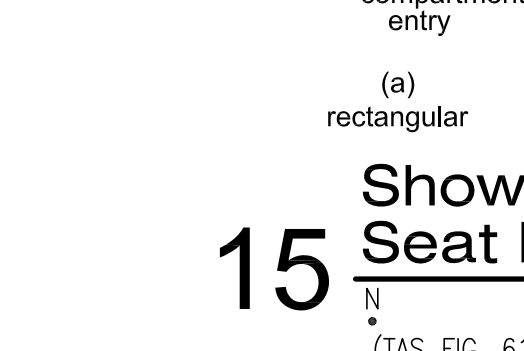
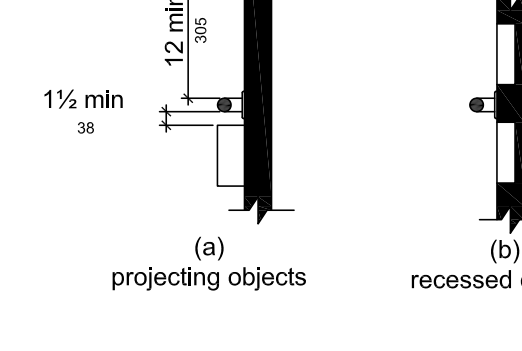
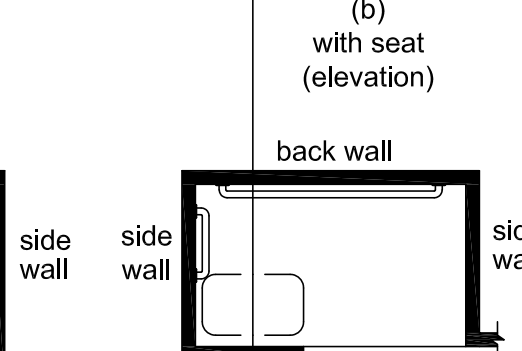
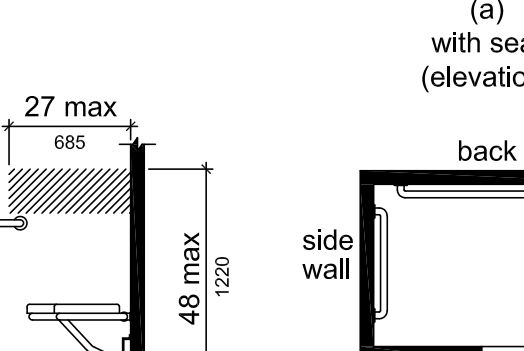
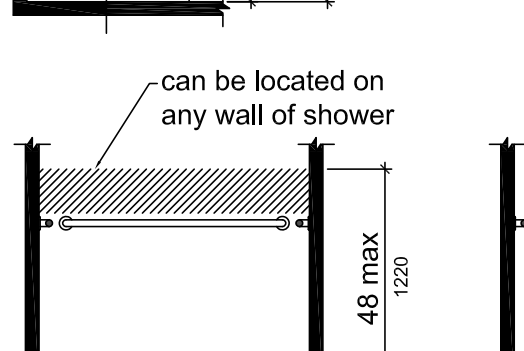
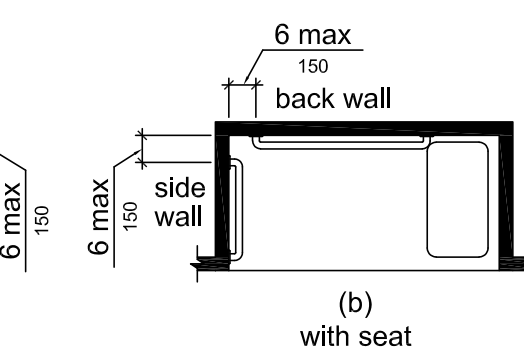
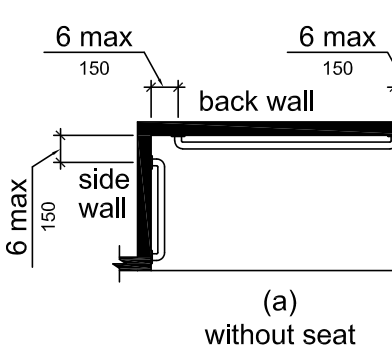
(TAS FIG. 608.2.1-608.2.3)

11 Grab Bar Sections

(TAS FIG. 609.2.2)

11 Rectangular Shower Seat

(TAS FIG. 610.3.1)

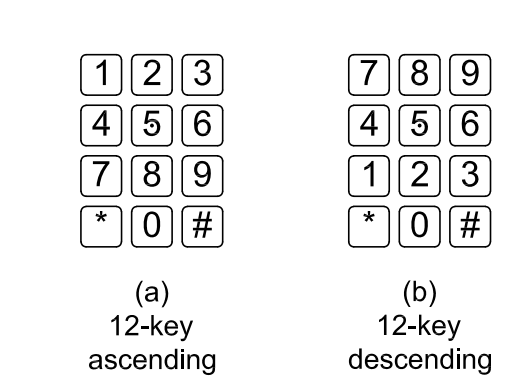


15 Shower Seat Extents

(TAS FIG. 610.3)

14 Grab Bar Spacing

(TAS FIG. 609.3)



22 Numeric Key Layout

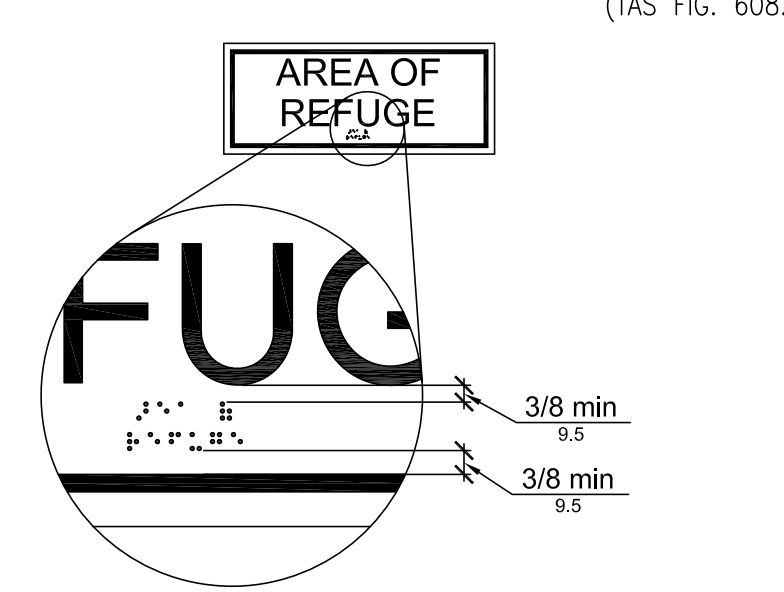
(TAS FIG. 707.6.2)

16 L-Shaped Shower Seat

(TAS FIG. 610.3.2)

17 Raised Characters

(TAS FIG. 703.2.5)



18 Brailled Position

(TAS FIG. 703.3.2)

19 Character Heights

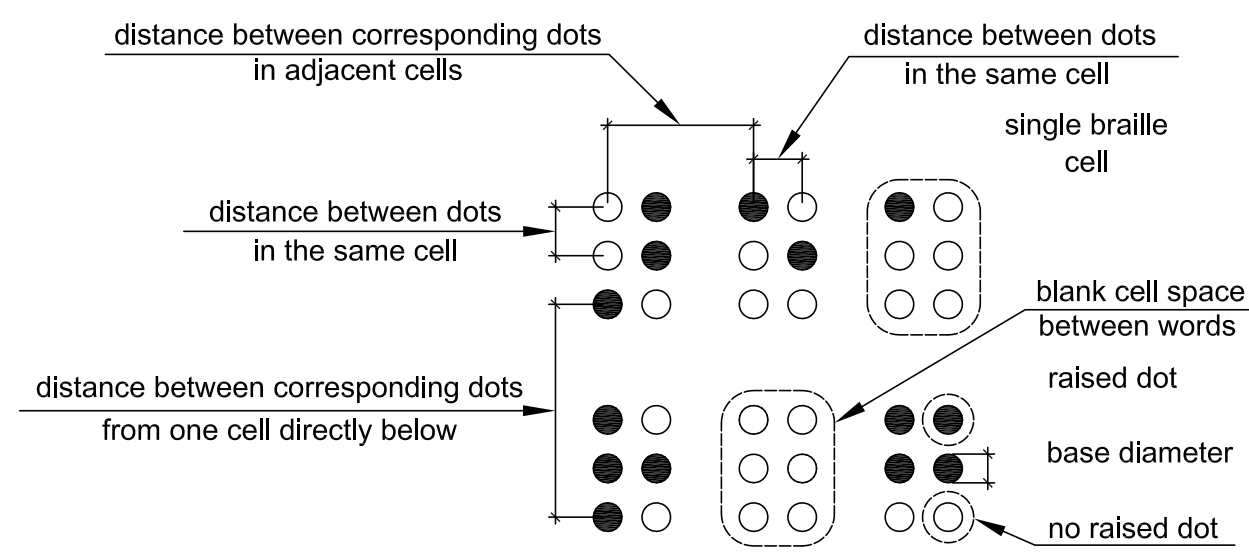
(TAS FIG. 703.4.1)

20 Tactile Sign Locations

(TAS FIG. 703.4.2)

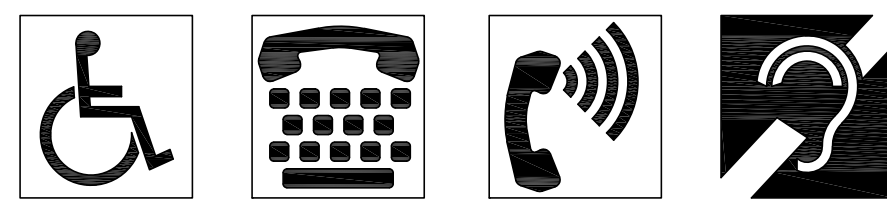
21 Pictogram Field

(TAS FIG. 703.6.1)



23 Braille Measurement

(TAS FIG. 703.3.1)



24 International Symbols

(TAS FIGS. 703.7.2.1-703.7.2.4)

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SHEET NAME:

Demolition Plan

SHEET NUMBER:

A1.1

GENERAL DEMOLITION NOTES

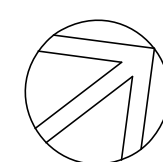
- DEMOLITION PLAN IS FOR CONTRACTOR'S REFERENCE ONLY AND MAY NOT CONTAIN ALL DEMOLITION REQUIRED. REVIEW ALL DRAWINGS AND PERFORM ANY AND ALL DEMOLITION THAT IS REQUIRED TO COMPLETE ALL ASPECTS OF THE WORK.
- CONTRACTOR SHALL VISIT THE SITE & DETERMINE ALL EQUIPMENT & MATERIAL THAT WILL REQUIRE REMOVAL & REPAIR TO MAKE AREA SUITABLE FOR NEW WORK AS INDICATED WITHIN THESE DOCUMENTS. REMOVE ALL ANCHOR BOLTS, ELECTRICAL CONDUITS & PIPE PENETRATIONS EXISTING IN CONCRETE SLABS. REMOVE TO 1" MIN. BELOW FLOOR SLAB & PATCH SLAB.
- WHERE DEMOLITION RESULTS IN DAMAGE TO ANY SURFACE THAT WILL BE EXPOSED IN FINISH CONSTRUCTION, CONTRACTOR SHALL REPAIR THAT SURFACE TO MATCH SURROUNDING FINISHED CONDITIONS.
- GRIND HIGH SPOTS & ROUGH AREAS AS NECESSARY TO PRODUCE A LEVEL SLAB.
- WHEN PARTITIONS ARE NOTED TO BE REMOVED, ALSO REMOVE ALL ELECTRICAL CONDUITS, APPARATUS & WIRING INSIDE PARTITIONS, ALONG WITH ANY MECHANICAL DEVICES AS NECESSARY.
- WHERE ELECTRICAL CONDUIT AND WIRING IS REMOVED, CONTRACTOR SHALL MAKE REMAINING CIRCUITS CONTINUOUS AND PROVIDE ADDITIONAL CONDUIT AND WIRING AS NECESSARY TO RECONNECT ISOLATED FIXTURES AND DEVICES.
- WHEN PLUMBING IS REMOVED, REMOVE PIPING TO BELOW CONCRETE SLAB, CAP LINES, & REPAIR CONCRETE.
- WHEN REUSING EXISTING PLUMBING FIXTURES, AN INVENTORY OF THE USABLE FIXTURES FOR THE BUILDING IS REQUIRED. CONTRACTOR TO VERIFY THAT MATCHING FIXTURES ARE USED IN THE SAME LOCATIONS.
- GENERAL NOTES AND ALL DEMOLITION DETAILS APPLY TO ANY DEMOLITION REQUIRED WITHIN THE SCOPE OF THIS PROJECT.
- SEAL ALL PENETRATIONS AT RATED WALLS WITH (APPROPRIATE) RATED FOAM.
- CONTRACTOR SHALL KEEP ADJACENT AREAS FREE OF DUST AND DEBRIS WITH THE USE OF BARRIERS.
- UPON DISCOVERY OF CONCEALED OR UNANTICIPATED ITEMS (E.G. ASBESTOS, PLUMBING, DUCTWORK, ETC.) CONTACT THE OWNER PRIOR TO REMOVAL OF SUCH ITEMS.

DEMOLITION PLAN LEGEND

- EXISTING PARTITION TO REMAIN
 - DEMISING PARTITION
 - SIDE LIGHT OR FRAMED GLASS WALL
 - REMOVE OR RELOCATE EXISTING CONSTRUCTION AND/OR ITEMS
- ROOM NAME
- ROOM NAME
 - ROOM #
 - PLAN NOTE SYMBOL

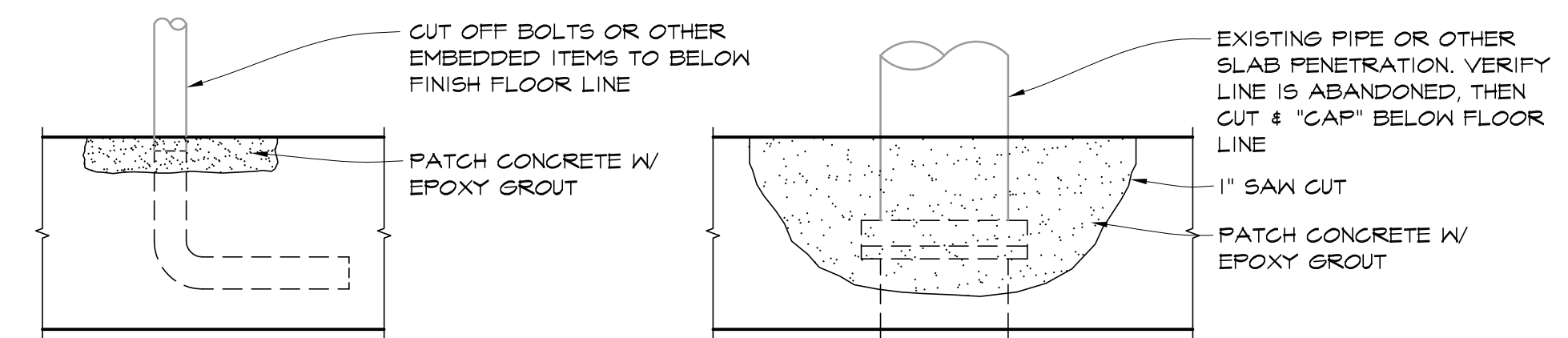
DEMOLITION NOTES BY SYMBOL

- DEMO ALL CABINETS AS NOTED
- REMOVE VENDING MACHINES FOR RELOCATION
- REMOVE RUBBER BASE AND FLOORING IN ROOMS TO RECEIVE NEW FLOORING
- REMOVE WALL COVERING IN AREA TO BE THE NEW CONFERENCE ROOM
- REMOVE EXISTING LAY-IN CEILING
- REMOVE DRINKING FOUNTAIN AND WALLS FOR NEW CONSTRUCTION
- ROOMS SHOWN FOR ORIENTATION, REFER TO MEP FOR SCOPE OF WORK



1 Demolition Plan

0 8' 16' 24'



Typical Demolition Details

N T S

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8/29/17

PROJECT NUMBER:

17-1004.00

ISSUE DATE:

August 29, 2017

REVISIONS:

SHEET NAME:

Floor Plan & Reflected Ceiling Plan

SHEET NUMBER:

A2.1

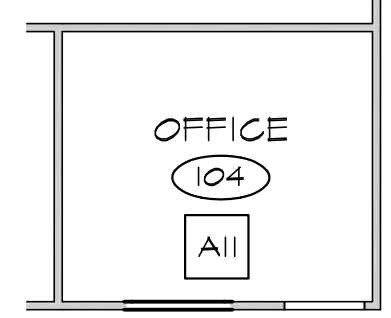
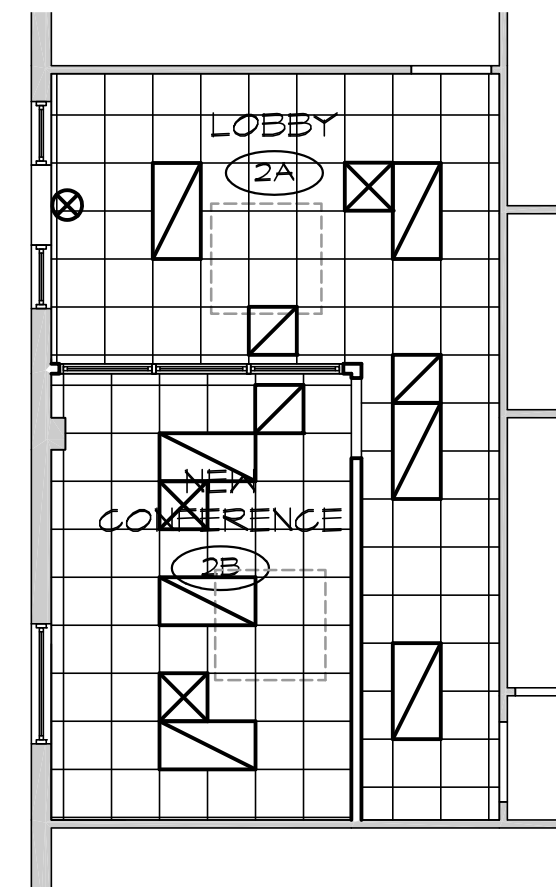
LEGEND	
EXISTING PARTITION	=====
NEW PARTITION	=====
PARTITION W/SOUND INSULATION	=====
PLAN NOTE SYMBOL	AX
ELEVATION MARK	X/XX
FIRE EXTINGUISHER	□ F.E.
1/4" WATERLINE W/ SHUT-OFF VALVE	—
NAME #	ROOM NAME #

RCP LEGEND	
	24" X 24" ACT
	SUPPLY AIR DIFFUSER, REFER MECHANICAL
	RETURN AIR DIFFUSER, REFER MECHANICAL
	24" X 12" LED LIGHT FIXTURE, REFER ELECTRICAL
	EXIT SIGN, REFER ELECTRICAL

NOTES BY SYMBOL	
A1	PATCH AND REPAIR ALL WALLS IMPACTED BY DEMO AND NEW WORK
A2	PROVIDE NEW BASE AND FLOOR FINISH AS SCHEDULED
A3	PAINT ALL WALLS AS SCHEDULED
A4	PROVIDE NEW EXPANSION JOINT COVER
A5	PROVIDE NEW BASE AS SCHEDULED
A6	PROVIDE WATER LINE FOR COFFEE MAKER, REFER TO MEP DRAWINGS
A7	EXISTING CONTROLS AND EQUIPMENT TO REMAIN
A8	EXISTING ROOMS TO REMAIN AS IS WITH NEW EQUIPMENT. PATCH AND REPAIR ALL WALLS AS REQUIRED FOR NEW WORK
A9	NEW 3'-0"X7'-0" DOOR AND FRAME TO BE INSTALLED IN NEW WALL. MATCH EXISTING MATERIALS, FINISHES, AND CONSTRUCTION. HARDWARE TO BE NEW LEVER PASSAGE SET WITH WALL STOP AND SILENCERS AS REQUIRED FOR FULLY FUNCTIONAL SET.
A10	NEW WALLS PER 9/A9.1 TO ALIGN WITH ADJACENT. PAINT CORRIDOR SIDE TO MATCH EXISTING CONDITIONS. PAINT TO CORNERS FOR CONTINUOUS FINISH.
A11	REWORK CEILING AS REQUIRED FOR NEW CONFIGURATION
A12	NEW WALLS PER 9/A9.1

EQUIPMENT SCHEDULE BY SYMBOL	
E1	SLIDE IN RANGE PROVIDED BY OWNER
E2	RANGE HOOD PROVIDED BY OWNER
E3	TAS SINK & FAUCET
E4	TAS DISHWASHER PROVIDED BY OWNER
E5	EXISTING ICE MAKER BY OWNER - RELOCATED
E6	REFRIGERATOR PROVIDED BY OWNER
E7	FREEZER PROVIDED BY OWNER
E8	VENDING MACHINES BY OWNER

GENERAL NOTES	
1.	REFER TO 8/A9.1 FOR NEW LAY-IN CEILING AT SKYLIGHT DETAIL



2 Floor Plan
0 8' 16' 24'

1 Partial Reflected Ceiling Plans
0 8' 16' 24'

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Finish Schedule &
Interior Elevations

SHEET NUMBER:

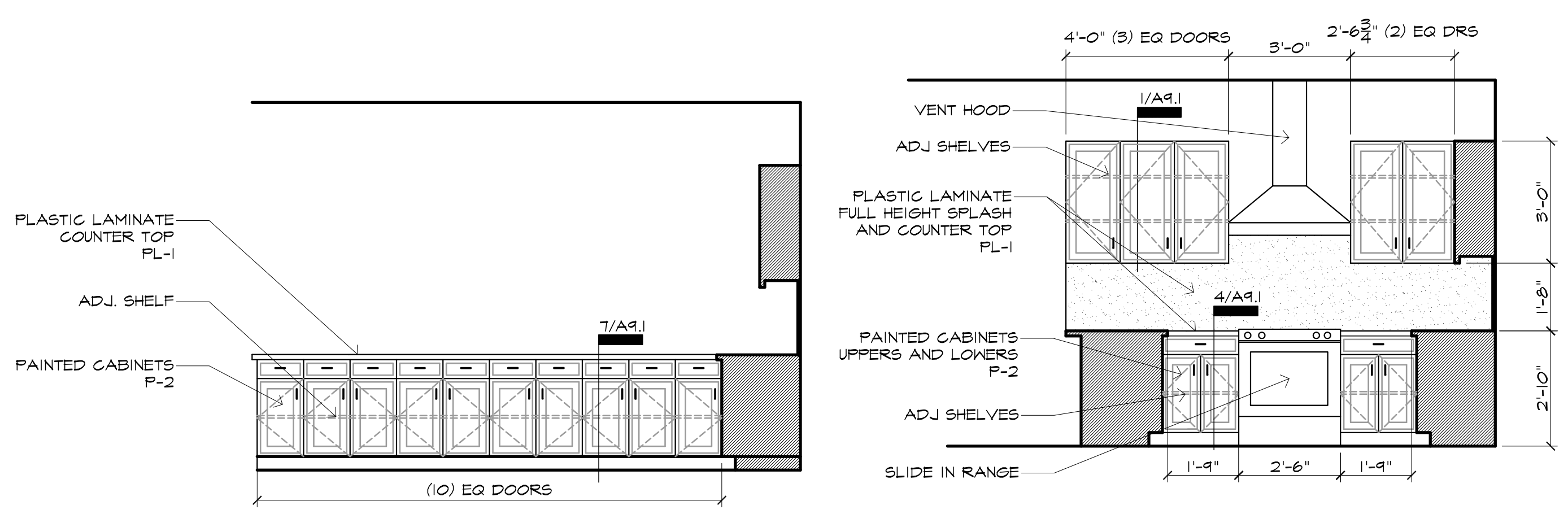
A2.2

ROOM FINISH SCHEDULE													
ROOM NO.	ROOM NAME	FLOOR	BASE				WALLS				CEILING		REMARKS
			NORTH	EAST	SOUTH	WEST	NORTH	EAST	SOUTH	WEST	TYPE	HEIGHT	
2A	LOBBY	EXIST	RB-1	RB-1	RB-1	RB-1	P-1	P-1	P-1	P-1	ACT	9'-5" F.V.	1, 2
2B	NEW CONFERENCE	CPT-1	RB-1	RB-1	RB-1	RB-1	P-1	P-1	P-1	P-1	ACT	9'-5" F.V.	1, 2
13	BREAKROOM	LVT-1	RB-2	RB-2	RB-2	RB-2	P-1	P-1	P-1	P-1	-	-	3
26	COPY/ FAX	LVT-1	RB-2	RB-2	RB-2	RB-2	P-1	P-1	P-1	P-1	-	-	4
29	POWER	-	-	-	-	-	-	-	-	-	-	-	-
30	EQUIPMENT	-	-	-	-	-	-	-	-	-	-	-	-
33	ELECTRIC CREW	LVT-1	RB-2	RB-2	RB-2	RB-2	P-1	P-1	P-1	P-1	-	-	-
34	WATER/ WASTE WATER	LVT-1	RB-2	RB-2	RB-2	RB-2	P-1	P-1	P-1	P-1	-	-	-
40	WAREHOUSE OFFICE	LVT-1	RB-2	RB-2	RB-2	RB-2	P-1	P-1	P-1	P-1	-	-	-
104	OFFICE	LVT-1	RB-2	RB-2	RB-2	RB-2	P-1	P-1	P-1	P-1	-	-	-

REMARKS:
1) PROVIDE TRANSITION STRIP AT DOORS WHERE CHANGE OF MATERIALS
2) NEW CEILING TO BE PLACED PER DETAIL 8/A9.1 TO COVER EXISTING SKYLIGHTS. PROVIDE INSULATION FOR ENERGY COMPLIANCE AND SOUND.
3) CABINETS TO BE PAINTED P-2 WITH COUNTERTOP PL-1
4) PROVIDE INPRO 800 SERIES EXPANSION JOINT COVER. VERIFY CONDITIONS AND APPLICATION WITH NEW MATERIALS.

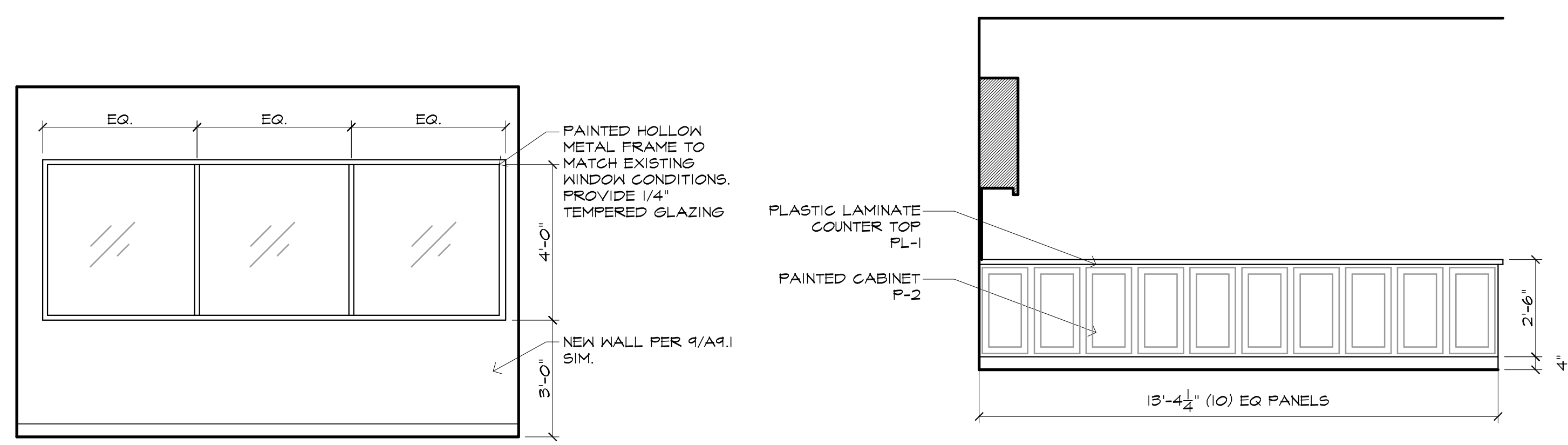
FINISH MATERIALS	
RB-1	RUBBER BASE - JOHNSONITE - "PERCEPTIONS-RECESS" 4.25" #41 BROWN
RB-2	RUBBER BASE - JOHNSONITE - "TRADITIONAL" 4" #41 BROWN
CPT-1	CARPET TILE - TO MATCH EXISTING IN OTHER SPACES OF THE BUILDING
LVT-1	LVT PLANK - KARDEAN - "ART SELECT" 48"X1" PLANK #RLO5 SPANISH CHERRY
P-1	PAINT - BENJAMIN MOORE - SATIN FINISH #OC-30 GRAY MIST
P-2	PAINT - BENJAMIN MOORE - ENAMEL SEMI GLOSS FINISH #OC-30 GRAY MIST (CABINETS)
PL-1	PLASTIC LAMINATE - WILSONART - #4452K-22 TYPHOON ICE - POST FORMED EDGE
ACT	ACOUSTICAL CEILING TILE - ARMSTRONG - 24"X24" - TO MATCH EXISTING

NOTE: INSTALLATION OF ALL MATERIALS TO BE PER INDUSTRY STANDARDS AND PER MANUFACTURERS RECOMMENDATIONS AND SPECIFICATIONS.



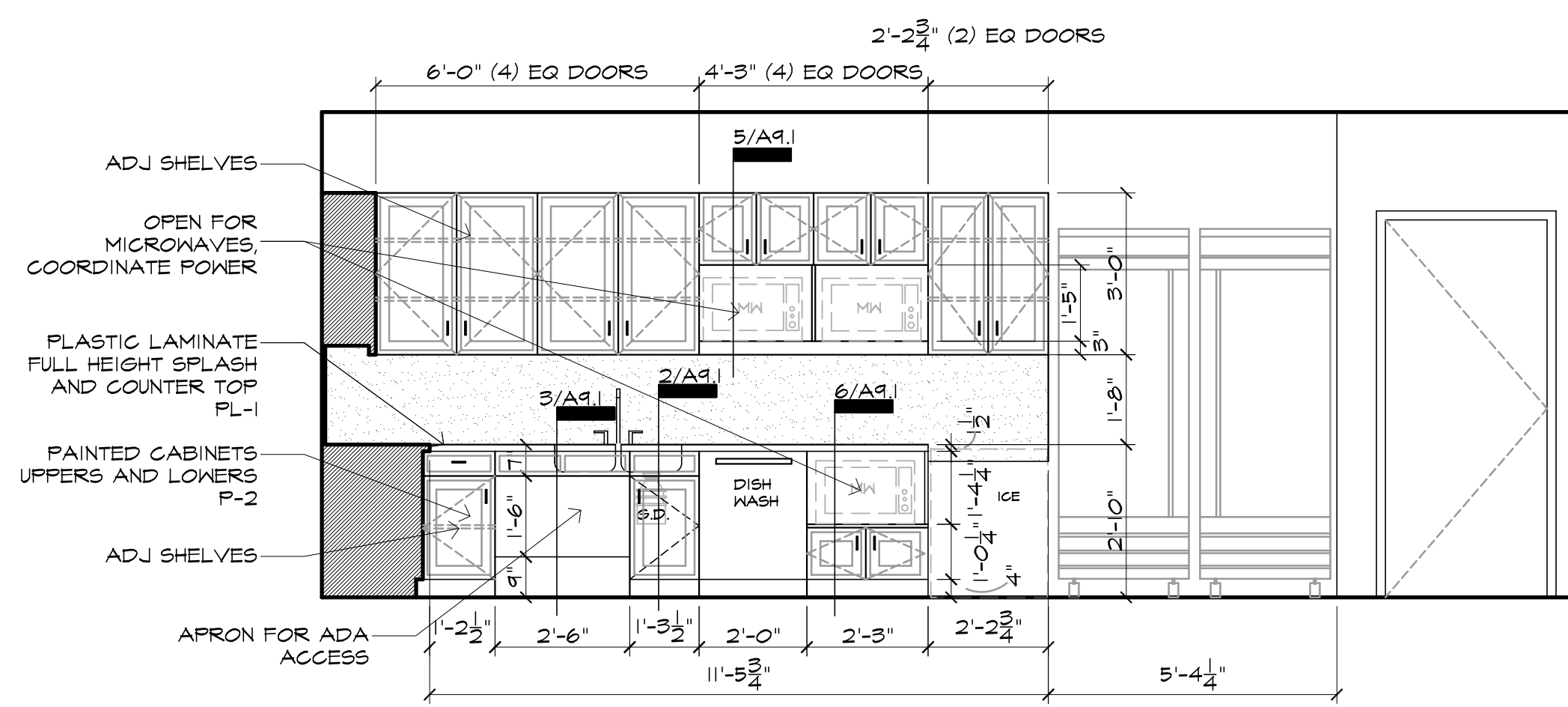
4 Plan W. Elev. @ Peninsula
0 2'-8" 5'-4" 8"

1 Plan N. Elev. @ Breakroom
0 2'-8" 5'-4" 8"



5 Elevation @ Conference Rm
0 2'-8" 5'-4" 8"

2 Plan E. Elev. @ Peninsula
0 2'-8" 5'-4" 8"



3 Plan E. Elev. @ Breakroom
0 2'-8" 5'-4" 8"

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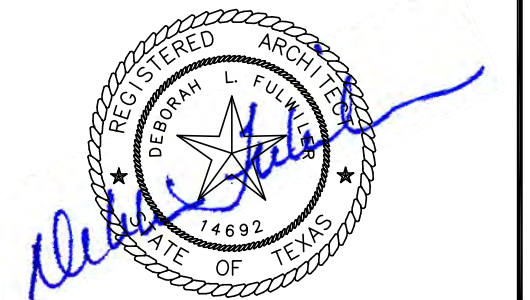
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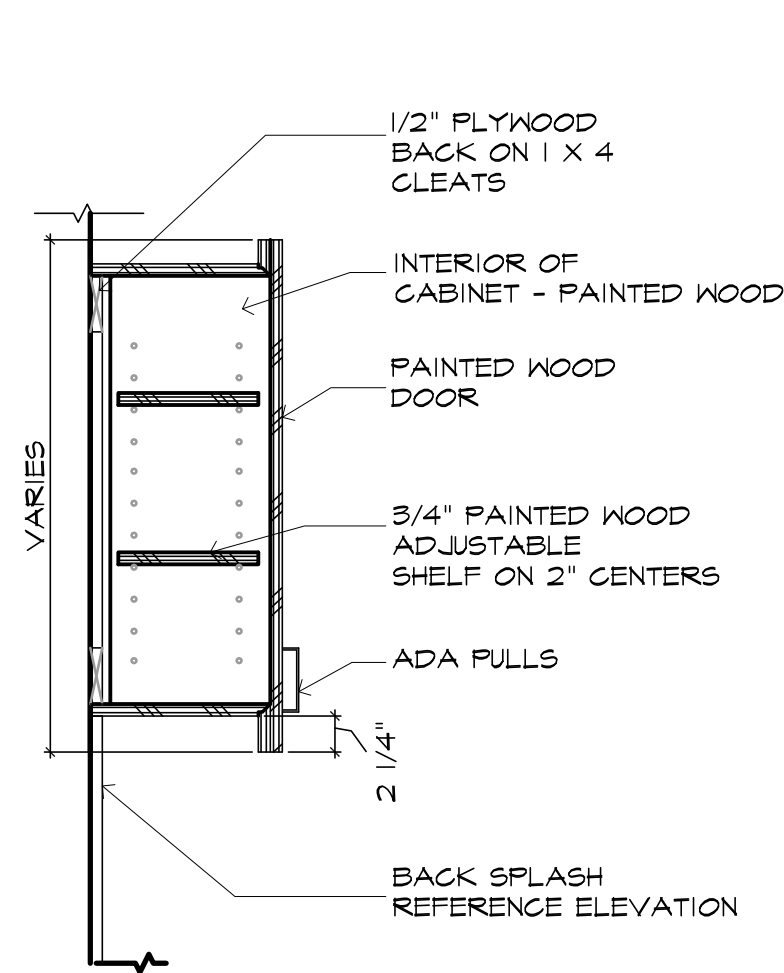
REVISIONS:

SHEET NAME:

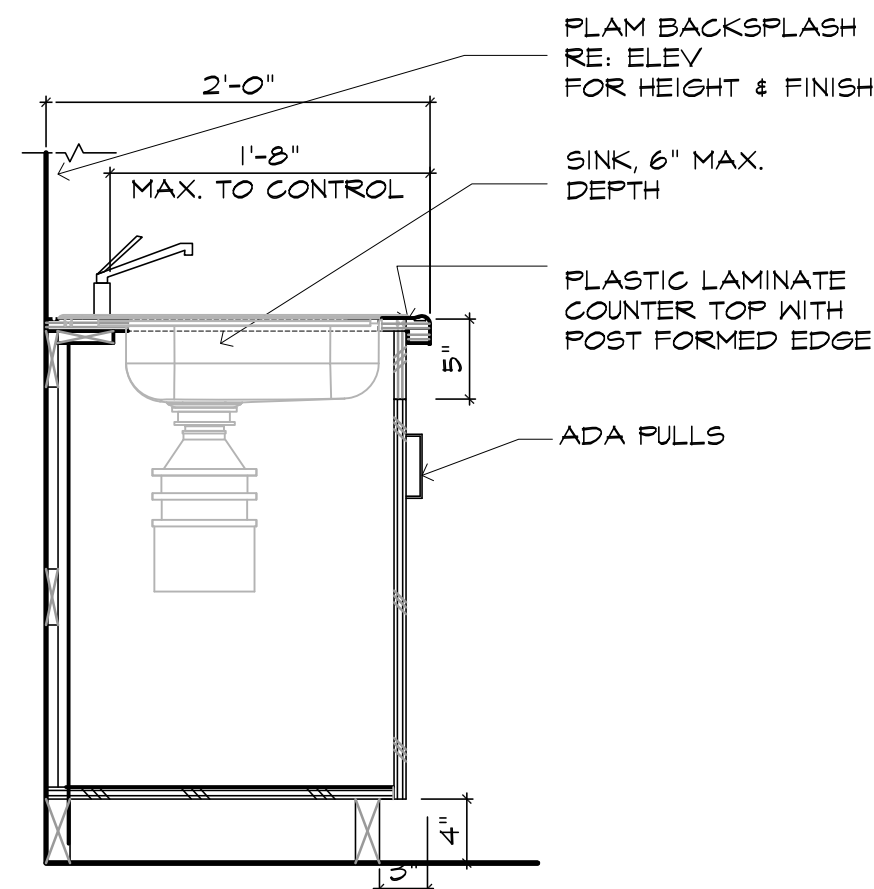
Interior Details

SHEET NUMBER:

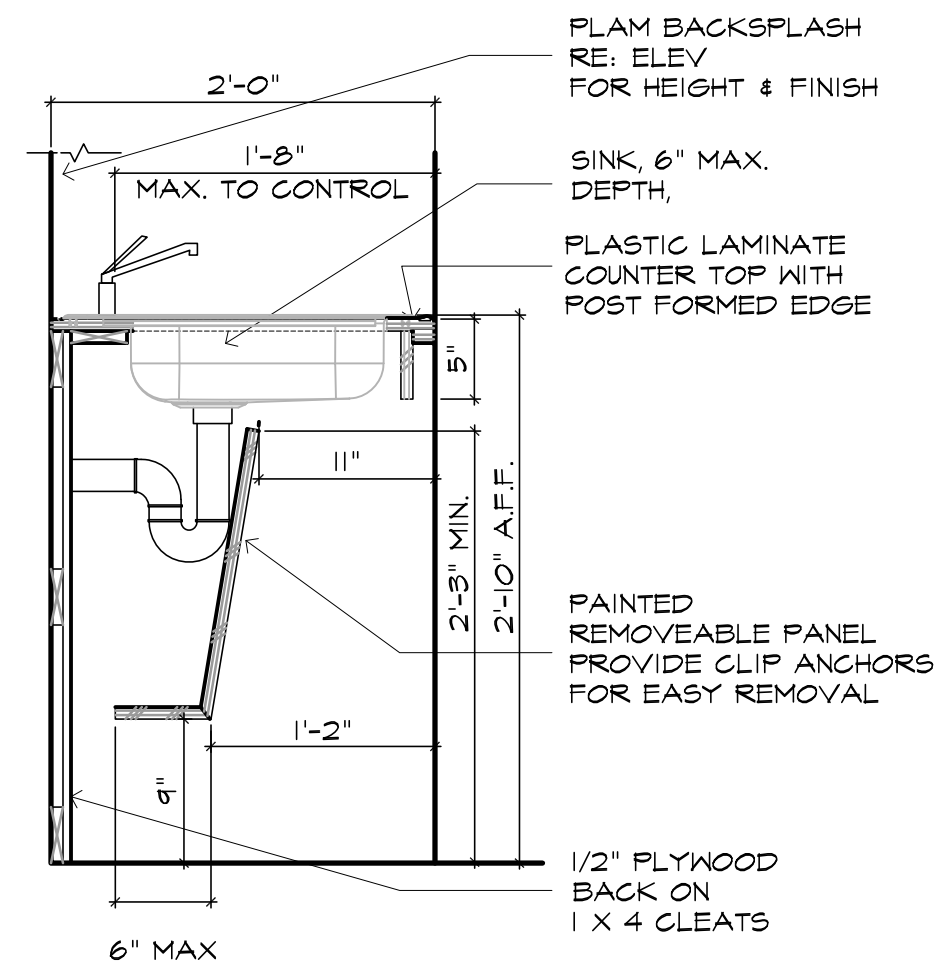
A9.1



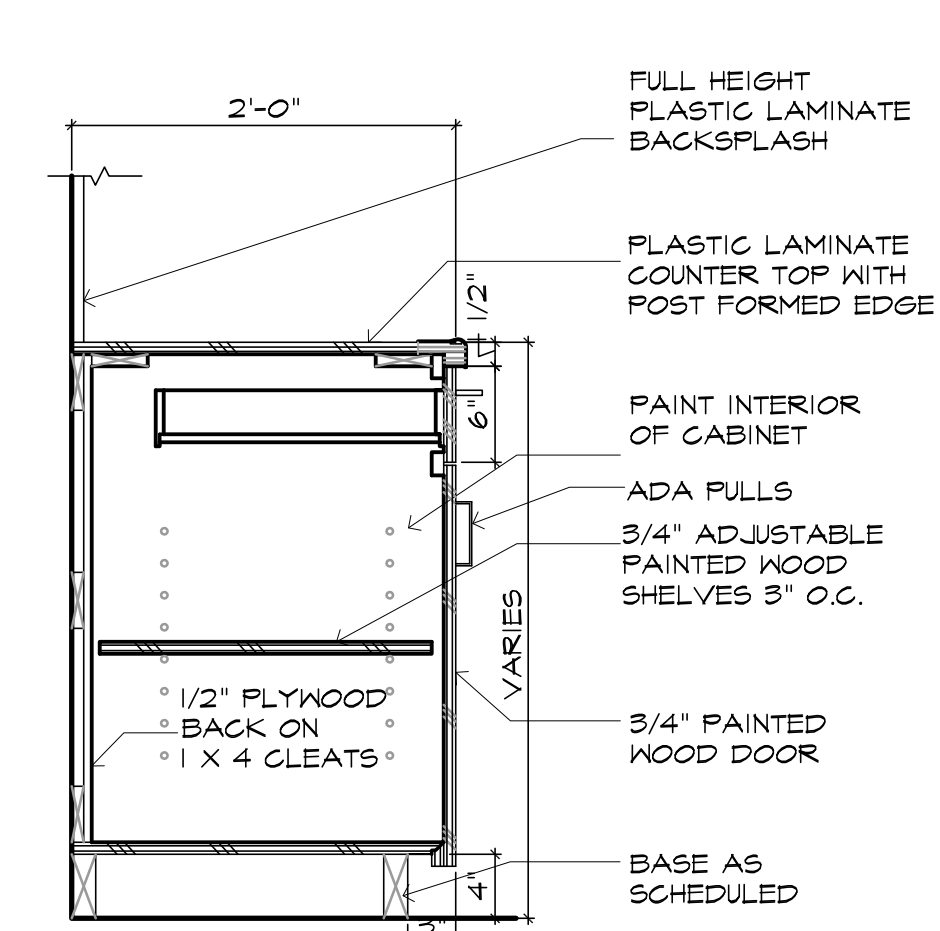
1 Section @ Upper Cabinet



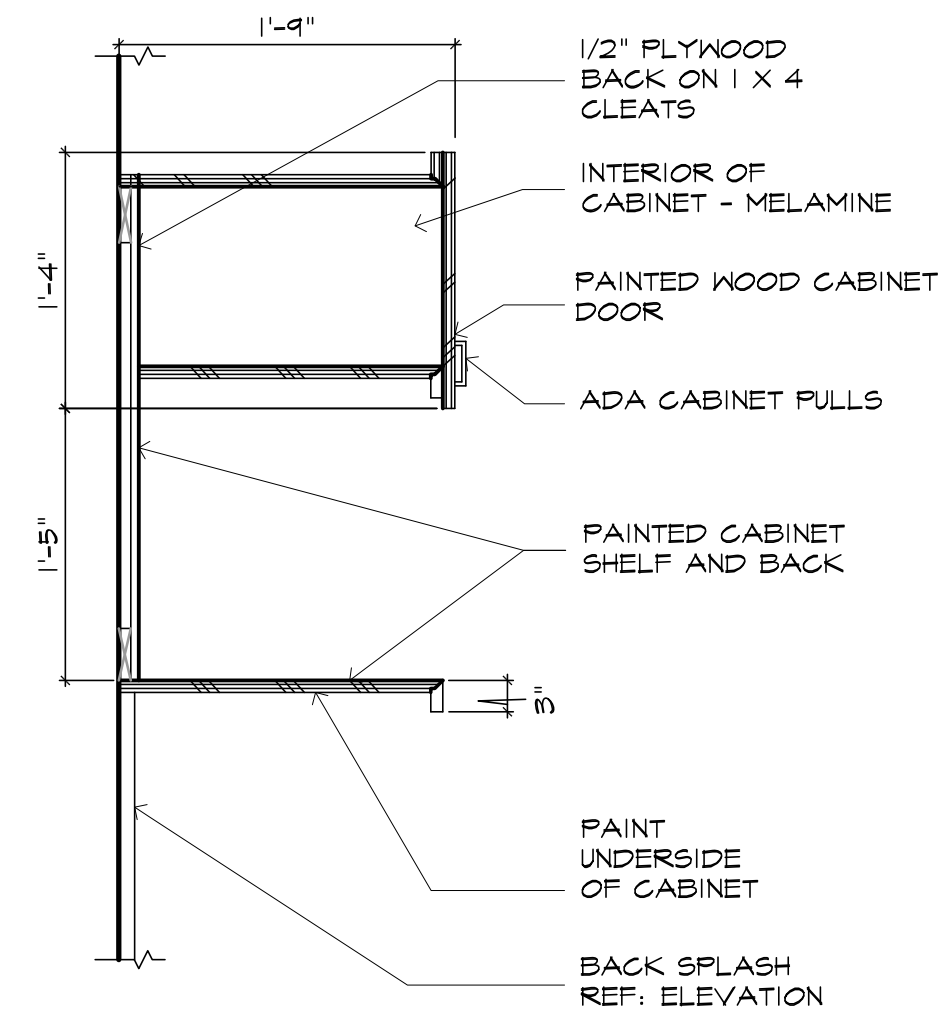
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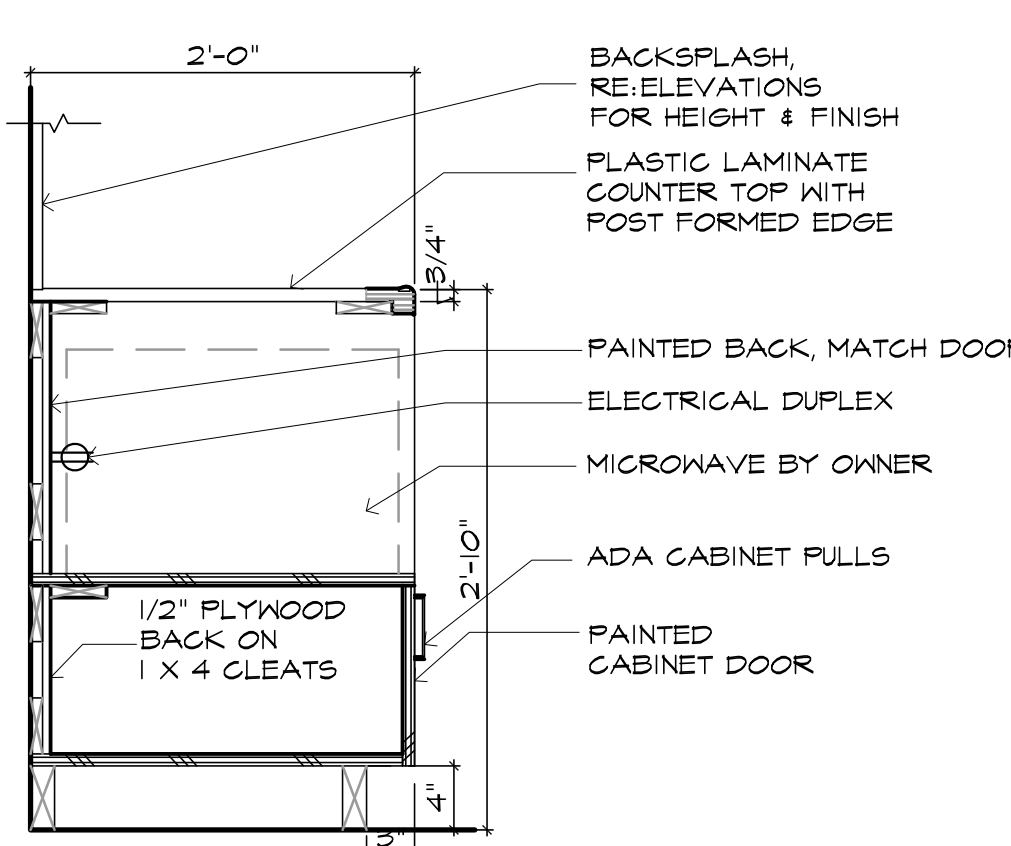
3 Section @ Sink



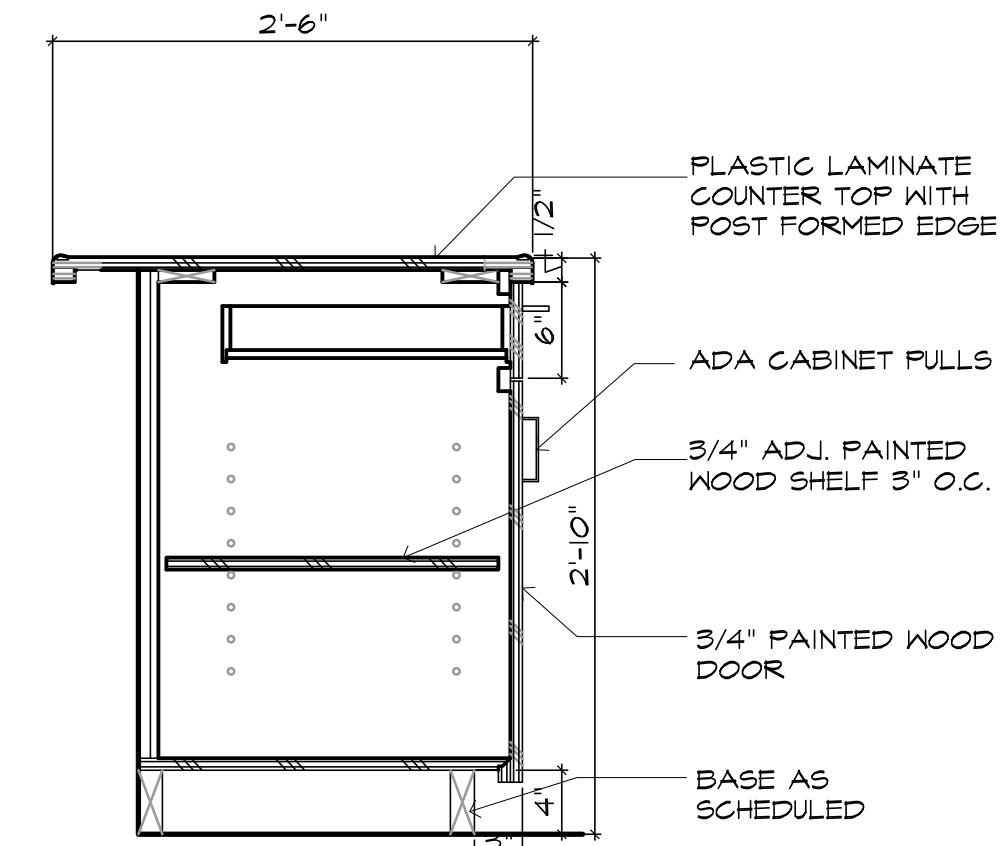
4 Section @ Lower Cabinet



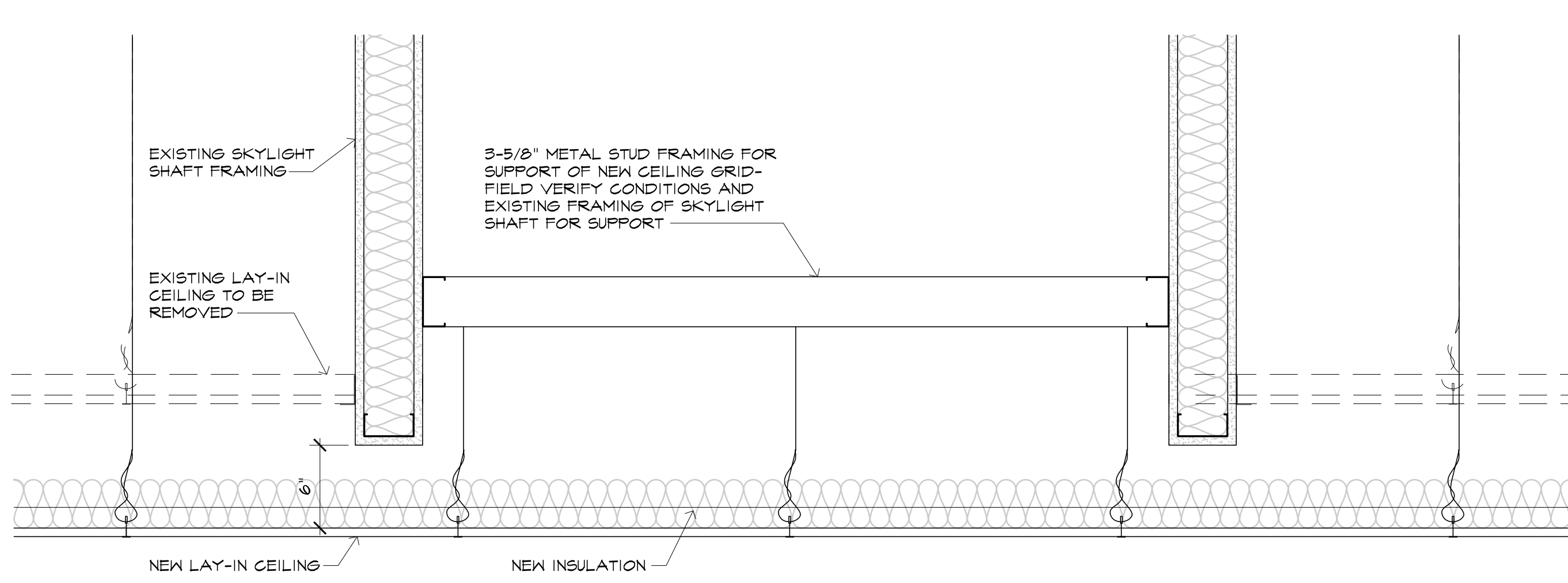
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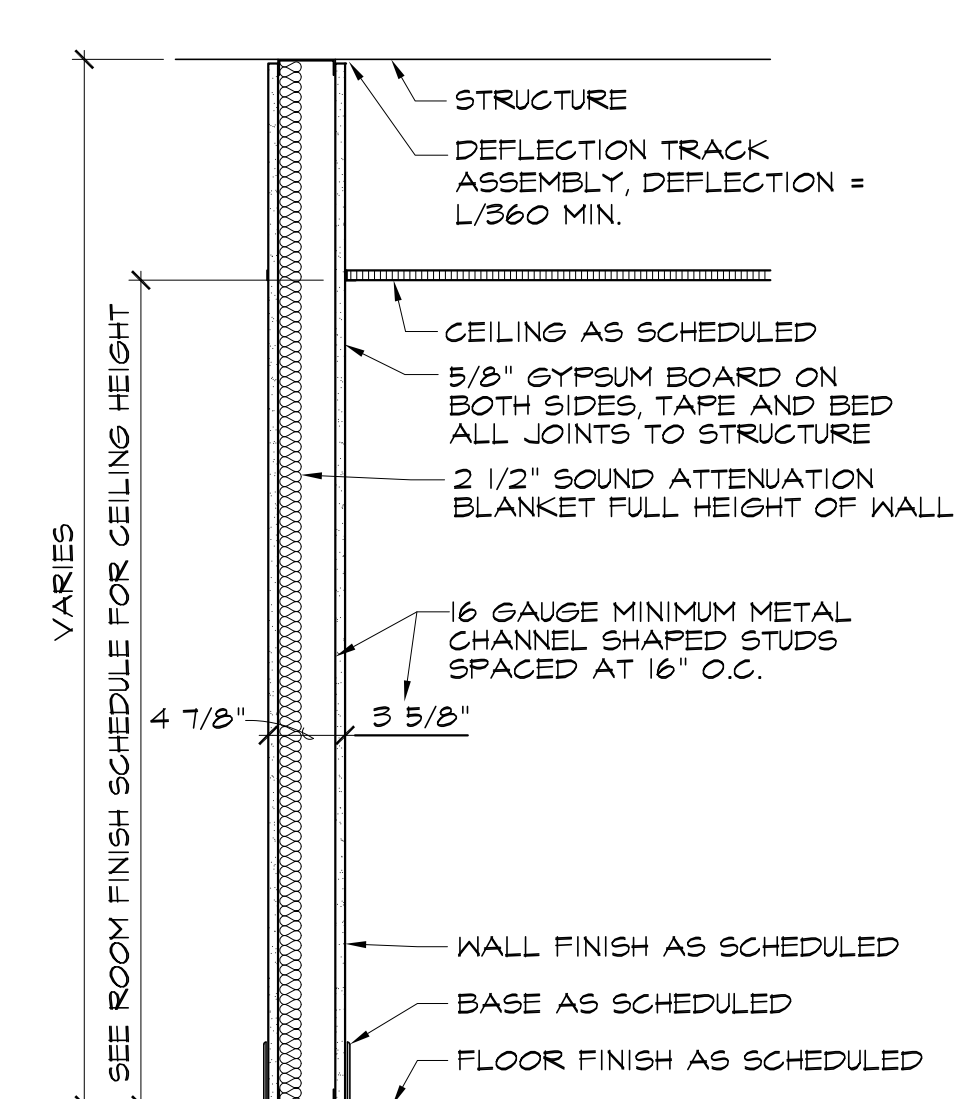
6 Section @ Lower Microwave



7 Section @ Peninsula



8 Ceiling Detail @ Skylight



9 Wall Detail

SECTION 00 8000 SPECIAL CONDITIONS

PART 1 GENERAL

1.01 GENERAL:

A. Employ workmen skilled in their respective trades to perform labor in a workmanlike manner. Proceed with work in the earliest feasible time and complete without delay.

1.02 RESPONSIBILITY AND INTENT:

A. The General Contractor shall provide labor, materials, equipment, appliances, and services necessary to execute and complete the work as described and required by the Contract Documents.

B. The work of the General Contractor shall, in general, include each and every trade or branch of work covered by the Contract Documents and may also include the work of other trades not specifically mentioned if and as required to properly carry out the work to completion.

C. It is the intent that the Work in the contract include the manufacture, fabrication, delivery, uncrating, hoisting, installation, erection, testing of all materials/equipment/thereto, unless otherwise noted or specified.

D. Any apparatus, appliance or material not described in the description or any incidental application, materials or service which may be necessary to make the Work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be furnished, delivered and installed by the General contractor without any additional expense to the Owner.

E. Small details not specified, but necessary for the proper installation and operation shall be included in the Work and in the General Contractor's and sub-contractor's proposal the same as if specified.

F. Materials and apparatus required for the Work shall be new and of first-class quality. Where a specific kind or quality of material is specified, a first-class standard article as approved by the Owner shall be furnished.

G. The General Contractor and all sub-contractors shall coordinate the operations of all trades in the common use of temporary equipment and facilities insofar as possible.

H. The General Contractor and all sub-contractors shall visit the site, make their own detailed examinations as to the conditions existing, and determine any difficulties attending to the execution of the Work.

I. Work of a temporary nature required for the contract operations shall be removed upon completion of the work in the contract, when no longer needed or when so directed by the Architect and/or Owner.

J. The General Contractor and sub-contractors shall lay out the work and establish lines, levels and reference points. Contractors shall assume entire responsibility for such work and their own trade therefor.

1.03 EXISTING CONDITIONS TO BE MAINTAINED:

A. The data so indicated or referenced as to existing conditions are not intended as representations of warranties of accuracy of construction and existing conditions.

B. The General Contractor and all sub-contractors, before submitting a proposal, shall visit and examine carefully the areas affected by this work to become familiar with existing conditions and with the difficulties that will extend to the execution of this Work. Submission of a proposal will be construed as evidence that such an examination has been made, and later claims will not be recognized for extra labor, equipment or materials required because of the difficulties encountered which could have been foreseen, had the examination been made.

1.04 ACCESS AND CONTRACT LIMITS:

A. Access to this site for the General Contractor and all sub-contractors and suppliers shall be only through the entrances designated by the Owner.

B. Fire exit access shall be kept open and clear at all times.

C. The General Contractor and all sub-contractors shall confine operations to areas within contract limits indicated. Portions of the project beyond areas in which construction operations are indicated are not to be disturbed.

D. Contractors shall be solely responsible for their own work, including all losses and damages to materials and equipment until final acceptance by the Owner.

E. Contractors shall be responsible for repair of any item within or beyond contract limit lines damaged by such operations.

1.05 SEQUENCE AND METHOD OF OPERATION:

A. In addition to the progress schedule required by the General Conditions, the General Contractor shall prepare and submit an outline of the proposed sequence of operations and methods the contractor proposes to employ during the entire period of construction for the project for review and approval by the Architect and Owner. No work shall be performed until a schedule of operations and the methods proposed have been formulated and mutually agreed upon by the General Contractor, Architect and Owner. This schedule will include specific sequencing or phasing operations to permit Owner to maintain his operations throughout construction period.

B. The General Contractor and all sub-contractors shall confine their operations within the area of the Owner's premises as directed. Routes of ingress and egress, storage areas, and other use of Owner's premises, shall at all times be subject to the approval of the Owner.

C. The General Contractor and all sub-contractors shall at all times conduct their operations in such a manner as to cause as little interruption and inconvenience as possible to adjoining property owners, the building owner, the Owner and others using spaces within the contract limit lines.

1.06 CODES, RULES, PERMITS FEES, AND CERTIFICATES:

A. Materials furnished and work performed shall comply with Federal and State laws, local codes, rules and recommendations of National Board of Fire Underwriters, Factory Mutual Insurance, Texas Engineering and Fire Prevention Bureau and local utility companies.

B. The General Contractor shall give necessary notices, obtain permits and certificates, perform tests, pay fees required by local authorities, pay royalties and other costs in connection with this work. File necessary plans and obtain necessary approvals of agencies or departments having jurisdiction over this work. Deliver three (3) copies of same to Architect.

C. The General Contractor shall pay for and obtain all necessary building permits, including plan review by all required government departments.

D. The General Contractor shall obtain the Certificate of Occupancy and any temporary Certificate of Occupancy required.

1.07 FIRST AID, ACCIDENT REPORTS:

A. The General Contractor shall establish standing arrangements for the immediate removal and hospital treatment of any employees and other persons on the jobsite who may be injured or may become ill.

B. In the case of accidents, the General Contractor shall immediately furnish the Owner the full information relative to such accidents, by telephone report plus full written report within forty-eight (48) hours after any occurrence.

1.08 FIRE PREVENTION/REFUSE REMOVAL:

A. The Work shall be performed in such a manner as to prevent fire, and, during any work involving a fire hazard, the General Contractor and all sub-contractors shall take reasonable precautions against fires starting and spreading.

B. No fires may be built on the premises. All rubbish and debris shall be removed and disposed of away from the premises on a daily basis and the work areas left broom clean.

C. The General Contractor and all sub-contractors shall control the safe handling and storage of flammables, welding materials, acetylene and oxygen tanks, and other equipment required for welding and cutting work. Welding and flammable materials and equipment shall be removed promptly from the premises upon completion of the welding and cutting work.

D. The General Contractor and all sub-contractors shall safely store, unpack, and protect from damage or loss, materials delivered and to be incorporated into the Work.

E. The General Contractor shall provide and maintain all fire extinguishers and other devices required by the fire department.

1.09 MEETINGS, SUPERVISORY PERSONNEL:

A. Weekly job meetings and coordination meetings will be scheduled by the General Contractor in coordination with the Architect and Owner during the course of construction. The general contractor and, upon the request of the Owner, his principal sub-contractors, shall attend such meetings and be prepared to furnish answers to questions on progress, workmanship or any other subjects which the Architect or Owner might reasonably require information.

B. Each sub-contractor shall confer with the General Contractor and other sub-contractors at the site to coordinate the Work with the Owner, shop drawings of other trades and the job conditions.

C. The General Contractor shall provide the service of a competent, full time superintendent in the direct employment of the General Contractor for the full term of the project.

D. Each sub-contractor shall confer with the General Contractor and other sub-contractors at the site to coordinate the Work with the Architect's drawings, the shop drawings of other trades and the job conditions throughout the job so that conflicts may be eliminated and that the maximum work room and clearance may be obtained. In the event that conflicts develop, the Architect's decision will be final and no additional compensation will be allowed for the moving of piping or equipment to clear such conflicts.

1.10 ANCHORS AND INSERTS:

A. Sub-contractors shall coordinate the installation, locations and dimensions of anchors, dowels, inserts and similar fastening devices for the requirements of the work of all trades. Fabricated elements which require sleeves, anchors, inserts, etc., shall have such items indicated on shop drawings. The General Contractor and all sub-contractors shall coordinate the shop drawings between the various trades and existing conditions.

1.11 PROTECTION AND SAFETY:

A. The General Contractor shall provide and maintain all protections required by the governing laws, regulations and ordinances. The General Contractor shall be responsible for any loss or damage caused by him or his workmen and/or sub-contractors to the property of the Owner or the work or materials installed, and shall make good any loss, damage, or injury without cost to the Owner.

B. The General Contractor shall provide and maintain suitable fences, barricades, rails, flags, warning, lights, and other safeguards to protect and control pedestrians and workmen as may be required at all times, within contract limit lines.

C. Guard rails or temporary enclosures shall be provided around openings in and edges of floors and other hazards until they are permanently enclosed or protected.

D. Protection and safety procedures are to be in accordance with the requirements of OSHA.

E. Whoever and if openings are made in exterior walls, roofs, and other locations, temporary weather-tight protection shall be provided and maintained at all times and locations during inclement weather and whenever work is not actually in progress.

F. Security of Owner's premises shall be carefully coordinated and maintained with Owner, building representative and General Contractor to insure maintenance of security at all times.

1.12 HOISTING, SCAFFOLDING, STAIRS, LADDERS:

A. General Contractor shall provide and maintain adequate and safe temporary hoisting equipment, with power and attendance, as required to handle the material and to properly carry out the work of all trades and sub-contractors. Sub-contractor shall schedule the use of the equipment to avoid delays.

B. Sub-contractors shall provide and maintain their own scaffolding, temporary stairs, platforms, runways, ladders, supports, braces, etc., as required to carry out the work and to allow access to the work for inspection. They shall be entirely safe and adequate for the use intended and meet all OSHA standards.

C. Proposals for any and all of the above mentioned in this section are to be submitted to the Owner for approval prior to any of said work commencing. Such activities are also subject to the General Contractor's and sub-contractor's use of the premises.

SECTION 01 3000 SUBMITTALS

PART 1 GENERAL

1.01 PRODUCTS:

A. Provide new products unless specifically indicated otherwise or required by the contract documents.

B. Do not use products having any of the following characteristics:
1. Contains lead, asbestos or any other prohibited products.

C. Where all other criteria have been met, contractor shall give preference to products that:
1. Are extracted, harvested and/or manufactured closer to the location of the project.
2. Have a longer documented life span under normal use.
3. Results in less construction waste.

1.02 SUBMITTALS:

A. Manufacturer submittal:
1. Within ten (10) days after the acceptance of the contract from the General Contractor and as a condition precedent to submittal of the first payment application, submit to the Architect for approval a list of manufacturers of equipment and materials proposed for the Work. The intent to use the exact manufacturer and products specified does not relieve the Contractor of the responsibility of submitting this list.

2. No shop drawings will be reviewed prior to review and approval of the list of manufacturers of equipment and materials proposed for the Work.

B. Shop Drawing submittals:
1. The General Contractor shall provide submittals as indicated in each specification section and as noted on the drawings or other Contract Documents.

C. Each item of equipment shall be a standard catalog product of an established, reputable, approved manufacturer.

1.03 MANUFACTURER'S SPECIFICATIONS, REFERENCE STANDARDS:

A. Mention of a product by specific name or alternative products offered and approved shall imply application of the manufacturer's published specification, modified as necessary to comply with the Construction Documents. A copy of the applicable manufacturer's specifications, trade association's specifications and/or standards shall be made available by the General Contractor to the Architect for reference.

B. References to standard specifications and tests of technical societies, public agencies and similar organizations shall be taken to mean the latest editions adopted and published, including revisions and amendments current at the time of the contract.

1.04 PROTECTION OF NEW WORK:

A. The General Contractor and all sub-contractors shall protect and care for the Work, from the time of delivery at the site until final acceptance of same by Architect, Building Owner representative and the Owner. Any portion of the Work subject to injury or damage shall be carefully protected by the General Contractor and sub-contractors in a manner satisfactory to the Architect, Building Owner representative and the Owner. This protection shall be carefully maintained during the construction of the entire work and shall be removed from the premises when so directed by the Architect, Building Owner representative or the Owner. Should the General Contractor and/or sub-contractor(s) fail to properly protect the work, the Owner, at the expense of the General Contractor, may install and maintain such protection. The Owner will assume no responsibility for tools, materials or other property of the General Contractor or sub-contractors left on the Owner's premises.

1.05 PUNCH LIST AND FINAL INSPECTION:

A. The General Contractor shall perform their own inspection and evaluation of all aspects of the Work and areas of the job prior to requesting the Architect's Punch List. The General Contractor shall prepare a typewritten report enumerating deficient work found during their evaluation and inspection and status of same at the time of requesting a Punch List. The General Contractor shall provide Architect a copy of the same at the time of or prior to requesting the Architect's Punch List.

B. The Work shall be considered ready for the Architect's Punch List when all elements of work are in place and serving as intended. The intent of the Punch List is to avoid inspection of any new work after punch listing. The Final Inspection shall concern itself only with the correction of Punch List items.

C. In order to allow for the extended commitment of time required by the Architect for Punch Listing, the General Contractor shall give a minimum of one (1) week prior written notice of the date on which they request the Punch List. The General Contractor shall provide the Architect with three (3) copies of the contractor's report noted previously on which to make additions or deletions.

D. The Final Inspection shall be performed when Punch List items are rectified. The General Contractor shall provide the Architect with copies of the completed Punch List marked to indicate the items which are completed in their estimation. The Architect shall perform the Final Inspection, the report from which will serve as the basis for determining final retainage at the time of Substantial Completion.

E. Prior to Final Inspection and acceptance of the Work, movable and operating items of equipment and systems shall be thoroughly examined, serviced, and carefully adjusted so as to leave them in satisfactory operating condition.

F. Sub-contractors shall provide a one (1) year written guarantee on all labor and material to the General Contractor.

SECTION 01 0450 CUTTING AND PATCHING

PART 1 GENERAL

1.01 GENERAL DESCRIPTION:

A. Employ skilled workmen to perform cutting and patching work.

B. Proceed with cutting and patching work at the earliest feasible time and complete without delay. Cut existing construction in order to proceed with and to provide for the installation of other components or for performance of other construction activities and the subsequent tiling and patching required to restore surfaces to their original condition.

C. Use materials that match the existing adjacent surfaces to the fullest extent possible, with installed performance equal to or surpassing that of the existing materials.

D. Where existing acoustical ceiling systems are required to be patched, provide tile, grid, and all framing accessories required to match the existing ceiling system.

E. Before cutting existing surfaces, examine surfaces to be cut and patched and the conditions under which cutting and patching is to be performed. Take corrective action before proceeding if unsafe, unsound or otherwise unsatisfactory conditions are encountered.

F. Before proceeding, meet at the project site with the parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

G. Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible, review proposed procedures with the original installer. Comply with the original installer's recommendations.

H. Patch seams so that they are as invisible as possible. Comply with manufacturer's specified tolerances.

SECTION 01 1000 FINISHES

PART 1 GENERAL

1.01 GENERAL DESCRIPTION:

A. Employ skilled workmen to perform cutting and patching work.

B. Proceed with cutting and patching work at the earliest feasible time and complete without delay. Cut existing construction in order to proceed with and to provide for the installation of other components or for performance of other construction activities and the subsequent tiling and patching required to restore surfaces to their original condition.

C. Use materials that match the existing adjacent surfaces to the fullest extent possible, with installed performance equal to or surpassing that of the existing materials.

D. Where existing acoustical ceiling systems are required to be patched, provide tile, grid, and all framing accessories required to match the existing ceiling system.

E. Before cutting existing surfaces, examine surfaces to be cut and patched and the conditions under which cutting and patching is to be performed. Take corrective action before proceeding if unsafe, unsound or otherwise unsatisfactory conditions are encountered.

F. Before proceeding, meet at the project site with the parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

G. Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible, review proposed procedures with the original installer. Comply with the original installer's recommendations.

H. Patch seams so that they are as invisible as possible. Comply with manufacturer's specified tolerances.

SECTION 01 1000 FINISHES

PART 1 GENERAL

1.01 GENERAL DESCRIPTION:

A. The work of this project consists of furnishing all labor, materials and equipment, tools and services, and performing all operations required in connection with general construction, structural, mechanical, electrical plumbing, fire protection, and all related work for renovations indicated on the contract drawings, these specifications and all other related contract documents.

1.02 GENERAL CONTRACTOR'S DUTIES:

A. The General Contractor shall:
1. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities and the Owner which bear on performance of the Work.
2. Promptly submit written notice to the Architect and the owner's representative of any observed variance of the contract documents from legal requirements.
3. Enforce strict discipline and good order among employees. The contractor shall not employ utility persons, or persons not skilled in assigned tasks.
4. Coordinate construction activities to ensure efficient and orderly installation of each part of the Work.
5. Coordinate and submit scheduling and timing of required procedures:
a. Installation and removal of temporary protective barriers.
b. Temporary facilities.
c. Delivery and processing of submissions.
d. Weekly progress meetings as scheduled and coordinated with the Architect and Owner's representative.
e. Project close-out activities.

1.03 GENERAL CONTRACTOR AND SUB-CONTRACTOR'S USE OF PREMISES:

A. The General Contractor and their sub-contractors shall:
1. Confine operations on-site to areas permitted by law, ordinances, permits and contract documents.
2. Not unreasonably encumber the site with materials or equipment.
3. Not load any structure with weight that will endanger structure.
4. Assure full responsibility for protection and safe keeping of materials stored on the premises.
5. Move any stored products or materials which interfere with operations of the Owner or separate contractors employed by the Owner.
6. Obtain and pay for use of additional storage or work areas needed for operations and conditions of the contract.
B. Use of existing spaces: Maintain the existing spaces in a secure and safe condition throughout the construction period. Repair damage caused by construction operations. Take all precautions reasonable and necessary to protect the building and its occupants during the construction period.

1.04 BUILDING TENANT OCCUPANCY:

A. Full building tenant occupancy: The tenant will occupy existing spaces during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate owner usage; perform work as to not interfere with the Owner's operations.

1.05 REFUSE REMOVAL:

A. The General Contractor and all sub-contractors shall provide cleanup for all construction work. Sub-contractors shall remove and are responsible for the removal of all of their own debris at their cost.

B. All refuse and debris shall be removed daily, and the work areas left broom clean.

C. The cost of all dumpsters shall be the responsibility of each individual sub-contractor.

D. It shall be the General Contractor's responsibility to comply with all garbage/waste recycling laws for all applicable jurisdictions.

1.06 DRAWING COORDINATION:

A. General: the work of the contract includes coordination of the entire work of the project, including preparation of shop drawings, diagrams and schedules from the beginning of construction activity through project close-out and warranty periods.

SECTION 01 3000 SUBMITTALS

PART 1 GENERAL

1.01 PRODUCTS:

A. Provide new products unless specifically indicated otherwise or required by the contract documents.

B. Do not use products having any of the following characteristics:
1. Contains lead, asbestos or any other prohibited products.

C. Where all other criteria have been met, contractor shall give preference to products that:
1. Are extracted, harvested and/or manufactured closer to the location of the project.
2. Have a longer documented life span under normal use.
3. Results in less construction waste.

1.02 SUBMITTALS:

A. Manufacturer submittal:
1. Within ten (10) days after the acceptance of the contract from the General Contractor and as a condition precedent to submittal of the first payment application, submit to the Architect for approval a list of manufacturers of equipment and materials proposed for the Work. The intent to use the exact manufacturer and products specified does not relieve the Contractor of the responsibility of submitting this list.

2. No shop drawings will be reviewed prior to review and approval of the list of manufacturers of equipment and materials proposed for the Work.

B. Shop Drawing submittals:
1. The General Contractor shall provide submittals as indicated in each specification section and as noted on the drawings or other Contract Documents.

C. Each item of equipment shall be a standard catalog product of an established, reputable, approved manufacturer.

1.03 MANUFACTURER'S SPECIFICATIONS, REFERENCE STANDARDS:

A. Mention of a product by specific name or alternative products offered and approved shall imply application of the manufacturer's published specification, modified as necessary to comply with the Construction Documents. A copy of the applicable manufacturer's specifications, trade association's specifications and/or standards shall be made available by the General Contractor to the Architect for reference.

B. References to standard specifications and tests of technical societies, public agencies and similar organizations shall be taken to mean the latest editions adopted and published, including revisions and amendments current at the time of the contract.

1.04 PROTECTION OF NEW WORK:

A. The General Contractor and all sub-contractors shall protect and care for the Work, from the time of delivery at the site until final acceptance of same by Architect, Building Owner representative and the Owner. Any portion of the Work subject to injury or damage shall be carefully protected by the General Contractor and sub-contractors in a manner satisfactory to the Architect, Building Owner representative and the Owner. This protection shall be carefully maintained during the construction of the entire work and shall be removed from the premises when so directed by the Architect, Building Owner representative or the Owner. Should the General Contractor and/or sub-contractor(s) fail to properly protect the work, the Owner, at the expense of the General Contractor, may install and maintain such protection. The Owner will assume no responsibility for tools, materials or other property of the General Contractor or sub-contractors left on the Owner's premises.

1.05 PUNCH LIST AND FINAL INSPECTION:

A. The General Contractor shall perform their own inspection and evaluation of all aspects of the Work and areas of the job prior to requesting the Architect's Punch List. The General Contractor shall prepare a typewritten report enumerating deficient work found during their evaluation and inspection and status of same at the time of requesting a Punch List. The General Contractor shall provide Architect a copy of the same at the time of or prior to requesting the Architect's Punch List.

B. The Work shall be considered ready for the Architect's Punch List when all elements of work are in place and serving as intended. The intent of the Punch List is to avoid inspection of any new work after punch listing. The Final Inspection shall concern itself only with the correction of Punch List items.

C. In order to allow for the extended commitment of time required by the Architect for Punch Listing, the General Contractor shall give a minimum of one (1) week prior written notice of the date on which they request the Punch List. The General Contractor shall provide the Architect with three (3) copies of the contractor's report noted previously on which to make additions or deletions.

D. The Final Inspection shall be performed when Punch List items are rectified. The General Contractor shall provide the Architect with copies of the completed Punch List marked to indicate the items which are completed in their estimation. The Architect shall perform the Final Inspection, the report from which will serve as the basis for determining final retainage at the time of Substantial Completion.

E. Prior to Final Inspection and acceptance of the Work, movable and operating items of equipment and systems shall be thoroughly examined, serviced, and carefully adjusted so as to leave them in satisfactory operating condition.

F. Sub-contractors shall provide a one (1) year written guarantee on all labor and material to the General Contractor.

SECTION 07 9000 SEALANTS

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS:

A. This section includes the furnishing and installation of the various sealant types and applications as indicated on the drawings.

B. Sealants and Primers, General: Provide only products having a lower VOC content than required by the more stringent of the following:
1. South Coast Air Quality Management District Rule No. 1168.
2. Bay Area Air Quality Management District Regulation 8, Rule 51.

C. Materials:
1. General Purpose, Exterior: Polyurethane, Grade NS, Class 25, uses M, G, and A, single component.
a. Color: Selected from standard color range by the Architect. Unless otherwise indicated, color to match adjacent finished surfaces.
b. Applications: Use for
1)Interior wall and ceiling control joints
2)Joints between door and window frames and wall surfaces.
3)Other interior joints for which no other type of sealant is indicated.
3.Bathroom/Tile Sealant: White silicone, uses I, M and A, single component, solvent release curing, non-skinning.
a. Applications: Use for
1)Joints between plumbing fixtures and floor, wall, and/or countertop surfaces
2)Joints between kitchen and bath countertops and wall surfaces.
4. Concrete paving joint sealant: Polyurethane, self-leveling, Class 25, uses T, I, M, and A, single or two-part component.
a)Color: Grey.
b)Applications: Use for
1)Joints in sidewalks and concrete vehicular paving areas.

a. Applications: Use for
1)Interior wall and ceiling control joints
2)Joints between door and window frames and wall surfaces.
3)Other interior joints for which no other type of sealant is indicated.
3.Bathroom/Tile Sealant: White silicone, uses I, M and A, single component, solvent release curing, non-skinning.
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a)Color: Grey.
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a)Color: Grey.
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a)Color: Grey.
b)Applications: Use for
1)Joints in sidewalks and concrete vehicular paving areas.

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a)Color: Grey.
b)Applications: Use for
1)Joints in sidewalks and concrete vehicular paving areas.

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1)Interior wall and ceiling control joints
2)Joints between door and window frames and wall surfaces.
3)Other interior joints for which no other type of sealant is indicated.
3.Bathroom/Tile Sealant: White silicone, uses I, M and A, single component, solvent release curing, non-skinning.
a. Applications: Use for
1)Joints between plumbing fixtures and floor, wall, and/or countertop surfaces
2)Joints between kitchen and bath countertops and wall surfaces.
4. Concrete paving joint sealant: Polyurethane, self-leveling, Class 25, uses T, I, M, and A, single or two-part component.
a)Color: Grey.
b)Applications: Use for
1)Joints in sidewalks and concrete vehicular paving areas.

SECTION 09 2500 GYPSUM BOARD

PART 1 GENERAL

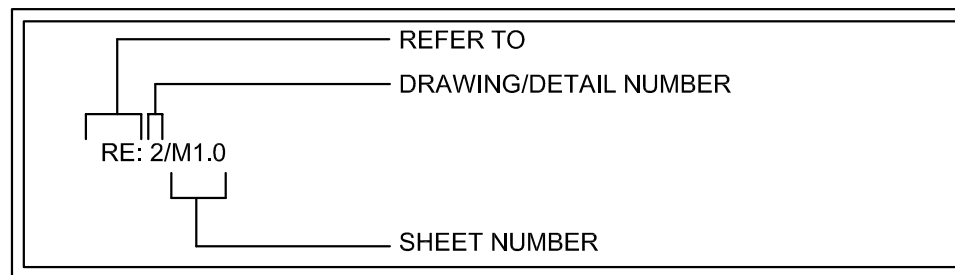
1.01 GENERAL REQUIREMENTS:

A. This section includes the furnishing and installation of the various gypsum board assemblies and related interior light gauge

MECHANICAL AND PLUMBING GENERAL NOTES

- PERFORM ALL WORK IN ACCORDANCE WITH MECHANICAL CODE, PLUMBING CODE, ENERGY CODE AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION AND UNIT DESIGN GUIDELINES.
- FURNISH ALL LABOR, EQUIPMENT, SUPPLIES AND MATERIALS NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS.
- DRAWINGS AND SPECIFICATIONS: THE MECHANICAL DRAWINGS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF PIPES, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DO NOT SCALE THE DRAWINGS FOR DIMENSIONS. TAKE DIMENSIONS, MEASUREMENTS, EQUIPMENT LOCATIONS, LEVELS, ETC. FROM THE ARCHITECTURAL DRAWINGS AND EQUIPMENT TO BE FURNISHED. CONDUIT, PIPING AND/OR DUCTWORK MAY BE RELOCATED OR OFFSET FOR PROPER CLEARANCES. DEVIATION FROM DRAWING MUST HAVE THE ENGINEER'S APPROVAL. THE DESIGN INTENT I.E., PITCHES, VELOCITIES, PRESSURE DROPS, VOLTAGE DROPS, ETC. CANNOT BE GREATLY ALTERED WITHOUT THE APPROVAL OF THE ENGINEER. COST OF THESE DEVIATIONS TO AVOID INTERFERENCES SHALL BE PART OF THE ORIGINAL CONTRACT.
- BASE FINAL INSTALLATION OF MATERIALS AND EQUIPMENT ON ACTUAL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE. FIELD MEASURE FOR MATERIALS OR EQUIPMENT REQUIRING EXACT FIT. NO EXTRAS WILL BE GIVEN FOR CONTRACTORS FAILURE TO FIELD COORDINATE.
- CONTRACTOR SHALL LOCATE ALL EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO VALVES, SHOCK ABSORBERS, TRAPS, CLEANOUTS, MOTORS, CONTROLLERS, SWITCHGEAR, AND DRAIN POINTS IF REQUIRED FOR BETTER ACCESSIBILITY. MINOR DEVIATIONS FROM DRAWINGS MAY BE ALLOWED TO PROVIDE FOR BETTER ACCESSIBILITY. ANY CHANGES SHALL BE APPROVED BY THE ENGINEER PRIOR TO MAKING THE CHANGE.
- CONTRACTOR SHALL PROVIDE ACCESS DOORS, WALL OPENINGS, ROOF OPENINGS OR ANY OTHER CONSTRUCTION REQUIREMENTS NEEDED TO ACCOMMODATE THE MECHANICAL EQUIPMENT. LOCATIONS OF THESE OPENINGS SHALL BE SUBMITTED IN SUFFICIENT TIME TO BE INSTALLED IN THE NORMAL COURSE OF WORK. ACCESS DOOR TYPES AND LOCATIONS SHALL BE COORDINATED WITH ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS OF APPROVED MECHANICAL EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO THE INSTALLATION OF ANY ELECTRICAL GEAR OR CONDUIT.
- MECHANICAL CONTROL DEVICE POWER REQUIREMENTS SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION AND SHALL BE INCLUDED AS PART OF THE BASE BID.
- PROVIDE VIBRATION ISOLATORS FOR MOTOR DRIVEN MECHANICAL EQUIPMENT UNLESS SPECIFICALLY NOTED OTHERWISE. PROVIDE ISOLATION AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
- PROVIDE FIRE DAMPERS WITH ACCESS PANELS AT ALL FIRE RATED WALLS AND CEILINGS.
- COORDINATE THERMOSTAT LOCATION WITH LIGHT SWITCHES, MILLWORK, WINDOWS, ETC. PRIOR TO INSTALLATION. IF A CONFLICT EXISTS COORDINATE WITH THE ARCHITECT FOR ALTERNATE INSTALLATION CONFIGURATIONS.
- UNLESS OTHERWISE INDICATED THE DUCTWORK RUNOUT FROM THE DIFFUSER/GRILLE TO THE MAIN SHALL BE THE SAME SIZE AS THE DIFFUSER/GRILLE NECK.
- DOUBLE THICKNESS VANED ELBOWS SHALL BE USED FOR ALL RECTANGULAR SUPPLY, RETURN AND EXHAUST DUCTWORK INCLUDING THE TOP AND BOTTOM OF VERTICAL DUCT TRANSITIONS.
- MOUNT THERMOSTATS AND HUMIDISTATS AT 4'-0" AFF TO THE CENTER OF THE DEVICE. ALL INSTALLATIONS SHALL COMPLY WITH TEXAS ACCESSIBILITY STANDARDS.
- ALL DIMENSIONS SHOWN ON THE DRAWINGS FOR DUCTWORK ARE NET INSIDE CLEAR DIMENSIONS. THE FIRST FIGURE OF THE DUCT SIZE INDICATES THE DIMENSION OF THE FACE SHOWN. VERIFY THAT THE DUCTWORK SPECIFIED WILL FIT IN THE SPACE AVAILABLE USING THE ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL DRAWINGS AS REFERENCE PRIOR TO FABRICATION AND INSTALLATION.
- CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT AND DUCTS WITH ELECTRICAL PANELS AND GEAR PRIOR TO ANY INSTALLATION IN ORDER TO PROVIDE THE REQUIRED ELECTRICAL PANEL CLEARANCES AND EQUIPMENT OPERATION AND MAINTENANCE CLEARANCES.
- BACK PANEL OF ALL CEILING MOUNTED AIR DEVICES SHALL BE INSULATED.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.

DRAWING/DETAIL REFERENCE



MECHANICAL SYMBOLS

	RECTANGULAR DUCT (FIRST FIG. IS SIDE SHOWN)
	ROUND DUCT
	TURNING VANES
	SUPPLY DUCT IN SECTION
	SUPPLY DUCT
	RETURN DUCT IN SECTION
	RETURN DUCT
	VENTILATION DUCT IN SECTION
	VENTILATION DUCT
	EXHAUST DUCT IN SECTION
	EXHAUST DUCT
	SQUARE CEILING DIFFUSER (SUPPLY) (4-WAY UNLESS OTHERWISE INDICATED)
	SQUARE CEILING RETURN GRILLE
	SQUARE CEILING EXHAUST GRILLE
	THERMOSTAT OR TEMPERATURE SENSOR
	HUMIDISTAT OR HUMIDITY SENSOR
	FAN CONTROLLER
	NECK SIZE OR WIDTH X HEIGHT
	AMOUNT OF AIR DIFFUSER, GRILLE DESIGNATION
	MOTORIZED DAMPER
	MANUAL VOLUME DAMPER
	FIRE DAMPER
	COMBINATION FIRE/SMOKE DAMPER (MOTORIZED)
	CONNECT TO EXISTING
	EXISTING DUCT OR EQUIPMENT
	CONDENSATE DRAIN
	NATURAL GAS (EXISTING)

ABBREVIATIONS

AD	ACCESS DOOR	L	LENGTH
A/C	AIR CONDITIONING UNIT	LAT	LEAVING AIR TEMPERATURE
A/E	ARCHITECT/ENGINEER	LPC	LOW PRESSURE CONDENSATE
AFF	ABOVE FINISHED FLOOR	LPS	LOW PRESSURE STEAM
AFS	AIR FLOW SWITCH	LB	POUNDS
AHU	AIR HANDLING UNIT	LRA	LOCKED ROTOR AMPS
AMS	AIR MEASURING STATION	LWT	LEAVING WATER TEMPERATURE
APPROX	APPROXIMATE	MAX	MAXIMUM
BHP	BRAKE HORSE POWER	MBH	1000 BRITISH THERMAL UNITS / HOUR
BTU	BRITISH THERMAL UNIT PER HOUR	MCA	MINIMUM CIRCUIT AMPACITY
C/A	COMBUSTION AIR	MFR	MANUFACTURER
CC	COOLING COIL	MIN	MINIMUM
CFH	CUBIC FEET PER HOUR	N/A	NOT APPLICABLE
CFM	CUBIC FEET PER MINUTE	N/O, N/C	NORMALLY OPEN, NORMALLY CLOSED
CLG	CEILING	O/A	OUTSIDE AIR/FRESH AIR
CU	CONDENSING UNIT	OBD	OPPOSED BLADE DAMPER
D	EQUIPMENT DRAIN	O/C	ON CENTER
DEG	DEGREES	P	PURGE EXHAUST FAN
DB	DRY BULB	PH	PHASE
DN	DOWN	PROVIDE	FURNISH AND INSTALL
(E)	EXISTING	PRV	PRESSURE REDUCING VALVE
EAT	ENTERING AIR TEMPERATURE	PSI	POUNDS PER SQUARE INCH
E/A	EXHAUST AIR	R/A	RETURN AIR
EDH	ELECTRIC DUCT HEATER	RE:	REFERENCE, REFER
EF	EXHAUST FAN	RL	REFRIGERANT LIQUID
EQUIP	EQUIPMENT	RLA	RUNNING LOAD AMPS
EWIT	ENTERING WATER TEMPERATURE	RM	ROOM
'F	DEGREES FAHRENHEIT	RP	REVOLUTIONS PER MINUTE
FCU	FAN COIL UNIT	RS	REFRIGERANT SUCTION
FD	FIRE DAMPER	S/A	SUPPLY AIR
FLA	FULL LOAD AMPS	SD	SMOKE DETECTOR
FLR	FLOOR	SF	SQUARE FOOT, SUPPLY FAN
FPVAV	FAN POWERED VAV	SPECS	SPECIFICATIONS
FSD	FIRE SMOKE DAMPER	T, TSTAT	THERMOSTAT, ROOM SENSOR
FT.	FOOT, FEET	T/A	TRANSFER AIR
FT. WG	FEET WATER GAUGE	THRU	THROUGH
GA	U.S. GAUGE	TSP	TOTAL STATIC PRESSURE
GPM	GALLONS PER MINUTE	TSTAT	THERMOSTAT OR ROOM SENSOR
H	HEIGHT	TYP	TYPICAL
HP	HORSEPOWER	UL	UNDERWRITERS LABORATORIES, INC.
HPC	HIGH PRESSURE CONDENSATE	UH	UNIT HEATER
HPS	HIGH PRESSURE STEAM	V	VOLTS
HWR	HEATING WATER RETURN	VAV	VARIABLE AIR VOLUME
HWS	HEATING WATER SUPPLY	VEL	VELOCITY
HZ	HERTZ	VFD	VARIABLE FREQUENCY DRIVE
IN.	INCH, INCHES	W	WITH
IN.WG	INCHES WATER GAUGE	WB	WET BULB
J-BOX	JUNCTION BOX	W/O	WITHOUT
KW	KILOWATT		

LINE TYPES

SYMBOL	DESCRIPTION
	SANITARY SEWER (ABOVE CEILING)
	SANITARY SEWER (BELOW FLOOR, BUILDING DRAIN)
	SANITARY SEWER (OUTSIDE OF BUILDING, BUILDING SEWER)
	EQUIPMENT DRAIN
	SANITARY VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER CIRCULATION
	FIRE PROTECTION MAIN WATER SUPPLY
	DIRECTION OF FLOW
	DIRECTION OF PIPE SLOPE DOWN

MISCELLANEOUS

	DRAWING NOTE REFERENCE (I.E., NOTES BY SYMBOL)
	CONNECTION INTO EXISTING

WATER HAMMER ARRESTER SCHEDULE

P.D.I. SIZE	A	B	C	D	E	F
FIXTURE UNITS	1-11	12-32	33-60	61-113	114-154	155-330

NOTES:
 1. ALL WHA'S SHALL HAVE AN ACCESS PANEL.
 2. SIZE AND LOCATE WATER HAMMER ARRESTERS IN ACCORDANCE WITH PDI PAMPHLET PDI-WH-201

AIR DEVICE SCHEDULE

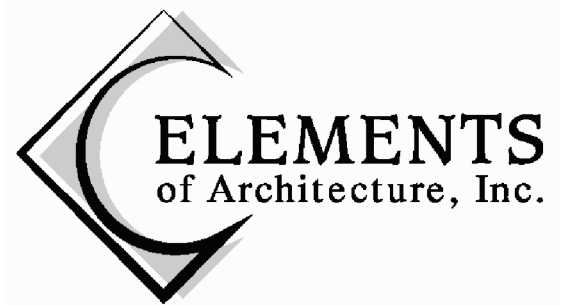
MARK	SERVES	NECK SIZE	FACE SIZE	MOUNTING	DESCRIPTION	MATERIAL	MANUFACTURER MODEL NUMBER	NOTES
A	SUPPLY	8"Ø	24" X 24"	VARIES	SQUARE LOUVER	ALUMINUM	TITUS TMS-AA	1, 2, 4
B	SUPPLY	10"Ø	24" X 24"	VARIES	SQUARE LOUVER	ALUMINUM	TITUS TMS-AA	1, 2, 4
C	RETURN	22" X 22"	24" X 24"	VARIES	ALUMINUM CORE 1/2" X 1/2" EGGCRATE	ALUMINUM	TITUS 50F	1, 2, 3

- DIFFUSERS, REGISTERS, AND GRILLES SHALL BE TYPE FOR MOUNTING IN RESPECTIVE SURFACE TYPE. CONFIRM AND COORDINATE WITH ARCHITECTURAL DRAWINGS AND WITH HVAC PLAN.
- FINISH FOR DIFFUSERS, REGISTERS, AND GRILLES SHALL BE MANUFACTURER'S STANDARD WHITE, UNLESS OTHERWISE INDICATED.
- PROVIDE TRANSITION OR ADAPTER WHERE REQUIRED TO ADAPT DUCTWORK TO NECK SIZE.
- PROVIDE MANUAL BALANCING DAMPER AT RUN-OUT CONNECTION FROM MAIN.

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	ROUGH IN (MINIMUM)				MANUFACTURER AND MODEL NUMBER	ADA /TAS
		W	V	CW	HW		
S-1	SINK, DOUBLE COMPARTMENT, 33"x22"x6", SELF RIMMING, SEAMLESS #18 GAUGE TYPE 304 STAINLESS STEEL, FAUCET LEDGE, MINIMUM 1 3/4" VERTICAL AND HORIZONTAL RADIUS BASIN CORNERS, FULLY UNDERCOATED, ANSI A112.19.3M. DRAINS CENTERED IN REAR OF EACH BASIN.	2"	1 1/2"	-	-	JUST, DL-ADA-2233-A-GR; OR EQUAL IN ELKAY	X
	FAUCET, 10" SPOUT, TWO-HANDLE, 4" WRIST BLADE, CHROME PLATED BRASS, 8" CENTERS, WHAND SPRAY	-	-	1/2"	1/2"	CHICAGO, 1100-317CP; OR EQUAL IN MOEN OR DELTA	
	SUPPLY AND STOP, LOOSE KEY, CHROME PLATED BRASS VALVES AND CHROME PLATED COPPER RISERS	-	-	-	-	MCGUIRE, H2167CCLK; OR EQUAL IN T&S BRASS OR BRASSCRAFT	
	P-TRAP, CHROME PLATED CAST BRASS BODY WITH CLEANOUT, 17 GA.	-	-	-	-	MCGUIRE, 8902; OR EQUAL IN T&S BRASS OR BRASSCRAFT	
	TAILPIECE AND FORGED STAINLESS STEEL BASKET STRAINER	-	-	-	-	JUST J-ADA-35; OR EQUAL IN MCGUIRE, T&S BRASS OR BRASSCRAFT	
IMC-1	ICE MAKER REFRIGERATOR CONNECTION BOX, WHITE POWDER COATED, QUARTER TURN SHUT-OFF VALVE	-	-	1/2"	-	GUY GRAY MIB SERIES; OR EQUAL IN WATTS BRASS & TUBULARGUY	
FD-1	FLOOR DRAIN, CI BODY, DBL DRAINAGE FLG, EXTENDED RIM STRAINER	2"	2"	1/2"	-	JOSAM SERIES 30000-E1-2; OR EQUAL	
WCO	WALL CLEANOUT, CI BODY, RECESSED, THREADED BRASS PLUG, STAINLESS STEEL ACCESS COVER	-	-	-	-	JOSAM SERIES 58710; OR EQUAL IN ZURN OR WADE	
FCO	FLOOR CLEANOUT, CI BODY, ADJ. TYPE ROUND SATIN BRONZE TOP, THREADED BRASS PLUG	-	-	-	-	JOSAM SERIES 56000; OR EQUAL IN ZURN OR WADE	
GCO	GRADE CLEANOUT, CI BODY, ADJ. TYPE, SOIL PIPE HUB WITH COUNTERSUNK THREADED BRONZE PLUG	-	-	-	-	JOSAM SERIES 56040; OR EQUAL IN ZURN, OR WADE	
DCO	TWO-WAY GRADE CLEANOUT, CI BODY, ADJ. TYPE, SOIL PIPE HUB W/COUNTERSUNK THREADED BRNZE PLUG	-	-	-	-	JOSAM SERIES 56000; OR EQUAL IN ZURN, OR WADE	
PCO	SPIGOT CONNECTION, CI BODY, RAISED HEAD THREADED BRASS PLUG	-	-	-	-	JOSAM SERIES 58900-20 OR EQUAL IN ZURN OR WADE	
TP-1	TRAP PRIMER (COORDINATE NUMBER OF OUTLETS WITH PLBG PLANS.)	-	-	1/2"	-	PPP AUTOPRIME-500 OR EQUAL IN JOSAM, JONESSPEC OR SIOUX CHIEF	

- NOTES:
- CONTRACTOR SHALL FURNISH AND INSTALL SUPPLIES, STOPS, TRAPS, TAILPIECES AND ALL APPURTENANCES NECESSARY FOR A COMPLETE INSTALLATION OF ALL FIXTURES.
 - ALL ADA ACCESSIBLE SINKS AND LAVATORIES SHALL BE EQUIPPED WITH TRUEBRO #103 UNDERSINK PROTECTIVE PIPE COVERS.
 - FLOOR CLEANOUT ACCESS COVERS IN ALL FINISHED AREAS SHALL BE OF THE RECESSED TYPE TO ALLOW FOR INSERTION OF FINISHED FLOOR TREATMENT. TILE OR CARPET MARKER AS NECESSARY.
 - ABOVE THE FLOOR P-TRAPS ON LAVS AND SINKS SHALL BE 17 GAUGE, CHROME PLATED BRASS. ACCEPTABLE MANUFACTURERS: MCGUIRE, T&S BRASS, OR BRASSCRAFT
 - CONTRACTOR SHALL VERIFY PLUMBING FIXTURES PROVIDED COMPLY WITH HANDICAPPED ACCESSIBILITY STANDARDS INCLUDING HEIGHT AND CLEARANCE REQUIREMENTS.
 - THERE SHALL BE A P-TRAP INSTALLED FOR ALL FLOOR DRAINS. PROVIDE TRAP PRIMER AS INDICATED.



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SEAL(S) / CONSULTANT:

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PROJECT NUMBER:

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 REVISIONS:

SHEET NAME:

General Notes, Legends, Symbols, and Schedules

SHEET NUMBER:

MPO.1

MECHANICAL SPECIFICATIONS

GENERAL

SCOPE:
THE INTENT OF THE SPECIFICATION AND THE DRAWINGS IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE MECHANICAL WORK.

PLAN INSTALLATION OF NEW WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING.

SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL. PROVIDE ACOUSTICAL SEALANT WHERE INDICATED.

SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN.

MATERIALS: ALL MATERIALS SHALL BE NEW AND OF THE QUALITY INDICATED BY THE SPECIFIED BRAND NAMES. SUBSTITUTIONS OF MATERIAL OF EQUAL QUALITY BY OTHER FIRST-LINE MANUFACTURERS MAY BE ACCEPTABLE PROVIDED A LIST OF SUCH SUBSTITUTIONS IS APPROVED IN WRITING BY ENGINEER.

QUALIFIED REPRESENTATIVES OF THE AIR CONDITIONING MANUFACTURER ALONG WITH THE INSTALLING CONTRACTOR SHALL MEET WITH THE DESIGNATED REPRESENTATIVE OF THE OWNER. THE OWNER'S REPRESENTATIVE SHALL BE INSTRUCTED IN THE PROPER OPERATION AND MAINTENANCE OF THE HVAC AND CONTROL SYSTEM.

SITE EXAMINATION:
THE MECHANICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK. STANDARDS, EQUIPMENT, AND MATERIALS SHALL CONFORM WITH APPROPRIATE PROVISIONS OF ARI, ASME, ATM, UL, NEMA, ANSI, SMACNA, ASHRAE, NFPA, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY. ALL EQUIPMENT SHALL BE NEW AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE AND SHALL BE THE PRODUCTS OF REPUTABLE MANUFACTURERS. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CODES:
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH CURRENT APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS / SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE MECHANICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO THE OWNER.

WARRANTY:
THE MECHANICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

SUBMITTALS:
ALL MECHANICAL ITEMS SHALL BE SUBMITTED AS ONE COMPLETE SET, TABBED, AND INDEXED WITH ALL EQUIPMENT AND SYSTEMS PROPERLY AND CLEARLY IDENTIFIED IN SINGLE PDF. PARTIAL SUBMITTALS ARE NOT ACCEPTABLE AS A SUBMISSION. A MINIMUM OF FIVE SETS SHALL BE SUBMITTED. SUBMITTALS WILL INCORPORATE ALL OPERATION AND MAINTENANCE DATA.

CONTRACTOR SHALL MAINTAIN "AS-BUILT" DRAWINGS TO BE INCLUDED WITH THE OPERATION & MAINTENANCE MANUALS. MARK THE DRAWINGS WITH A COLORED PENCIL. PREPARE, AS THE WORK PROGRESSES AND UPON COMPLETION OF WORK, DRAWINGS CLEARLY INDICATING LOCATIONS OF ALL DEVICES, EQUIPMENT AND OTHER PERTINENT ITEMS, AS INSTALLED. UPON COMPLETION OF THE PROJECT, SUBMIT ALL MATERIALS TO THE OWNER AND ARCHITECT, AFTER VERIFYING ALL THE ABOVE DATA IS SHOWN CORRECTLY. THIS MANUAL SHALL NOT CONSIST OF STANDARD FACTORY-PRINTED INSTRUCTIONS, ALTHOUGH THESE MAY BE INCLUDED, BUT SHALL BE PREPARED TO DESCRIBE THIS PARTICULAR PROJECT. THE MANUALS SHALL BE BOUND, INDEXED, DATED, AND SIGNED BY THE GENERAL CONTRACTOR.

DUCTWORK & ACCESSORIES

SHEET METAL DUCTWORK (INTERIOR):
ALL DUCTWORK TO BE RIGID SHEET METAL CONSTRUCTED FROM GALVANIZED SHEET STEEL FOR SUPPLY AND RETURN AIR SYSTEMS IN ACCORDANCE WITH SMACNA LOW VELOCITY DUCT CONSTRUCTION STANDARDS. ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICE FOR ACHIEVING AN AIR TIGHT SYSTEM. FURNISH ALL REQUIRED DAMPERS, TRANSITIONS, CONNECTIONS, AND ACCESSORIES NECESSARY FOR A COMPLETE OPERATING SYSTEM.

DUCT SEALANT:
SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT OF A TYPE RECOMMENDED BY THE MANUFACTURER FOR SEALING JOINTS AND SEAMS IN SHEET METAL DUCTWORK. COVER ALL FIELD JOINTS, JOINTS AROUND SPIN-IN FITTINGS AND FASTENING SCREWS WITH MASTIC. SEALANT MATERIALS AND METHODS OF ASSEMBLAGE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, MECHANICAL CODE, INTERNATIONAL ENERGY CODE, AND CONFORM TO SMACNA.

AIR DEVICES:
GRILLES, REGISTERS AND DIFFUSERS SHALL BE MANUFACTURED BY TITUS, METALAIRE, NAILOR OR KRUEGER. AIR DEVICES SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS AND SCHEDULES. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS ITEMS NECESSARY FOR A COMPLETE AND PROPER INSTALLATION IN THE TYPE OF CEILING AND WALLS PER ARCHITECTURAL.

THERMAL DUCT INSULATION:
FOR INTERIOR SUPPLY, RETURN, AND EXHAUST AIR DUCTS, PROVIDE EXTERNAL THERMAL INSULATION WITH AN INTEGRAL VAPOR BARRIER FACING OF TWO INCH THICKNESS TO PROVIDE AN INSTALLED R-VALUE OF 6.0 BASED ON A THERMAL CONDUCTIVITY OF 0.27. ALL WRAP BLANKET INSULATION SHALL BE MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE II WITHOUT FACING AND WITH ALL-SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCING SCRIM, ALUMINUM FOIL, AND VINYL. FLEX DUCT SHALL BE INSULATED DUCT WITH TWO INCH THICK INSULATION AND INSTALLED LENGTH SHALL BE LIMITED TO FIVE FEET.

MECHANICAL IDENTIFICATION AND PAINTING

PIPING AND DUCTS IN CHASES AND ABOVE CEILINGS, ETC. SHOULD BE COLOR Banded AND HAVE STENCIL MARKINGS AT APPROPRIATE INTERVALS. ON STRAIGHT RUNS OF PIPING, SPACE MARKING NO FURTHER THAN 30 FEET APART. STENCIL IDENTIFICATIONS, COLOR BANDS, AND DIRECTION ARROWS SHOULD BE PLACED NEAR EACH VALVE, PRESSURE REDUCING VALVE, HEAT EXCHANGER, ETC. WHEN A PIPE PASSES THROUGH WALLS OR FLOORS, MARK NEAR THE PENETRATION ON BOTH SIDES. PROVIDE MARKINGS AT EACH DIRECTIONAL CHANGE OF ALL PIPING SYSTEMS. INSTALL EQUIPMENT MARKERS WITH PERMANENT ADHESIVE ON OR NEAR EACH MAJOR ITEM OF MECHANICAL EQUIPMENT. DATA REQUIRED FOR MARKERS MAY BE INCLUDED ON SIGNS, AND MARKERS MAY BE OMITTED IF BOTH ARE INDICATED.

LETTER SIZE: MINIMUM 1/4 INCH FOR NAME OF UNITS IF VIEWING DISTANCE IS LESS THAN 24 INCHES, 1/2 INCH FOR VIEWING DISTANCES UP TO 72 INCHES, AND PROPORTIONATELY LARGER LETTERING FOR GREATER VIEWING DISTANCES. INCLUDE SECONDARY LETTERING TWO-THIRDS TO THREE-FOURTHS THE SIZE OF PRINCIPAL LETTERING.

DATA: DISTINGUISH AMONG MULTIPLE UNITS, INDICATE OPERATIONAL REQUIREMENTS, INDICATE SAFETY AND EMERGENCY PRECAUTIONS, WARN OF HAZARDS AND IMPROPER OPERATIONS, AND IDENTIFY UNITS. LOCATE MARKERS WHERE ACCESSIBLE AND VISIBLE.

TESTING, ADJUSTING, AND BALANCING

PROVIDE AN INDEPENDENT NEBB OR AABC CERTIFIED AIR BALANCE CONTRACTOR. SYSTEM SHALL BE ACCURATELY BALANCED TO PROVIDE AIR QUANTITIES INDICATED ON THE DRAWINGS. CONTRACTOR SHALL CONFIRM PROPER OPERATION OF THE CONTROLS SYSTEM AND VERIFY SET POINTS DURING BALANCING. SUBMIT TWO (2) COPIES OF THE CERTIFIED BALANCE REPORT TO THE ARCHITECT. THE CONTRACTOR SHALL INSTRUCT THE OWNER IN THE OPERATION AND CONTROL OF THE SYSTEMS AND MAINTENANCE SCHEDULE.

PLUMBING SPECIFICATIONS

SCOPE OF WORK

- FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE THE INSTALLATION OF THE WORK OF THIS SECTION AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN, INCLUDING ALL INCIDENTAL WORK NECESSARY TO MAKE IT COMPLETE, SATISFACTORY AND READY FOR OPERATION AND USE. INSTALLATION OF ALL EQUIPMENT SHALL COMPLY WITH THE APPLICABLE DIVISIONS OF THE LOCAL BUILDING AND SAFETY DEPARTMENT CODES.
- ALL SEWER AND WATER PIPING SHALL BE PROPERLY TESTED AND DISINFECTED TO THE SATISFACTION OF THE ARCHITECT AND THE AUTHORITY HAVING JURISDICTION.

CODES:

ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS / SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE PLUMBING CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO THE OWNER.

PERMITS AND FEES:

THE PLUMBING CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES AND INSPECTIONS NECESSARY TO COMPLETE THE MECHANICAL WORK.

WARRANTY:

THE PLUMBING CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP. IT SHALL FURTHER INCLUDE REPLACEMENT OF REFRIGERANT LOSS NOT DUE TO OWNER NEGLIGENCE.

SUBMITTALS:

ALL PLUMBING ITEMS SHALL BE SUBMITTED AS ONE PDF. PARTIAL SUBMITTALS ARE NOT ACCEPTABLE AS A SUBMISSION. A MINIMUM OF THREE SETS SHALL BE SUBMITTED. SUBMITTALS WILL INCORPORATE ALL OPERATION AND MAINTENANCE DATA. CONTRACTOR SHALL MAINTAIN "AS-BUILT" DRAWINGS TO BE INCLUDED WITH THE OPERATION & MAINTENANCE MANUALS. MARK THE DRAWINGS WITH A COLORED PENCIL. PREPARE, AS THE WORK PROGRESSES AND UPON COMPLETION OF WORK, DRAWINGS CLEARLY INDICATING LOCATIONS OF ALL DEVICES, EQUIPMENT AND OTHER PERTINENT ITEMS, AS INSTALLED. INCLUDE INVERT ELEVATIONS OR BURIED DEPTH OF PIPING. UPON COMPLETION OF THE PROJECT, SUBMIT ALL MATERIALS TO THE OWNER AND ARCHITECT, AFTER VERIFYING ALL THE ABOVE DATA IS SHOWN CORRECTLY.

DOMESTIC WATER PIPING AND FITTINGS

- DOMESTIC (POTABLE) COLD AND HOT WATER PIPING ABOVE GROUND/SLAB SHALL BE TYPE "L" COPPER. PROVIDE SHUTOFF VALVE ON EACH WATER SUPPLY TO EQUIPMENT AND ON EACH WATER SUPPLY TO PLUMBING FIXTURES WITHOUT SUPPLY STOPS. USE BALL VALVES FOR PIPING NPS 2 AND SMALLER.

PROVIDE PE ENCASUREMENT FOR UNDERGROUND METAL PIPING, ASTM A 674 OR AWWA C105 PE FILM, 0.008-INCH MINIMUM THICKNESS, TUBE OR SHEET. UNDER FLOOR OR UNDERGROUND WATER PIPING SHALL BE PEX.

SHUTOFF VALVES AND ISOLATION VALVES SHALL BE BRONZE BALL VALVES FOR PIPING NPS 2 AND SMALLER AND CAST-IRON BUTTERFLY VALVES WITH FLANGED ENDS FOR PIPING NPS 2 1/2" AND LARGER.

SANITARY SEWER PIPING SYSTEMS

DRAIN, WASTE, AND VENT PIPING SHALL BE SCHEDULE 40, PVC PIPE; PVC SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.

INDIRECT DRAIN SYSTEMS

TYPE L COPPER.

EXECUTION OF NATURAL GAS SYSTEMS

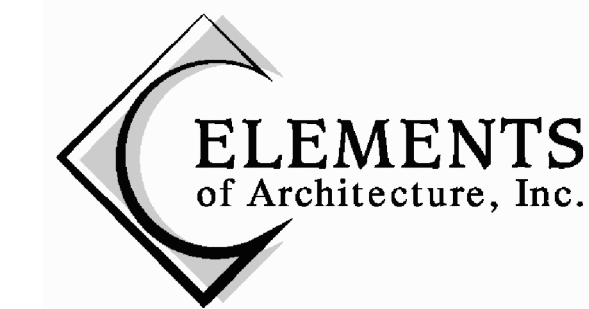
TEST, INSPECT, AND PURGE NATURAL GAS PIPING ACCORDING TO NFPA 54 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST SYSTEM UNTIL SATISFACTORY RESULTS ARE OBTAINED. VERIFY CAPACITIES AND PRESSURE RATINGS OF SERVICE METERS, PRESSURE REGULATORS, VALVES, AND SPECIALTIES. VERIFY CORRECT PRESSURE SETTINGS FOR PRESSURE REGULATORS. VERIFY THAT SPECIFIED PIPING TESTS ARE COMPLETE.

INSULATION

- MINERAL-FIBER, PIPE INSULATION: PREFORMED PIPE INSULATION COMPLYING WITH ASTM C 547, TYPE I, GRADE A, WITH ABSORBENT CLOTH FACTORY APPLIED TO THE ENTIRE INSIDE SURFACE OF PREFORMED PIPE INSULATION AND EXTENDED THROUGH THE LONGITUDINAL JOINT TO OUTSIDE SURFACE OF INSULATION UNDER INSULATION JACKET. FACTORY APPLY A WHITE, POLYMER, VAPOR-RETARDER JACKET WITH SELF-SEALING ADHESIVE TAPE SEAM AND EVAPORATION HOLES RUNNING CONTINUOUSLY ALONG THE LONGITUDINAL SEAM.
- INSULATE ALL COLD WATER PIPING WITH 1/2" THICK PIPE INSULATION FOR PIPE SIZES UP TO 1 1/4" NPS AND 1" THICK PIPE INSULATION FOR PIPE SIZES LARGER THAN 1 1/4" NPS.
- INSULATE ALL HOT WATER AND RETURN PIPING WITH 1" THICK PIPE INSULATION FOR PIPE SIZES UP TO 1 1/4" NPS AND 1 1/2" THICK PIPE INSULATION FOR PIPE SIZES LARGER THAN 1 1/4" NPS.
- ALL WATER PIPING INSTALLED IN EXTERIOR WALLS OR ABOVE CEILING SHALL BE INSTALLED TO THE HEATED SIDE OF THE WALL OR ATTIC INSULATION. ALL WATER PIPING SUBJECT TO FREEZING TEMPERATURES SHALL BE:
 - INSULATED SUFFICIENTLY TO PREVENT FREEZING OF PIPING AS INDICATED PER DETAILS INCLUDED.

EXECUTION OF PLUMBING SYSTEMS

- THE CONTRACTOR SHALL FURNISH ALL PIPE SUPPORTS REQUIRED FOR EQUIPMENT AND MATERIALS. ALL HORIZONTAL RUNS OF PIPING SHALL BE SUPPORTED BY CLEVIS HANGERS, SPACED AS FOLLOWS:
 - COPPER PIPE: NPS 3/4 AND SMALLER: 60 INCHES WITH 3/8-INCH ROD.
 - COPPER PIPE: NPS 1 AND NPS 1-1/4: 72 INCHES WITH 3/8-INCH ROD.
 - COPPER PIPE: NPS 1-1/2 AND NPS 2: 96 INCHES WITH 3/8-INCH ROD.
 - PVC PIPING SHALL BE INSTALLED PER MANUFACTURER INSTALLATION INSTRUCTIONS.
- PURGE NEW PIPING AND PARTS OF EXISTING DOMESTIC WATER PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED BEFORE USING. USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IF METHODS ARE NOT PRESCRIBED, USE PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652
- TEST SANITARY DRAINAGE AND VENT PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION.
- TEST, INSPECT, AND PURGE NATURAL GAS PIPING ACCORDING TO NFPA 54 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- EACH PLUMBING VENT AND/OR SOIL STACK PROJECTING ABOVE THE ROOF SHALL BE FLASHED WITH STANDARD MANUFACTURED FLASHINGS. FLASHINGS SHALL BE SHEET METAL WITH RUBBER GASKETS. FLASHINGS SHALL EXTEND INTO ROOFING A MINIMUM OF 12" OR DISTANCE SPECIFIED BY LOCAL CODE. PAINT VENT PIPING EXPOSED ON ROOF BLACK OR AS DIRECTED BY THE ARCHITECT.
- ALL FIXTURES SHALL BE COMPLETE WITH ALL NECESSARY TRIM AND APPURTENANCES. ALL EXPOSED METAL PARTS SHALL BE CHROME-PLATED BRASS.



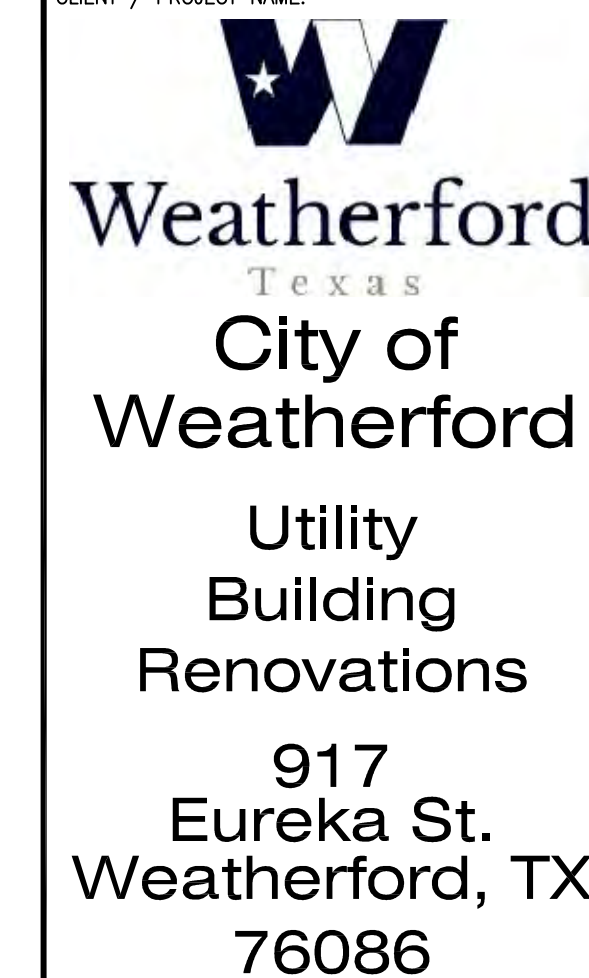
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CLIENT / PROJECT NAME:



SEAL(S) / CONSULTANT:



PROJECT NUMBER:

17-1004.00

ISSUE DATE:

August 29, 2017

REVISIONS:

SHEET NAME:

Mechanical and Plumbing
Specifications

SHEET NUMBER:

MP0.2

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CLIENT / PROJECT NAME:

Weatherford
Texas
City of Weatherford
Utility Building Renovations
917 Eureka St.
Weatherford, TX 76086

SEAL(S) / CONSULTANT:

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Torres Engineering Services, Inc.
Texas Firm Number F-10147
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2801 Carmel St., Denton, TX 76205
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TIMOTHY M. MALTZ
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LICENSED PROFESSIONAL ENGINEER
8/29/2017
F-11112

PROJECT NUMBER:

17-1004.00
ISSUE DATE: August 29, 2017
REVISIONS:

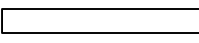
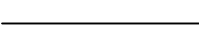

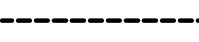


SHEET NAME:

Floor Plans - Mechanical and Plumbing

SHEET NUMBER:

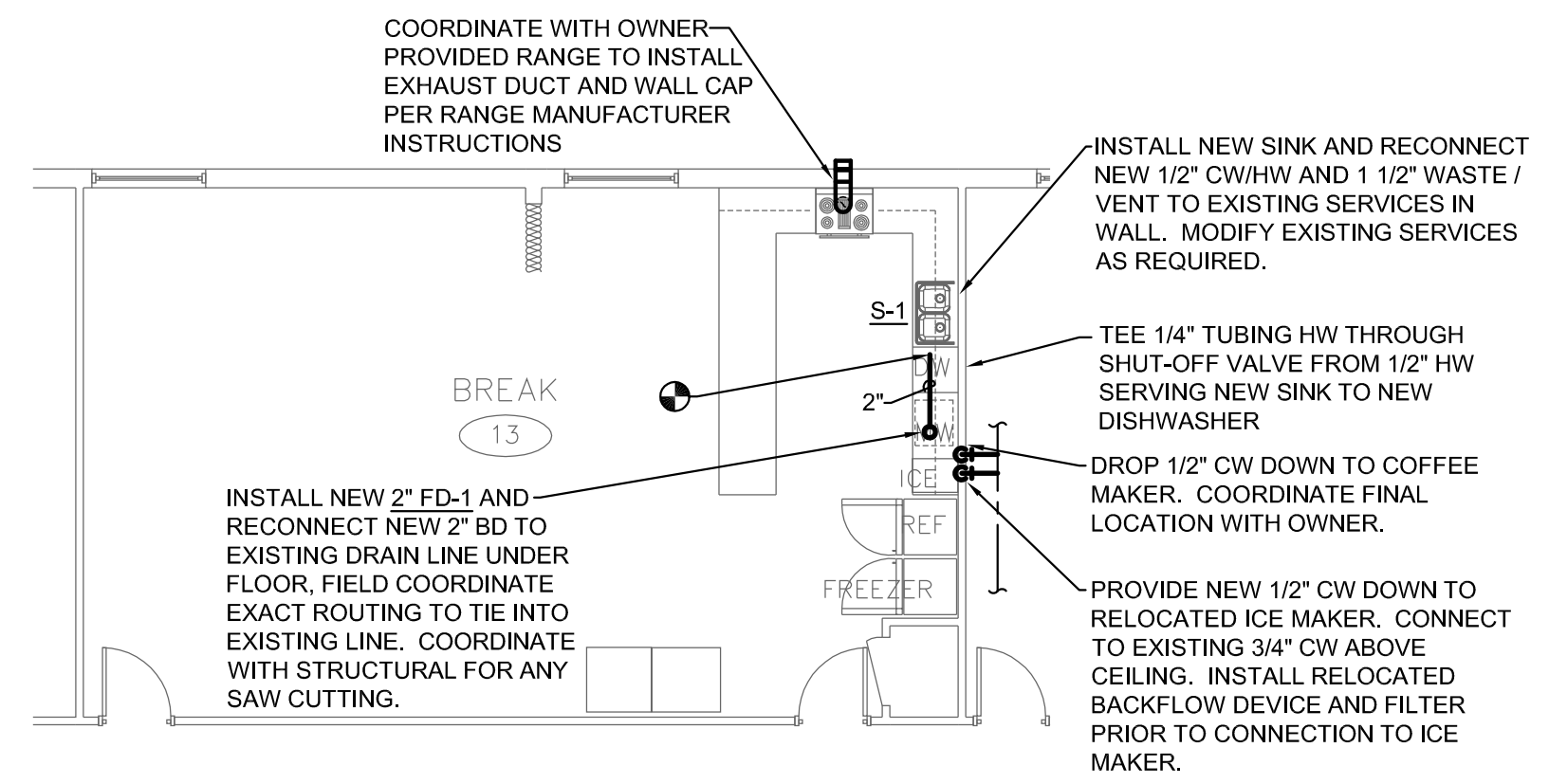
MP2.1

DUCTWORK LEGEND (THIS SHEET ONLY)

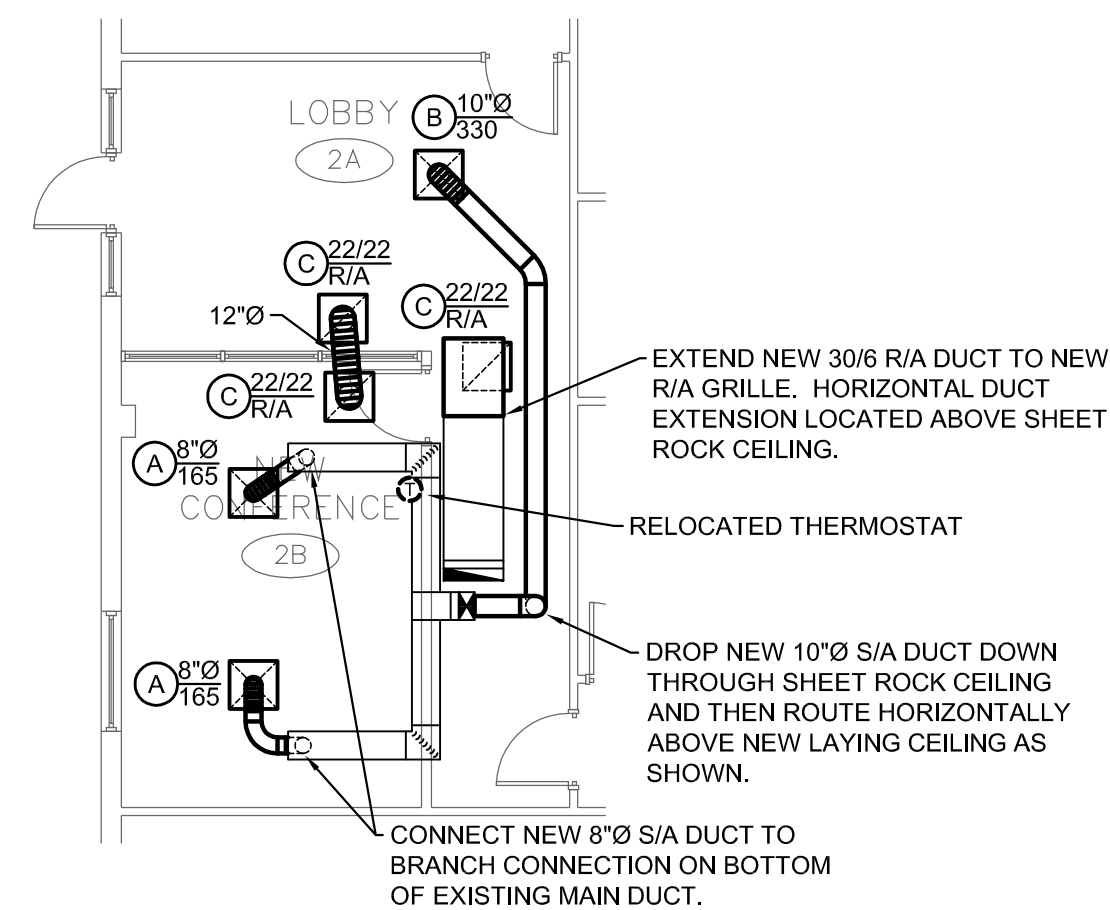
-  EXISTING DUCT TO REMAIN
-  EXISTING DUCT TO REMAIN
-  NEW DUCT, CONNECT TO EXISTING AS REQUIRED
-  DUCT OR DEVICE TO BE DEMOLISHED
-  EXISTING AIR DEVICE TO REMAIN
-  NEW SUPPLY AIR DEVICE, CEILING MOUNTED

GENERAL MECHANICAL PLUMBING NOTES

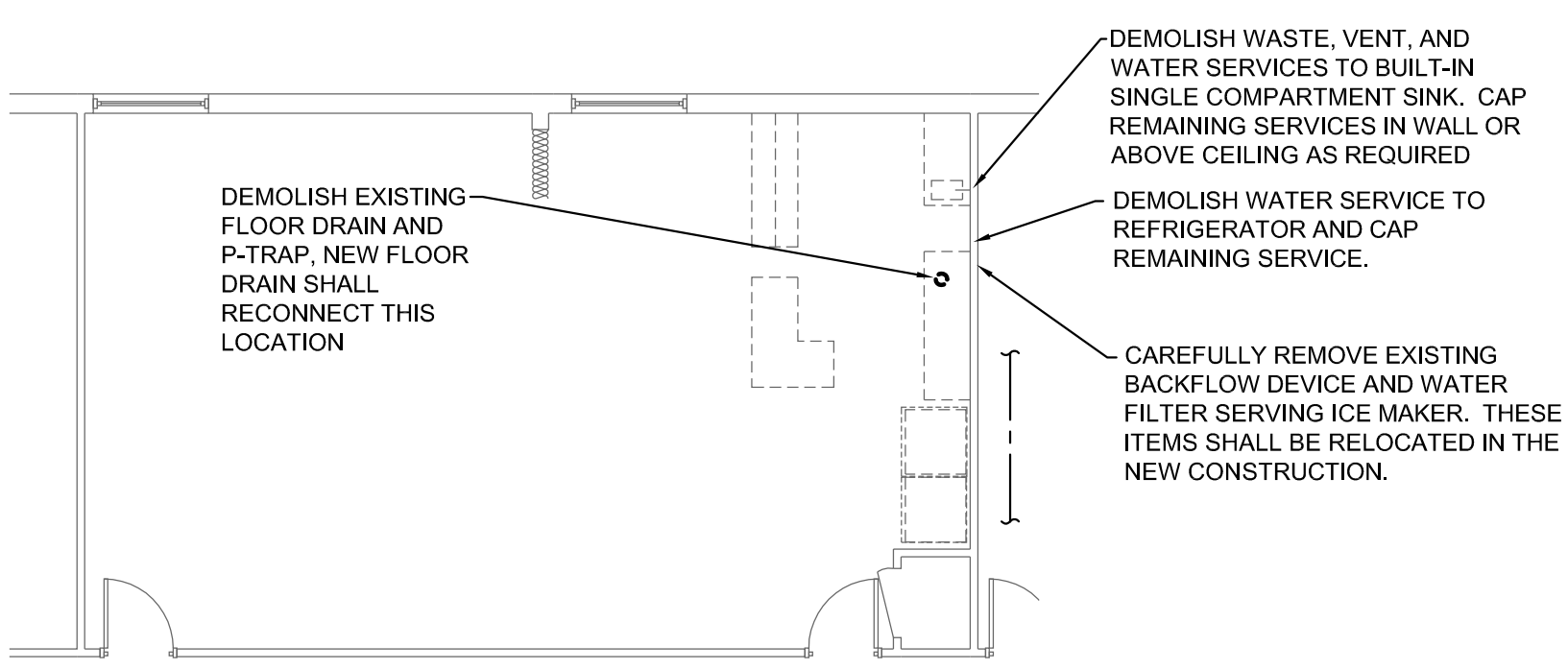
- A. EXISTING CONDITIONS WERE DEVELOPED FROM DRAWINGS AND FIELD SURVEYS. CONTRACTOR RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS WHETHER OR NOT SPECIFICALLY INDICATED.
- B. FOR DRAWING CLARITY ONLY PORTIONS OF EXISTING CONDITIONS ARE SHOWN ON THIS DRAWING.
- C. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFIC REQUIREMENTS FOR PATCHING/REPAIRING WALLS, FLOORS, AND CEILINGS.
- D. CONTRACTOR RESPONSIBLE FOR REMOVAL FROM SITE ALL ITEMS INDICATED TO BE DEMOLISHED, UNLESS OTHERWISE INDICATED. ITEMS INDICATED TO REMAIN SHALL BE PROTECTED FROM DAMAGE DURING THE DEMOLITION AND CONSTRUCTION PHASES. CONTRACTOR RESPONSIBLE TO REPLACE ANY DAMAGED ITEM.
- E. APPROXIMATE EXTENT OF DEMOLITION IS SHOWN; HOWEVER, DEPENDING ON ACTUAL FIELD CONDITIONS ADDITIONAL DEMOLITION MAY BE REQUIRED IN ORDER TO MEET THE DESIGN INTENT.
- F. FOR DETAIL 2 AND DETAIL 5, THERE ARE TWO CEILINGS. THE LOWER CEILING IS A LAY-IN AND APPROXIMATELY 17 INCHES ABOVE THAT IS A SHEET ROCK CEILING. IT WILL BE NECESSARY TO DEMOLISH PARTS OF THE EXISTING SHEET ROCK CEILING IN ORDER TO MODIFY EXISTING DUCTWORK. SHEET ROCK CEILING SHALL BE PATCHED / REPAIRED TO MATCH EXISTING CONDITIONS. ANY EXISTING FIRE RATING SHALL BE RETAINED IN THE NEW CONSTRUCTION. PROVIDE FIRE DAMPERS WITH ACCESS PANELS AT ALL FIRE RATED WALLS AND CEILINGS. REFER TO ARCHITECTURAL PLANS FOR WALL AND CEILING TYPES.



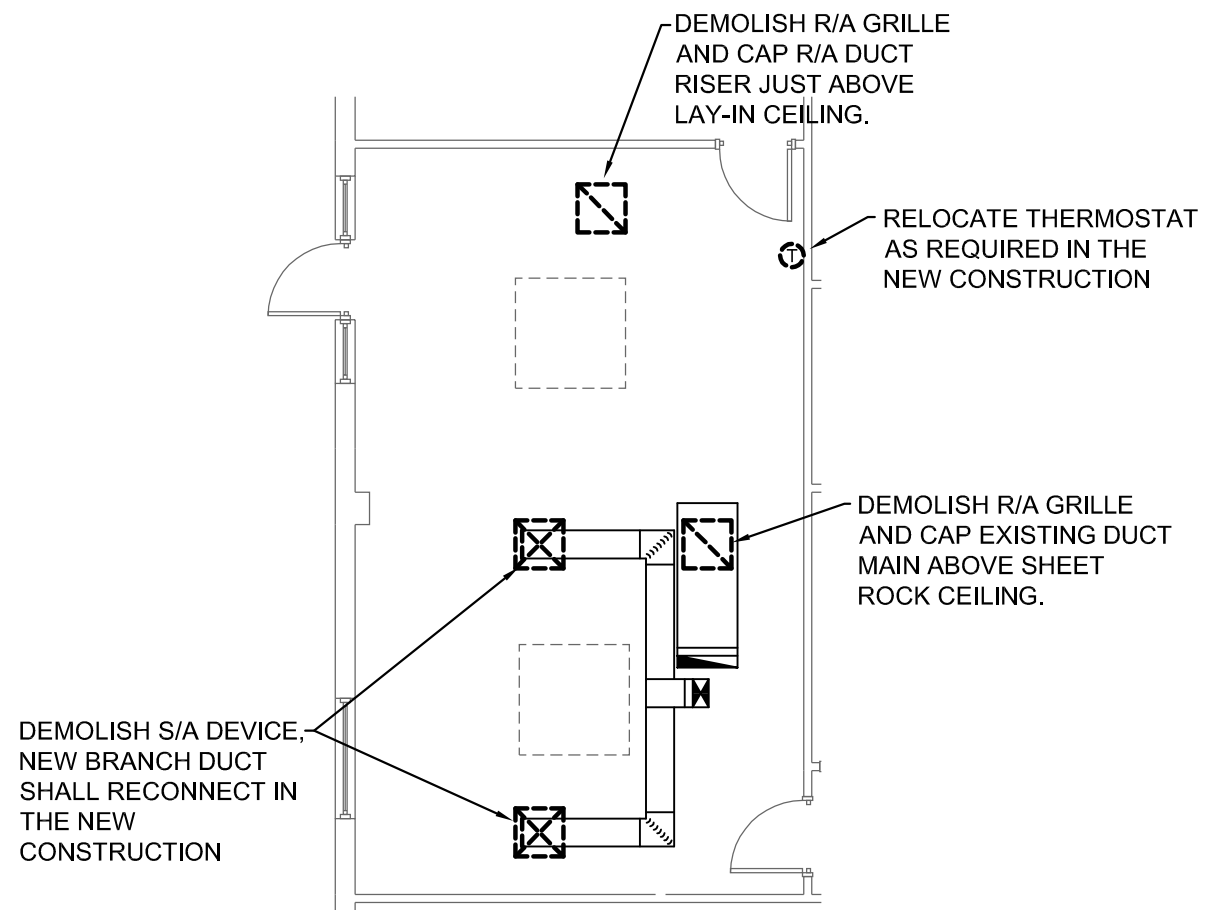
4 Room 13
Mechanical & Plumbing Plan



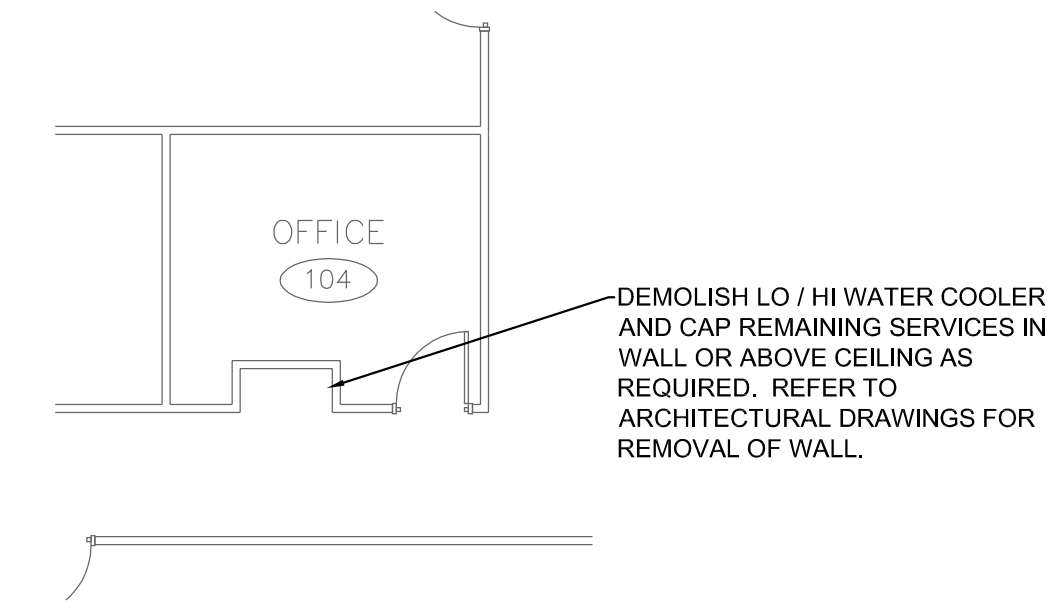
5 Rooms 2A, 2B
Mechanical Plan



1 Breakroom Demolition Plan
Mechanical & Plumbing



2 Conference Room Demolition Plan
Mechanical



3 Water Cooler Demolition Plan
Plumbing

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Project # 1820

ROBERTO TORRES
83419
PROFESSIONAL ENGINEER
08/29/17

PROJECT NUMBER:

17-1004.00

ISSUE DATE:

August 29, 2017

REVISIONS:

SHEET NAME:

Symbols and General Notes

SHEET NUMBER:

E0.0

ELECTRICAL SYMBOLS

LIGHTING FIXTURE NOTATION

CIRCUIT ID.
PANEL ID.
NL INDICATES NIGHT LIGHT. CONNECT TO UNSWITCHED LEG.
UPPERCASE LETTER INDICATES FIXTURE TYPE.
LOWERCASE LETTER INDICATES SWITCH LEG.

SYMBOL	DESCRIPTION
POWER SYMBOLS	
	PANELBOARD
	DISTRIBUTION BOARD
	SWITCHBOARD
	CONTROL PANEL
	CIRCUIT HOMERUN TO PANELBOARD (2#12, 1#12G, 3/4"C. 20A/1P CB UNO)

REFER TO LIGHTING FIXTURE SCHEDULE FOR LIGHTING FIXTURE SYMBOL INFORMATION.

REFER TO RECEPTACLE SCHEDULE FOR POWER RECEPTACLE TYPES, MOUNTING HEIGHTS AND OTHER INFORMATION.

REFER TO LOW-VOLTAGE DEVICE SCHEDULE FOR DATA, IT SECURITY AND OTHER LOW VOLTAGE SYMBOL INFORMATION.

REFER TO DISTRIBUTED LIGHTING CONTROL SYSTEM SCHEDULE FOR LIGHTING SYSTEM CONTROL DEVICE SYMBOL INFORMATION.

REFER TO EQUIPMENT SCHEDULE FOR EQUIPMENT SYMBOL INFORMATION.

GENERAL NOTES

0.0 DEFINITIONS

0.1 FURNISH: TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION AND SIMILAR OPERATION.

0.2 INSTALL: TO PERFORM OPERATIONS AT PROJECT SITE, INCLUDING UNLOADING, TEMPORARY STORING, PACKING, ASSEMBLING, ERECTING, PLACING, ANCHORING, WORKING TO DIMENSION, FINISHING, PROTECTING, CLEANING, AND SIMILAR OPERATION.

0.3 PROVIDE: TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.

0.4 REMOVE: TO DISCONNECT, DISMOUNT AND REMOVE FROM SITE EXISTING WIRE, RACEWAY, AND BUSWAY AND TO PROVIDE NEW MATERIALS AND LABOR NECESSARY FOR A COMPLETE AND OPERABLE INSTALLATION.

1.0 GENERAL

1.1 GENERAL NOTES IN THIS DRAWING APPLY TO THE WHOLE ELECTRICAL SET. DRAWING NOTES APPLY TO THE DRAWING WHERE THEY OCCUR.

1.2 DO NOT SCALE OR DIMENSION FROM THESE DRAWINGS.

1.3 COORDINATE THE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT AND REQUIREMENTS FOR CONTROL AND POWER WIRING WITH THE MECHANICAL CONTRACTOR OR THE TRADE PROVIDING EQUIPMENT.

1.4 REFER TO ELECTRICAL AND MECHANICAL PLANS, ELEVATIONS, AND DETAILS FOR LOCATIONS OF CEILING ELEMENTS (LIGHTING FIXTURES, DIFFUSERS, ETC.) AND OTHER WALL MOUNTED DEVICES. IN CASE OF CONFLICT, ARCHITECTURAL PLANS AND ELEVATIONS TAKE PRECEDENCE FOR DEVICE LOCATIONS. IF LOCATION FOR ITEMS IS NOT SHOWN, VERIFY LOCATIONS WITH ARCHITECT OR OWNER'S REPRESENTATIVE.

1.5 ELECTRICAL SYSTEMS SHOWN ON DRAWINGS ARE FOR DIAGRAMMATIC PURPOSES ONLY. ACTUAL FIELD CONDITIONS MAY REQUIRE ADDITIONAL WORK. PROVIDE ALL WORK AND MATERIALS NECESSARY FOR A COMPLETE AND SAFE WORKING SYSTEM. COORDINATE ALL WORK WITH OTHER TRADES AS NEEDED.

1.6 INDICATED CIRCUIT RUNS ARE DIAGRAMMATIC. SIZE AND LOCATE PULL BOXES PER NEC AND APPLICABLE CODES AND COORDINATE OTHER DISCIPLINES. BUILDING CONDITIONS SHALL DETERMINE ACTUAL CONDUIT RUNS. PVC SHALL NOT BE USED IN INTERIOR SPACES.

1.7 CONTRACTOR IS RESPONSIBLE FOR FOLLOWING SAFETY PROCEDURES BY OSHA, NFPA AND APPLICABLE CODES. CONTRACTOR IS RESPONSIBLE FOR METHODS AND MEANS TO ACCOMPLISH WORK DESCRIBED IN THESE CONSTRUCTION DOCUMENTS.

1.8 COORDINATE OVERCURRENT PROTECTION DEVICES, DISCONNECT SWITCHES, CONDUCTOR AND CONDUIT SIZES WITH MECHANICAL EQUIPMENT REQUIREMENTS. SIZES SHOWN ON THESE DOCUMENTS ARE BASED ON MECHANICAL EQUIPMENT SPECIFIED. VARIATIONS IN REQUIREMENTS MAY OCCUR AS A RESULT OF THE PROVISION OF OTHER MANUFACTURER'S EQUIPMENT OR IN CHANGES TO THE SPECIFIED EQUIPMENT. SUCH REVISED REQUIREMENTS ARE A PART OF THIS CONTRACT AND SHALL BE ACCOMMODATED WITHOUT ADDITIONAL CHARGE.

1.9 FOR PURPOSES OF COORDINATION, LIGHTING FIXTURES AND OTHER DEVICES MAY BE MOVED A DISTANCE OF FIVE FEET WITH NO ADDITIONAL COST TO THE OWNER, UPON INSTRUCTION BY THE ARCHITECT OR ENGINEER.

1.10 THE DESIGN OF CONNECTIONS TO EQUIPMENT PROVIDED BY OTHERS HAS BEEN DONE USING AVAILABLE INFORMATION AT TIME OF DESIGN. VERIFY THAT ACTUAL EQUIPMENT INSTALLED MATCHES DESIGN AND MAKE NECESSARY ADJUSTMENTS TO INSTALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

1.11 IN CASE INFORMATION IN THESE DOCUMENTS IS IN CONFLICT WITH OTHER DISCIPLINES, CONTRACTOR SHALL SEND A REQUEST FOR INFORMATION TO CLARIFY INTENT. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CHANGES TO INSTALLATION DUE TO FAILURE TO CLARIFY INTENT PRIOR TO INSTALLATION OF EQUIPMENT.

2.0 WIRING

2.1 CONDUCTOR SIZES SHOWN ARE MINIMUM SIZES. FEEDERS AND BRANCH CIRCUIT SIZES ARE BASED ON 60 DEGREE INSULATION UP TO #1 AWG, AND 75 DEGREE INSULATION FOR LARGER SIZES. CONTRACTOR SHALL MAKE CORRECTIONS TO CONDUCTOR SIZES ACCORDING TO THE NEC IF USING LOWER TEMPERATURE CONDUCTORS.

2.2 SINGLE PHASE HOMERUNS CAN BE COMBINED INTO THREE PHASE CONDUCTORS ONE NEUTRAL AND ONE GROUND CONDUCTOR IN A SINGLE CONDUIT.

2.3 THREE PHASE HOMERUN ARE DESIGNATED FOR THREE PHASE CONDUCTORS AND ONE GROUND IN A SINGLE CONDUIT. CONTRACTOR HAS THE OPTION OF CONSOLIDATING RUNS INTO A SINGLE CONDUIT. DE-RATE CONDUCTORS AS REQUIRED PER NEC AND DO NOT COMBINE NEUTRAL CONDUCTORS

2.3 UNLESS NOTED OTHERWISE, THE MINIMUM CIRCUIT RUN SIZE SHALL BE 2#12, #12G, 3/4"C.

2.4 REFER TO MINIMUM CONDUCTOR SIZING SCHEDULE ON THIS SHEET FOR CONDUCTOR SIZE ADJUSTMENT DUE TO CONDUIT RUN DISTANCE.

2.5 INSTALL SWITCHES WITHIN 18" OF LATCHING SIDE OF DOOR UNLESS NOTED OTHERWISE.

2.6 DO NOT ROUTE CONDUITS ON ROOF. ROUTE CONDUITS UNDER ROOF STRUCTURE. ALL CONDUIT PENETRATIONS THROUGH THE ROOF TO SERVE MECHANICAL EQUIPMENT SHALL BE WITHIN THE ASSOCIATED EQUIPMENT ROOF CURB. COORDINATE LOCATIONS OF PENETRATIONS WITH THE MECHANICAL CONTRACTOR.

2.7 PROVIDE A GROUND CONDUCTOR FOR EVERY FEEDER AND BRANCH CIRCUIT PER NEC ARTICLE 250. WHERE A SINGLE CONDUIT HAS SEVERAL BRANCH CIRCUITS, PROVIDE A SINGLE GROUND CONDUCTOR U.N.O.

2.8 PROVIDE A PULL CORD WITH A MINIMUM 200 LB TENSILE STRENGTH FOR ALL EMPTY RACEWAYS AND CONDUITS.

2.9 NO SPLICES ARE ACCEPTABLE INSIDE PANELBOARDS OR DISCONNECT SWITCHES. TERMINATE ONLY ONE CONDUCTOR PER LUG.

3.0 WIRING DEVICES AND DATA OUTLETS

3.1 PROVIDE ADDITIONAL GROUNDING CONDUCTOR FOR ALL RECEPTACLES WITH ISOLATED GROUND.

4.0 LIGHTING

4.1 LIGHTING PLANS INDICATE SWITCHING AND BRANCH CIRCUIT NUMBERS FOR ALL LIGHTING FIXTURES. LOWER CASE LETTERS AT SWITCHES AND LIGHTING FIXTURES INDICATE SWITCHING WHERE CONTROL PATTERN IS NOT OBVIOUS. INSTALL BRANCH CIRCUIT WIRING IN RACEWAY TO ALL RIGIDLY ATTACHED LIGHTING FIXTURES AND TO JUNCTION BOXES FOR ALL LAY-IN FIXTURES AS REQUIRED TO PROVIDE SWITCHING AND CIRCUITING AS SHOWN ON DRAWINGS.

4.2 CONNECT ALL LAY-IN FIXTURES TO A BRANCH CIRCUIT JUNCTION BOX WITH A FLEXIBLE FIXTURE TAIL. CONNECT NO MORE THAN FOUR FIXTURES TAILS TO A SINGLE JUNCTION BOX. FIXTURE-TO-FIXTURE WIRING IS NOT ACCEPTABLE EXCEPT WHERE SPECIFICALLY STATED ON THE DRAWINGS OR SPECIFICATIONS.

5.0 EXISTING CONDITIONS AND DEMOLITION

5.1 MATCH MANUFACTURERS, AIC RATINGS, CIRCUIT BREAKERS AND FUSIBLE SWITCHES WITH EXISTING PANELBOARDS OR SWITCHBOARDS FOR NEW CIRCUIT BREAKERS OR FUSIBLE SWITCHES.

5.2 UNLESS NOTED OTHERWISE, NEW RACEWAY SYSTEMS OR WIRING REQUIRED IN REMODELED AREAS SHALL BE INSTALLED CONCEALED THROUGH EXISTING OR NEW WALLS OR ABOVE CEILINGS.

5.3 FOR DEVICES REMOVED FROM EXISTING WALLS, CONTRACTOR SHALL PATCH WALL AND MATCH FINISH AND COLOR OF ADJACENT AREA. BLANK COVER PLATES ARE NOT ACCEPTABLE.

5.4 COORDINATE DEMOLITION WORK WITH ARCHITECTURAL DOCUMENTS. REMOVE ALL ELECTRICAL DEVICES FROM AREAS MARKED IN ARCHITECTURAL DRAWINGS TO BE DEMOLISHED.

5.5 FOR DEVICES MARKED FOR DEMOLITION, REMOVE ASSOCIATED RACEWAYS AND CONDUCTORS BACK TO NEAREST POINT OF CONNECTION WITH OTHER LOADS MARKED TO REMAIN. IF ALL LOADS IN A CIRCUIT ARE MARKED FOR DEMOLITION, REMOVE ALL WIRING AND RACEWAYS TO PANELBOARD.

5.6 DISCONNECT EQUIPMENT IDENTIFIED IN OTHER DISCIPLINES' DRAWINGS AS TO BE DEMOLISHED/REMOVED/RELOCATED. REMOVE FEEDERS AND ASSOCIATED CONDUCTORS, RACEWAYS AND WIRING DEVICES TO NEAREST POINT OF CONNECTION.

ELECTRICAL ABBREVIATIONS

AIC	AMPERE INTERRUPTING CAPACITY	NC	NORMALLY CLOSED
AC	ABOVE COUNTER	NF	NONFUSED
AFF	ABOVE FINISHED FLOOR	NIC	NOT IN CONTRACT
BFC	BELOW FINISHED CEILING	NL	NIGHT LIGHT
BOF	TO BOTTOM OF FIXTURE	NO	NORMALLY OPEN
C	CONDUIT	(R)	RELOCATE OR TO BE RELOCATED
CB	CIRCUIT BREAKER	RCPT	RECEPTACLES
(D)	TO BE DEMOLISHED	OS	OCCUPANCY SENSOR
EC	EMPTY CONDUIT	SPD	SURGE PROTECTION DEVICE
(E)	EXISTING	ST	SHUNT TRIP
F	FUSE	SW	SWITCH
FT	FEET	UF	UNDERFLOOR
G	GROUND (EQUIPMENT)	UG	UNDERGROUND
GEC	GROUNDING ELECTRODE CONDUCTOR	UNO	UNLESS NOTED OTHERWISE
GFI	GROUND FAULT INTERRUPTER	W/	WITH
IC	INTERRUPTING CAPACITY	W/O	WITHOUT
LCP	LIGHTING CONTROL PANEL	WAP	WIRELESS ACCESS POINT
MTD	MOUNT OR MOUNTED	WP	WEATHER-PROOF
(N)	NEW	XFRMR	TRANSFORMER

CONDUCTOR DERATING SCHEDULE

FUSE OR BREAKER SIZE	120V			277V		
	<65 FT	65 TO 100 FT	>110 FT	<150 FT	150 TO 250 FT	>250 FT
20A	#12	#10	#8	#12	#10	#8
30A	#10	#8	#6	#10	#8	#6
40A	#8	#6	#4	#8	#6	#4

NOTES:
1. SIZE RACEWAYS ACCORDING TO THE NATIONAL ELECTRICAL CODE.
2. SIZING OF CONDUCTORS FOR VOLTAGE DROP SHALL BE PER THIS TABLE, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

ELECTRICAL SHEET INDEX

DRAWING	TITLE
1620 - CITY OF WEATHERFORD SERVICE CENTER	
E0.0	SYMBOLS AND GENERAL NOTES
E1.1	DEMOLITION
E2.1	LIGHTING AND POWER
E9.1	SPECIFICATIONS

LIGHTING FIXTURE SCHEDULE

CALLOUT	SYMBOL	DESCRIPTION	MODEL	LAMP	LUMENS / LAMP	MOUNTING	INPUT WATTS	VOLTS	NOTES
A4		2X4 LAY-IN 4800 LUMEN LED FIXTURE	LITHONIA: 2GTL 4 48L LP840 EZ1	(1) 48W LED	4800	RECESSED	48	MULTIPLE	

RECEPTACLE SCHEDULE

CALLOUT	SYMBOL	NEMA	HEIGHT	NOTES
COUNTER GFI		5-20R	+44" AFF	GFI
DISHWASHER		5-20R	+18" AFF	
DISPOSAL		5-20R	+18" AFF	PROVIDE CONTROL SWITCH ABOVE COUNTER
DUPLEX		5-20R	+18" AFF	
EXIST DUPLEX				EXISTING RECEPTACLE TO REMAIN
FREEZER		5-20R	+18" AFF	
FRIDGE		5-20R	+44" AFF	
ICE		5-20R	+18" AFF	GFI
MICROWAVE		5-20R	REFER TO ELEVATIONS	
RANGE		14-50R	+18" AFF	VERIFY RECEPTACLE TYPE WITH EQUIPMENT IN THE FIELD. PROVIDE 3#6, #10G, 1"C.
VENDING		5-20R	+44" AFF	

P2A

ROOM: MOUNTING SURFACE
FED FROM UTILITY
NOTE: EXISTING PANEL

VOLTS 208Y/120V 3P 4W
BUS AMPS 225
NEUTRAL 100%

AIC 14,000
MAIN BKR MLO
LUGS STANDARD

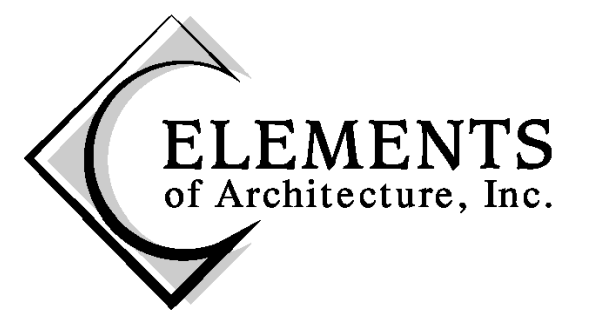
CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION	CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	20/1	1.0	(E) RECEPT LOADS	a	2	50/2	3.0 (E) HTG LOADS
3	20/1	1.0	(E) RECEPT LOADS	b	4	1	
5	20/1	1.0	(E) RECEPT LOADS	c	6	40/2	3.0 (E) HTG LOADS
7	20/2	0.0	(E) RTU	d	8	1	
9	1			e	10	35/2	2.5 (E) HTG LOADS
11	20/1	0.8	MICROWAVE RECEPTACLE	f	12	1	
13	20/1	0.4	ICE MACHINE	g	14	20/3	3.0 (E) LOADS
15	20/1	0.4	FREEZER	h	16	1	
17	20/1	0.4	(EO HEATER)	i	18	1	
19	70/2	2.0		j	20	20/1	0.0 SPARE
21	1			k	22	20/1	0.4 VENDING
23	20/1	0.8	MICROWAVE RANGE	l	24	20/1	0.4 VENDING
25	40/2	8.3		m	26	20/1	0.8 MICROWAVE RECEPTACLE
27	1			n	28	20/1	0.2 (E) HTG LOADS
29	20/1	0.4	(E) RECEPT LOADS	o	30	20/2	1.6 (E) HTG LOADS
31	20/1	0.4	(E) RECEPT LOADS	p	32	1	
33	30/2	2.0	(E)	q	34	70/2	11.0 (E) HTG LOADS
35	1			r	36	1	
37	20/1	0.4	REFRIGERATOR RECEPTACLE	s	38	40/2	6.4 (E) HTG LOADS
39	20/1	0.2	DISHWASHER	t	40	1	
41	20/1	0.5		u	42	20/1	0.5 DISPOSAL

	CONN. KVA	CALC. KVA		CONN. KVA	CALC. KVA
LIGHTING	0.0	0.0 (125%)	CONTINUOUS	2.0	2.5 (125%)
LARGEST MOTOR	0.0	0.0 (125%)	HEATING	29.5	29.5 (100%)
OTHER MOTORS	0.0	0.0 (100%)	NONCONTINUOUS	0.0	0.0 (100%)
RECEPTACLES	7.4	7.4 (50%>10)	KITCHEN EQUIP	13.7	9.1 (MAX 2)
COOLING	0.0	0.0 (100%)	NONCOIN/DIVERSE	0.0	0.0 (N/A)
			TOTAL KVA	52.6	48.5
			BALANCED THREE PHASE AMPS	134.7	

PHASE BALANCE PERCENT: PHASE A 93.3% PHASE B 116% PHASE C 90.3%

DISTRIBUTED LIGHTING CONTROL SYSTEM SCHEDULE

ID	SYMBOL	NOTES
B4		LOW-VOLTAGE 4-BUTTON CONTROL STATION.
OS		CEILING-MOUNTED OCCUPANCY SENSOR WITH 360 DEGREE, 25-FT RADIUS COVERAGE
PPD		SINGLE CHANNEL DIMMING POWER PACK. PROVIDE DIMMER COMPATIBLE WITH FIXTURES BEING SERVED.
SWITCH		SPST FULL-VOLTAGE SWITCH



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CLIENT / PROJECT NAME:


Weatherford
Texas
City of
Weatherford
Utility
Building
Renovations
917
Eureka St.
Weatherford, TX
76086

SEAL(S) / CONSULTANT:



Torres Engineering Services, Inc.
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Project # 1650



08/29/17

PROJECT NUMBER:

17-1004.00

ISSUE DATE:

August 29, 2017

REVISIONS:

SHEET NAME:

Demolition Plan
Electrical

SHEET NUMBER:

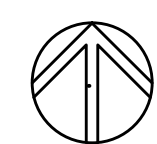
E1.1

DRAWING NOTES

1. REFER TO SHEET E0.0 FOR SYMBOLS AND GENERAL NOTES.
2. THIS DESIGN WAS DONE USING EXISTING LOAD INFORMATION AVAILABLE AT TIME OF DESIGN. CONTRACTOR SHALL VERIFY EXISTING LOADS AND PROVIDE FEEDERS FROM BUILDING DISTRIBUTION IF NECESSARY.
3. CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL DEVICES AND EQUIPMENT SHOWN OR REFERRED TO IN THIS DRAWING.

NOTES BY SYMBOL 

- A. REMOVE LIGHTING FIXTURES AND ASSOCIATED SWITCHES, CONDUCTORS AND RACEWAYS LEAVE HOME RUN AVAILABLE FOR NEW LIGHTING. REUSE SWITCH WALL BOXES AND CONDUITS IF POSSIBLE.
- B. REMOVE RECEPTACLES AND ASSOCIATED CONDUCTORS AND RACEWAYS ON BOTH SIDES OF WALL TO BE REMOVED. MODIFY AND EXTEND CIRCUIT AS NEEDED TO PRESERVE POWER FOR RECEPTACLES TO REMAIN.
- C. REMOVE POWER RECEPTACLES ON THIS WALL. PRESERVE CIRCUITS TO CONNECT TO NEW RECEPTACLES. REFER TO SHEET E2.1 FOR ADDITIONAL INFORMATION.



1 DEMOLITION FLOOR PLAN

0 8' 16' 24'

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City of Weatherford
Utility Building Renovations
917 Eureka St.
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SEAL(S) / CONSULTANT:



ROBERTO TORRES
83419
LICENSED PROFESSIONAL ENGINEER

08/29/17

PROJECT NUMBER:

17-1004.00

ISSUE DATE:

August 29, 2017

REVISIONS:

SHEET NAME:

Lighting and Power Electrical

SHEET NUMBER:

E2.1

DRAWING NOTES

- REFER TO SHEET E0.0 FOR SYMBOLS AND GENERAL NOTES.
- THIS DESIGN WAS DONE USING EXISTING LOAD INFORMATION AVAILABLE AT TIME OF DESIGN. CONTRACTOR SHALL VERIFY EXISTING LOADS AND PROVIDE FEEDERS FROM BUILDING DISTRIBUTION IF NECESSARY.
- CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL DEVICES AND EQUIPMENT SHOWN OR REFERRED TO IN THIS DRAWING.
- PROVIDE GFI PROTECTION FOR ALL RECEPTACLES IN KITCHEN. ALL ACCESSIBLE RECEPTACLES SHALL BE GFI-TYPE AND ALL NON-ACCESSIBLE RECEPTACLES SHALL HAVE GFI BREAKERS.

NOTES BY SYMBOL

- LA. CONNECT LIGHTING CIRCUIT TO HOMERUN LEFT DURING DEMOLITION.
- LB. RELOCATE EXISTING EXIT SIGN TO ACCOMMODATE FOR NEW CEILING. MODIFY AND EXTEND EXISTING CIRCUIT AS NEEDED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- PA. CONNECT NEW DUPLEX RECEPTACLES TO EXISTING CIRCUIT FEEDING RECEPTACLES IN ROOM.

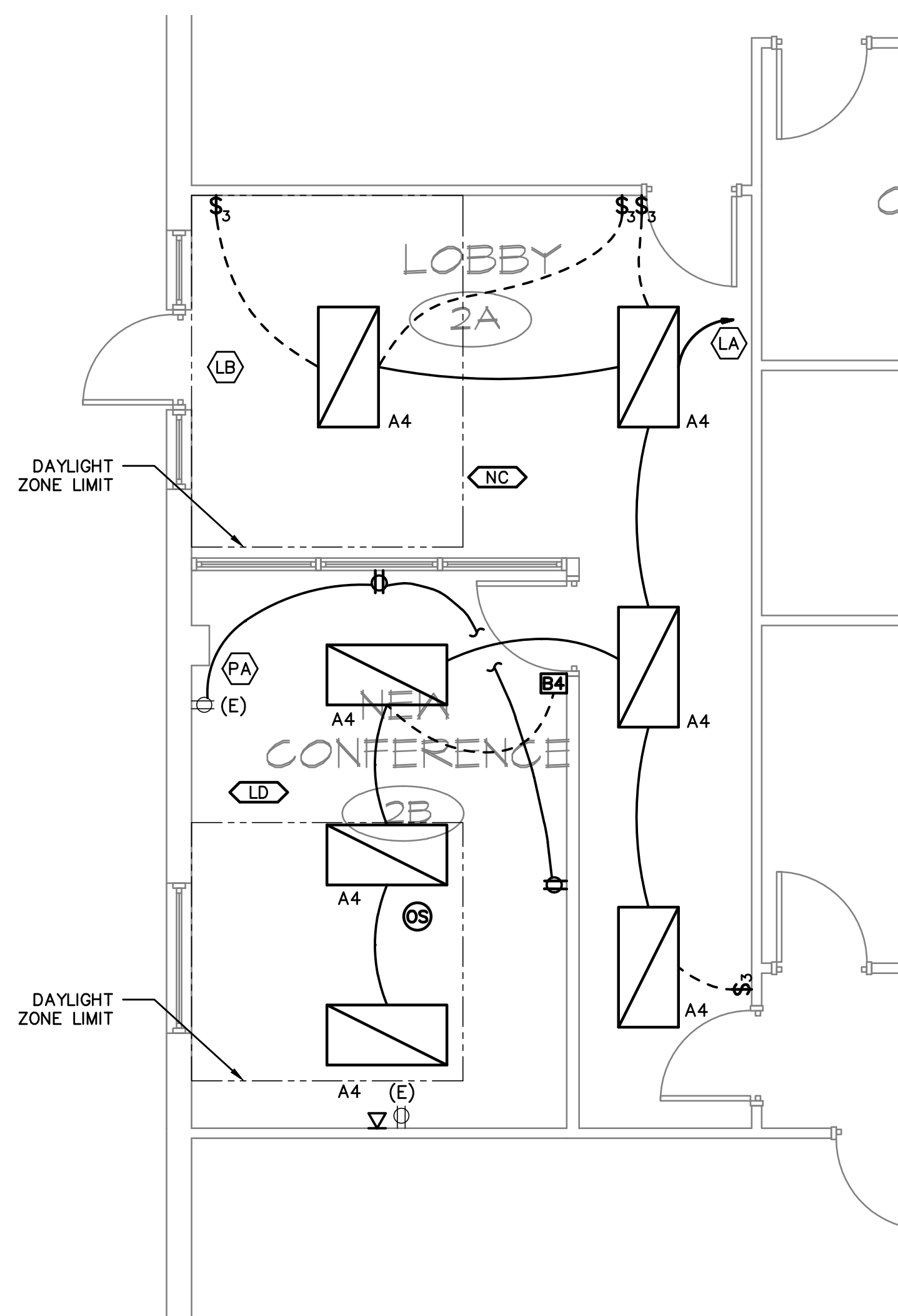
ENERGY CODE SYMBOLS

- DAYLIGHT ZONE LIMITS
- XX ENERGY CODE IDENTIFIER. REFER TO 2105 ENERGY CODE REQUIREMENTS FOR ADDITIONAL INFORMATION.

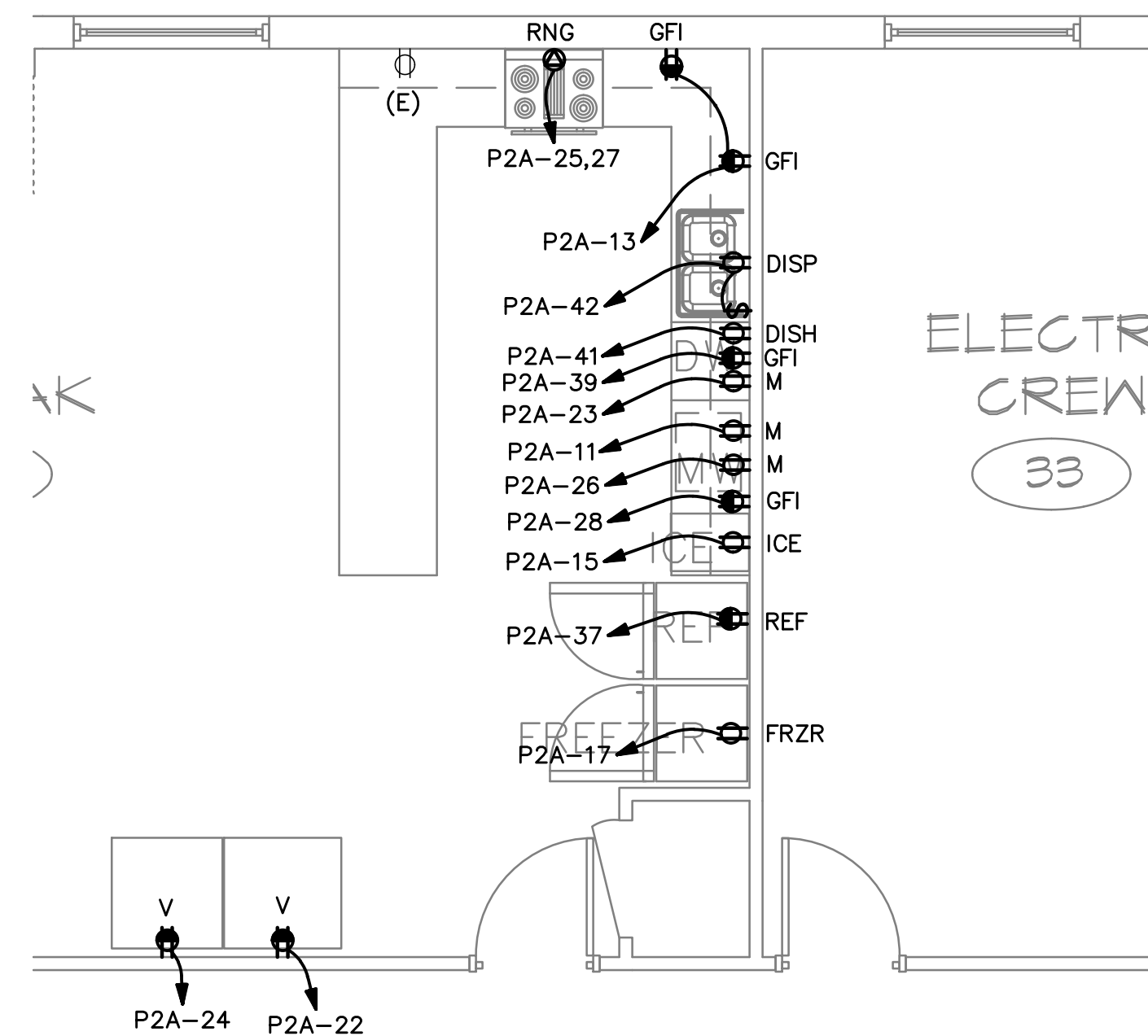
2015 ENERGY CODE REQUIREMENTS

- LIGHTING SYSTEM SHALL BE COMPLIANT WITH THE 2015 VERSION OF THE INTERNATIONAL ENERGY CONSERVATION CODE.
- OCCUPANCY SENSORS SHALL BE SET FOR A 20-MINUTE DELAY. UPON ACTIVATION, SENSORS SHALL TURN ON LIGHTS AT 50% IF CONTROLLING A DIMMER STATION OR 50% OF THE LIGHTS IF CONTROLLING A NON-DIMMED STATION.
- DAYLIGHT AREAS ARE IDENTIFIED ON FLOOR PLAN.
- THE FOLLOWING ARE ROOM CLASSIFICATIONS FOR THE PURPOSE OF LIGHTING CONTROLS. ROOMS ARE IDENTIFIED ON FLOOR PLANS.

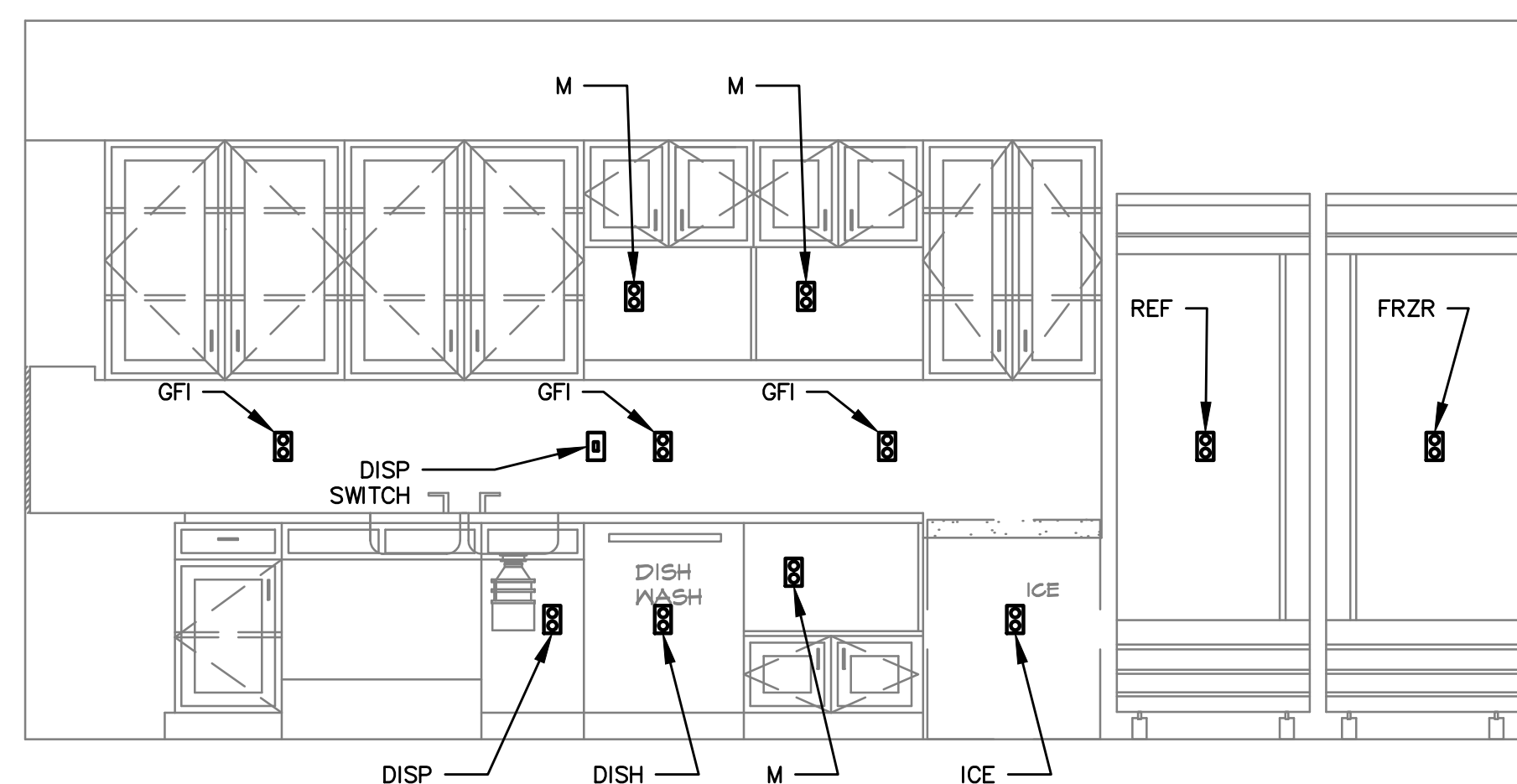
- LD LARGE SPACES WITH DAYLIGHT ZONES
 - PROVIDE CEILING-MOUNTED OCCUPANCY SENSOR(S) TO CONTROL ALL LIGHTING IN SPACE.
 - PROVIDE MANUAL CONTROL TO DIM LIGHTS 50%.
 - PROVIDE SEPARATE MANUAL CONTROL FOR FIXTURES IN DAYLIGHT ZONE.
- NC SPACES WITH NO CONTROLS REQUIRED
 - PROVIDE MANUAL CONTROLS AS SHOWN ON PLANS.



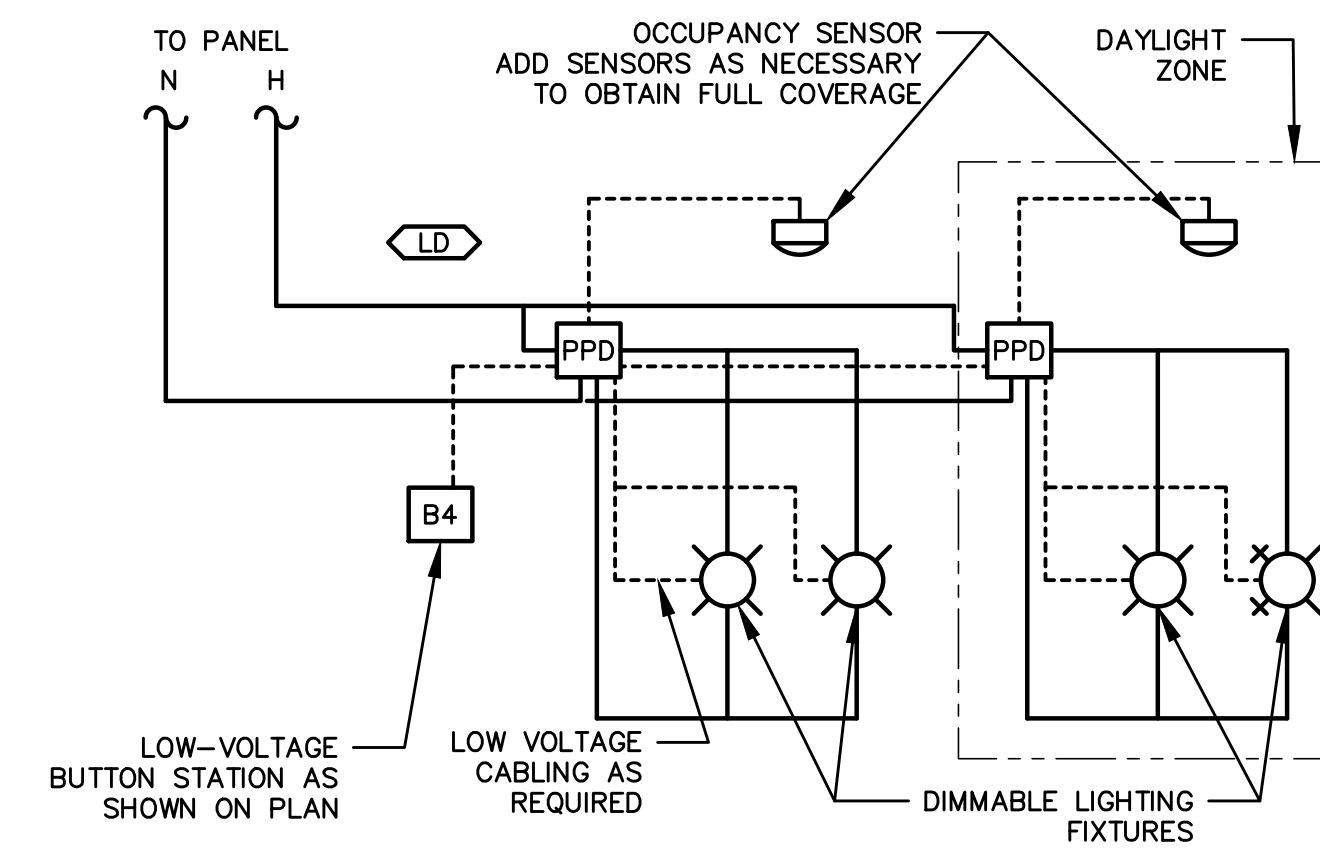
1 LIGHTING PARTIAL PLAN
0 4' 8' 12'



2 POWER PARTIAL PLAN
0 4' 8' 12'

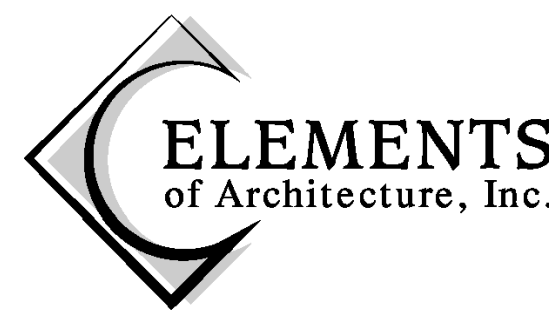


3 KITCHEN ELEVATION
0 2' 4' 6'



4 TYPE LD SCHEMATIC
0 4' 8' 12'

- 1.0 **GENERAL**
- 1.1 PROVIDE EQUIPMENT, MATERIALS, LABOR, SUPERVISION AND SERVICES NECESSARY FOR, OR INCIDENTAL TO, THE INSTALLATION OF A COMPLETE AND OPERATING ELECTRICAL SYSTEM AS SHOWN OR INDICATED ON THE DRAWINGS AND/OR SPECIFIED. PROTECT ALL EXISTING OPERATIONS AND PROPERTY ADJACENT, WITH WHICH WORK COMES IN CONTACT, MOVE MATERIALS, EQUIPMENT, DEBRIS, ETC., AND SHALL REPAIR SATISFACTORILY ALL DAMAGE CAUSED DURING CONSTRUCTION. REPLACE MATERIALS AND/OR EQUIPMENT WITH NEW MATERIALS AND/OR EQUIPMENT FAILING TO GIVE SATISFACTORY SERVICE DURING THE GUARANTEE PERIOD. COORDINATE AND NOTIFY OWNER FOR APPROVAL AND SCHEDULING OF ANY EXISTING BUILDING SYSTEM INTERRUPTIONS.
- 1.2 ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED. AS INTERPRETED BY THE ARCHITECT. THE INSTALLATION OF ALL EQUIPMENT SHALL BE MADE BY EXPERIENCED CRAFTSMAN IN A NEAT WORKMANLIKE MANNER. ALL MATERIALS, TOOLS, COSTS, AND SERVICES NECESSARY TO COMPLETELY INSTALL ALL ELECTRICAL WORK SHALL BE FURNISHED BY THE CONTRACTOR. THE FINAL INSTALLATION SHALL COMPLY WITH THE APPLICABLE STANDARDS OF UL, ANSI, NEMA, ADA, NFPA, NATIONAL ELECTRICAL SAFETY CODE AND THE NATIONAL ELECTRICAL CODE.
- 1.3 MATERIALS AND WORKMANSHIP SHALL COMPLY WITH CONTRACT DOCUMENTS AND ALL APPLICABLE STATUTES, ORDINANCES, CODES AND REGULATIONS OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED, INCLUDING THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, AND NFPA. IN CASE OF DIFFERENCES BETWEEN APPLICABLE CODES AND STANDARDS AND THE CONTRACT DOCUMENTS, CONTRACTOR SHALL PROMPTLY NOTIFY ARCHITECT IN WRITING OF SUCH DIFFERENCE, SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF APPLICABLE CODES AND STANDARDS, CONTRACTOR SHALL BEAR ALL COSTS RELATED TO THE CORRECTION OF THIS CONFLICT.
- 1.4 CONTRACTOR SHALL VISIT THE PREMISES TO THOROUGHLY FAMILIARIZE HIMSELF, DURING THE BIDDING TIME, WITH ALL DETAILS OF THE WORK AND WORKING CONDITIONS AND VERIFY ALL DIMENSIONS IN THE FIELD, AND SHALL ADVISE THE ARCHITECT OF ANY DISCREPANCY DURING BIDDING AND WHILE PERFORMING ANY WORK
- 1.5 IT IS THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS THAT THE CONTRACTOR SHALL PROVIDE AN ELECTRICAL INSTALLATION THAT IS COMPLETE WITH ALL ITEMS AND APPURTENANCES NECESSARY, REASONABLY INCIDENTAL, OR CUSTOMARILY INCLUDED, EVEN THOUGH EACH OTHER AND EVERY ITEM IS NOT SPECIFICALLY CALLED OUT OR SHOWN.
- 1.6 COORDINATE ALL MECHANICAL AND PLUMBING EQUIPMENT, SIZES AND LOCATIONS WITH MECHANICAL DRAWING AND SPECIFICATIONS. PROVIDE REQUIRED ELECTRICAL DISCONNECT SWITCHES, FUSES, CIRCUIT BREAKERS, BRANCH SERVICE AND CONTROL CONDUIT AND WIRE NECESSARY FOR PROPER OPERATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL MATERIALS AND LABOR TO INSTALL FULLY FUNCTIONAL SYSTEMS IN ACCORDANCE WITH THE INTENT DISPLAYED IN THESE DOCUMENTS AND TO COMPLY WITH ALL APPLICABLE CODES.
- 1.7 COMPLY WITH THE PERTINENT REQUIREMENTS OF DIVISION 1 FOR SUBMITTALS. SUBMITTALS INCLUDE: SHOP DRAWINGS, OPERATING AND MAINTENANCE MANUALS, INSTALLATION DRAWINGS FOR SPECIAL SYSTEMS, AND PROJECT RECORD DOCUMENTS. AS A MINIMUM PROVIDE SUBMITTALS ON THE FOLLOWING: SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, LIGHT FIXTURES, TRANSFORMERS, WIRE AND CABLE, RACEWAYS, WIRING DEVICES, AND DISCONNECT SWITCHES. SUBMIT COMPLETE ELECTRICAL SUBMITTAL PACKAGE FOR REVIEW AT ONE TIME. DO NOT SUBMIT PARTIAL PACKAGES.
- 1.8 COORDINATE AND OBTAIN APPROVAL FOR ANY REQUIRED POWER OUTAGES WITH BUILDING REPRESENTATIVE A MINIMUM OF 48 HOURS PRIOR TO OCCURRENCE.
- 1.9 ELECTRICAL WORK TO CONFORM WITH NATIONAL ELECTRICAL CODE AND ALL APPLICABLE STATUTES, ORDINANCES, CODES AND REGULATIONS OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
2. **ACCESS PANELS**
- 2.1 FURNISH ACCESS PANELS FOR ALL LOCATIONS WHERE ELECTRICAL EQUIPMENT SUCH AS CONCEALED PULL BOXES, ELECTRICALLY OPERATED DEVICES, ETC. ARE INSTALLED BEHIND FURRINGS, CHASES, OR NONREMOVABLE SUSPENDED CEILINGS EXCEPT SUCH PANELS AS ARE SHOWN ON THE ARCHITECTURAL DRAWINGS. THESE PANELS WILL BE INSTALLED IN THE WALLS OR CEILINGS BY THE TRADE INVOLVED UNDER THE APPLICABLE DIVISION OF THE GENERAL SPECIFICATIONS.
- 2.2 FURNISH ACCESS PANELS. MINIMUM SIZE SHALL BE 24"x24" UNLESS FIELD CONDITIONS DICTATE OTHERWISE.
3. **CUTTING AND PATCHING**
- 3.1 CONTRACTOR SHALL DO NECESSARY CUTTING AND DRILLING OF WALLS, FLOORS, CEILING, ETC., FOR THE INSTALLATION OF WORK IN ACCORDANCE WITH DIVISION 1 REQUIREMENTS. DO NOT CUT ANY STRUCTURAL MEMBER IN A WAY TO LESSEN ITS STRENGTH, UNLESS SPECIFIC WRITTEN PERMISSION IS PROVIDED BY THE ARCHITECT/STRUCTURAL ENGINEER. PERFORM WORK WITH TRADES SPECIALIZING IN CUTTING AND PATCHING.
- 3.2 AFTER INSTALLATION OF ELECTRICAL DEVICES, RACEWAYS, ETC. PATCH ANY WALL, CEILING OR FLOOR DAMAGE AND PAINT SURFACE TO MATCH EXISTING SURFACES
4. **PAINTING**
- 4.1 PERFORM PAINTING IN ACCORDANCE WITH THE ROOM FINISH SCHEDULE.
- 4.2 ALL EQUIPMENT SHALL BE DELIVERED TO THE JOB SITE WITH SUITABLE FACTORY FINISH. SHOULD THE FINISH BE DAMAGED IN TRANSIT OR DURING THE INSTALLATION, IT SHALL BE FINISHED TO MATCH APPEARANCE OF ORIGINAL FINISH.
- 4.3 PAINT ANY SURFACE RACEWAYS AND THEIR SUPPORTS TO MATCH ADJACENT WALLS, OR CEILINGS. EXCEPTION: ELECTRICAL AND MECHANICAL ROOMS.
5. **OPERATING INSTRUCTIONS**
- 5.1 INSTRUCT THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT ITEMS OF ALL THE VARIOUS ELECTRICAL, SIGNALING AND COMMUNICATION SYSTEMS.
- 5.2 UPON COMPLETION OF THE WORK, PROVIDE TO THE ARCHITECT FOR DELIVERY TO THE OWNER TWO COPIES OF A BOUND MANUAL OR MANUALS CONTAINING ALL DATA AND DESCRIPTIONS OF ALL WIRING DEVICES, LIGHTING FIXTURES, SWITCHBOARDS, PANELBOARDS, FIRE ALARM AND OTHER SIGNAL SYSTEMS; AND ALL OTHER SPECIAL SYSTEMS AND EQUIPMENT FURNISHED AND/OR INSTALLED UNDER THIS DIVISION. INCLUDE IN THIS DATA REPAIR PARTS, LISTS, AND OPERATION AND SERVICE INSTRUCTIONS AND MANUALS.
- 5.3 BIND DATA IN LOOSE LEAF, HARD BACK, RING BINDERS SIZED FOR 8-1/2-INCH BY 11-INCH SHEETS. PROVIDE SUFFICIENT BINDERS SO THAT NO BINDER WILL BE OVER 3-1/2-INCHES THICK.
- 5.4 AT OWNER'S REQUEST, PROVIDE AN ELECTRONIC COPY OF ALL MANUALS INSTEAD OF HARD COPIES. ELECTRONIC DATA SHALL BE CLASSIFIED IN FOLDERS FOR EACH TYPE OF EQUIPMENT.
6. **INSPECTIONS AND TESTS**
- 6.1 OBTAIN TIMELY INSPECTIONS OF THE INSTALLATION BY THE CONSTITUTED AUTHORITIES. REMEDY ANY DEFICIENCIES TO THE SATISFACTION OF THE INSPECTION AUTHORITY.
- 6.2 MAKE WRITTEN NOTICE TO THE ARCHITECT ADEQUATELY IN ADVANCE OF EACH OF THE FOLLOWING STAGES OF CONSTRUCTION:
1. WHEN ALL ROUGH-IN IS COMPLETE BUT NOT COVERED.
2. AT COMPLETION OF THE WORK OF THIS SECTION.
- 6.3 PERFORM TESTS REQUIRED BY THE GOVERNING AUTHORITIES, AND BY NFPA AND THE NATIONAL ELECTRICAL CODE, IN ADDITION TO THE TESTS SPECIFIED IN THE INDIVIDUAL SPECIFICATIONS SECTIONS.
- 6.4 IN THE ARCHITECT'S PRESENCE, TEST ALL PARTS OF THE ELECTRICAL SYSTEM AND PROVE THAT THE SYSTEMS FUNCTION ELECTRICALLY IN THE REQUIRED MANNER.
- 6.5 WHEN MATERIAL OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, REMOVE THE NONCOMPLYING ITEMS FROM THE JOB SITE AND REPLACE THEM WITH THE ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER. THIS SHALL BE PERFORMED WITHIN 3 DAYS AFTER NOTICE OF NONCOMPLIANCE.
- 6.6 AT THE TIME OF FINAL INSPECTION AND TESTS OF THE POWER AND LIGHTING SYSTEMS, ALL CONNECTIONS AT PANELS, SWITCHES, CIRCUIT BREAKERS, ETC. AND ALL SPLICES SHALL BE COMPLETE. ALL FUSES SHALL BE IN PLACE, AND ALL CIRCUITS SHALL BE CONTINUOUS FROM POINT OF SERVICE CONNECTION TO ALL SWITCHES, RECEPTACLES, OUTLETS, ETC.
- 6.7 ALL CIRCUITS SHALL BE FREE OF SHORTS AND GROUNDS. LOADS SHALL BE BALANCED BETWEEN PHASES.
- 6.8 UPON FINAL COMPLETION OF THE WORK, OBTAIN CERTIFICATES OF ACCEPTANCE FROM THE CONSTITUTED AUTHORITIES. DELIVER THE CERTIFICATES TO THE ARCHITECT FOR TRANSMISSION TO THE OWNER.
7. **RECORD DRAWINGS**
- 7.1 DURING THE INSTALLATION OF THE WORK, THE CONTRACTOR SHALL KEEP DETAILED RECORDS OF ANY AND ALL CHANGES MADE FROM THE CONTRACT DRAWINGS. ON OR BEFORE FINAL COMPLETION OF HIS WORK HE SHALL REVISE A SET THE CONTRACT DRAWINGS TO ILLUSTRATE THE WORK AS ACTUALLY INSTALLED, ALL REVISIONS TO THE DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND THE WORK SHALL BE NEAT, LEGIBLE AND ACCURATE. THESE RECORD DRAWINGS SHALL BE STAMPED "AS-BUILT", DATED, AND SUBMITTED TO THE ARCHITECT FOR REVIEW.
- 7.2 SHOW IN THE RECORD DRAWINGS, BY DIMENSIONS ACCURATE TO WITHIN ONE INCH BOTH HORIZONTALLY AND BY VERTICAL ELEVATION, THE CENTERLINE OF EACH RUN OF ITEMS SUCH AS SLEEVES AND CONDUIT BELOW GRADE, IN WALLS, OR IN CONCRETE SLAB. SURFACE MOUNTED DEVICES AND EQUIPMENT ARE TO REFLECT THEIR EXACT LOCATION.
- 7.3 CLEARLY IDENTIFY ITEMS BY SYMBOL OR NOTE SUCH AS "RIGID CONDUIT" AND THE LIKE. ADDITIONALLY, IDENTIFY BY SYMBOL OR NOTE, THE LOCATION OF THE ITEM "UNDER SLAB", "IN CEILING PLENUM", "EXPOSED", AND THE LIKE.
- 7.4 MAKE IDENTIFICATION SUFFICIENTLY DESCRIPTIVE THAT IT MAY BE RELIABLY RELATED TO THE SPECIFICATIONS.
- 7.5 UPON COMPLETION OF THE WORK THE REVISED DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN ELECTRONIC FORM.
8. **PROJECT COMPLETION**
- 8.1 GUARANTEE ENTIRE INSTALLATION TO BE IN GOOD REPAIR FOR A PERIOD OF ONE YEAR FOLLOWING THE FINAL DATE OF ACCEPTANCE.
- 8.2 UPON COMPLETION OF THE WORK OF THIS SECTION, THOROUGHLY CLEAN ALL EXPOSED PORTIONS OF THE ELECTRICAL INSTALLATION, REMOVING ALL TRACES OF SOIL, LABELS, GREASE, OIL, AND OTHER FOREIGN MATERIAL, AND USING ONLY THE TYPE CLEANER RECOMMENDED BY THE MANUFACTURER OF THE ITEM BEING CLEANED.
- 8.3 THOROUGHLY INDOCTRINATE THE OWNER'S OPERATION AND MAINTENANCE PERSONNEL IN THE CONTENTS OF THE OPERATION AND SERVICE MANUAL REQUIRED TO BE SUBMITTED AS PART OF THIS SECTION OF THESE SPECIFICATIONS.
10. **RACEWAYS**
- 10.1 PROVIDE COMPLETE RACEWAY SYSTEM FOR ALL WIRING UNLESS SPECIFICALLY NOTED OTHERWISE. THIS INCLUDES, BUT IS NOT LIMITED TO, BRANCH CIRCUIT WIRING, CONTROL WIRING, AND AUXILIARY SYSTEMS WIRING, UNLESS SPECIFIED TO THE CONTRARY HEREIN OR ON DRAWINGS. PROVIDE ADEQUATE AND STURDY SUPPORT FOR ALL PARTS OF RACEWAY SYSTEM. INSTALL NYLON CORD IN ALL EMPTY ELECTRICAL RACEWAYS.
- 10.2 APPROVED MANUFACTURERS: REPUBLIC, TRIANGLE, OR EQUAL.
- 10.3 RACEWAYS SHALL BE SIZED AS INDICATED ON THE DRAWINGS AND AS REQUIRED BY THE NEC TO PREVENT DAMAGE TO THE CONDUCTORS. DO NOT USE RACEWAYS SIZED LESS THAN 3/4" UNLESS SPECIFIED OTHERWISE. CONTRACTOR HAS THE OPTION OF COMBINING HOMERUNS INTO SINGLE CONDUITS PROVIDED THAT CONDUCTOR SIZES ARE DE-RATED AND CONDUITS SIZED ACCORDING TO NEC REQUIREMENTS.
- 10.4 RACEWAYS SHALL BE INSTALLED ACCORDING TO THE FOLLOWING SCHEDULE:
SCHEDULE 80 PVC: UNDERGROUND LOCATIONS.
RIGID GALVANIZED STEEL: EXTERIOR, DAMP AND WET LOCATIONS, IN CRAWL SPACES, IN HAZARDOUS AREAS, AND IN LOCATIONS SUBJECT TO PHYSICAL DAMAGE.
MC CABLE: PIGTAILS NO LONGER THAN 6 FEET FROM J-BOX TO CEILING MOUNTED FIXTURES. MC CABLE SHALL NOT BE USED EXPOSED.
LIQUID-TIGHT FLEXIBLE CONDUIT: FINAL CONNECTION TO EQUIPMENT SUCH AS MOTORS, TRANSFORMERS, ETC. IN LENGTHS NO LONGER THAN 6 FEET.
GALVANIZED ELECTRIC METAL TUBING (EMT): ALL OTHER USES. INCLUDING CONTROL WIRING.
- 10.5 ALL EMT ENTERING BOXES SHALL BE SECURED WITH INSULATING THROAT CONNECTORS AND LOCKNUTS.
- 10.6 NO RACEWAY SHALL BE LOCATED IN PROXIMITY OF HOT WATER LINES OR EXCESSIVE HEAT.
- 10.7 PROVIDE LIQUID TIGHT FLEXIBLE CONDUIT CONNECTION FOR FINAL CONNECTION TO EACH MOTOR NOT TO EXCEED 24 INCHES IN LENGTH.
- 10.8 ALL EXPOSED RACEWAYS SHALL BE INSTALLED WITH RUNS PARALLEL AND/OR PERPENDICULAR WITH BUILDING WALLS.
- 10.9 PENETRATIONS OF WALLS, FLOORS, AND ROOF FOR THE PASSAGE OF ELECTRICAL RACEWAYS SHALL BE APPROVED BY THE ARCHITECT. ALL SUCH PENETRATIONS SHALL BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL, WATERPROOF, AND FIREPROOF INTEGRITY OF THE WALL, FLOOR, OR ROOF SYSTEM PENETRATED.
- 10.10 INSTALL CONDUIT EXPANSION FITTINGS WHERE CONDUIT CROSSES BUILDING EXPANSION JOINTS AND AT 150 FOOT INTERVALS IN STRAIGHT RUNS.
- 10.11 PROVIDE ELECTRICAL BOXES AND DEVICES AS REQUIRED. PROVIDE ACCESS DOORS IN WALLS AND CEILINGS WHERE ACCESS TO CONCEALED
11. **HANGERS AND SUPPORTS**
- 11.1 USE CASE "C" CLAMPS, "U" STRAPS OR RING HANGERS ATTACHED TO RODS, AND/OR BRACKETS FASTENED TO STRUCTURE FOR INDIVIDUAL CONDUITS.
- 11.2 SUPPORT GROUPED RACEWAYS TOGETHER IN HORIZONTAL RUNS ON TRAPEZE HANGERS CONSTRUCTED OF UNISTRUT OR EQUAL SUSPENDED FROM CAD-PLATED STEEL RODS.
- 11.3 NO PERFORATED STRAPS OR TIE WIRES SHALL BE PERMITTED.
12. **WIRE AND CABLE**
- 12.1 PROVIDE A COMPLETE SYSTEM OF CONDUCTORS IN RACEWAY SYSTEMS EXCEPT WHERE INDICATED OTHERWISE.
- 12.2 ACCEPTABLE MANUFACTURERS: AFC, BELDEN, CAROL, SOUTHWIRE, AND TRIANGLE.
- 12.3 ELECTRICAL CONDUCTORS SHALL BE OF SOFT DRAWN COPPER WITH CONDUCTIVITY 98% OF PURE COPPER.
- 12.4 ELECTRICAL CONDUCTORS SHALL BE SOLID FOR #10 AND SMALLER; STRANDED FOR #8 AND LARGER.
- 12.5 WIRE AND CABLE FOR ALL BRANCH CIRCUITS, MOTOR CIRCUITS, AND HIGH AMBIENT LOCATIONS SHALL BE TYPE THHN/THWN.
- 12.6 ALL CIRCUITS SHALL BE #12 OR LARGER. PROVIDE ALL ISOLATED GROUND CIRCUITS WITH A SEPARATE NEUTRAL (#10) AND ISOLATED GROUND CONDUCTOR.
- 12.7 MAKE ALL CONNECTIONS WITH U.L. APPROVED SOLDERLESS PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOCK, OR EQUAL.
- 12.8 CONSISTENTLY COLOR CODE WIRING CONTINUOUS THROUGHOUT THE WORK.
- 12.9 BRANCH CIRCUIT WIRING MAY BE COMBINED INTO A SINGLE RACEWAY IN ACCORDANCE WITH THE NEC, UNLESS OTHERWISE NOTED.
13. **OUTLET BOXES**
- 13.1 PROVIDE PULL BOXES, JUNCTION BOXES, WIRING TROUGHS, AND CABINETS, WHEREVER NECESSARY FOR PROPER INSTALLATION OF VARIOUS ELECTRICAL SYSTEMS.
- 13.2 GENERAL ELECTRIC, APPLETON, STEEL CITY, OR RACO HOT DIPPED GALVANIZED STEEL BOXES, OR EQUAL, UNLESS SPECIFIED OTHERWISE.
- 13.3 PROVIDE SIZE, TYPE, DESIGN TO SUIT STRUCTURAL CONDITIONS.
- 13.4 ADEQUATE TO ACCOMMODATE SIZE AND NUMBER OF RACEWAYS, CONDUCTORS, AND DEVICE OR FIXTURE SERVED BY IT.
- 13.5 PROVIDE PLASTER RINGS AND/OR COVERS ON BOXES WHERE REQUIRED.
- 13.6 ON EXPOSED WORK, PROVIDE APPROVED CASE FERROUS ALLOY OUTLET, JUNCTION BOXES, AND FITTINGS.
- 13.7 FIXTURES OR DEVICE COVER SHALL COMPLETELY CONCEAL THE TYPE OUTLET BOX USED.
14. **WIRING DEVICES AND ACCESSORIES**
- 14.1 PROVIDE COMMERCIAL GRADE POWER OUTLETS AND SWITCHES.
- 14.2 PROVIDE THE FOLLOWING FINISHES:
A) WIRING DEVICES ON NORMAL POWER: WHITE
B) WIRING DEVICES ON EMERGENCY POWER: RED
C) COVERS: STAINLESS STEEL
- 14.3 WALL SWITCHES: LIGHTING CIRCUITS SHALL BE PROVIDED WITH HP RATED, UL LISTED, SIDE OR BACK-WIRED FLUSH TUMBLER SWITCHES RATED 20 AMPS, 120/277 VOLT. LEVITON, HUBBELL OR APPROVED EQUAL.
- 14.4 UNLESS NOTED OTHERWISE, RECEPTACLES SHALL BE RATED 20 AMPS, 120 VOLT; 3-WIRE GROUNDING TYPE, BACK AND SIDE WIRED, NEMA 5-20R. LEVITON, HUBBELL OR APPROVED EQUAL.
- 14.5 FOR EACH DATA OUTLET INDICATED, PROVIDE A 4X4 J-BOX WITH SINGLE GANG COVER ADAPTOR. PROVIDE ONE 1" CONDUIT FROM BOX TO 6" ABOVE ACCESSIBLE CEILING. PROVIDE PULL CORD AND COVER MATCHING EXISTING COLORS.
15. **DISCONNECT SWITCHES**
- 15.1 DISCONNECT SWITCHES SHALL MEET STANDARD KSI - 2001 FOR TYPE HD HEAVY DUTY SWITCHES. PROVIDE FUSED OR NON-FUSED SWITCHES WITH NEMA 1 OR 3R ENCLOSURES AS INDICATED OR REQUIRED.
16. **IDENTIFICATION**
- 16.1 IDENTIFY ALL PANELBOARDS, TRANSFORMERS AND DISCONNECT SWITCHES (DEVICES THEY SERVE) WITH ENGRAVED, BEVELED EDGE LAMINATED PLASTIC NAMEPLATES WITH BLACK BASE AND BLACK CORE. LETTERING SHALL BE AT LEAST 1/4" HIGH. SECURE NAMEPLATES TO EQUIPMENT WITH SCREWS, RIVETS, OR DOUBLE SIDED ADHESIVE TAPE PER EQUIPMENT MANUFACTURERS REQUIREMENTS. NAMEPLATES SHALL INCLUDE NAME OF DEVICE, VOLTAGE, PHASES, WIRES AND PANEL FED FROM.
- 16.2 PROVIDE CIRCUIT IDENTIFICATION NUMBERS ON OUTSIDE COVER OF J BOXES WITH GALVANIZED COVERS. NEATLY HANDWRITE CIRCUIT IDENTIFICATION NUMBERS USING PERMANENT MARKING PEN.
- 16.3 PROVIDE CIRCUIT IDENTIFICATION ON POWER RECEPTACLE FACEPLATES USING PLASTIC LETTERING.
- 16.4 PROVIDE TYPED DIRECTORIES FOR ALL PANELS.
17. **GROUNDING**
- 17.1 GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
- 17.2 INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED.
- 17.3 PROVIDE SEPARATE GREEN GROUND WIRE FOR ALL BRANCH AND FEEDER CIRCUITS.
- 17.4 PROVIDE SEPARATE ISOLATED GROUND WIRE FOR ALL CIRCUITS INDICATED AS "IG".
- 17.5 PROVIDE GROUND RODS WITH INSPECTION WELL AT ALL LOCATIONS INDICATED AND AT THE SERVICE ENTRANCE.
18. **AUTOMATIC LIGHTING CONTROL**
- 18.1 PROVIDE TIMER CONTROL PANEL WITH ASTRONOMICAL CLOCK, NEMA 1 ENCLOSURE, OVERRIDE SWITCH AND PHOTOCCELL CAPABILITY, WATTSTOPPER LP8 OR APPROVED EQUAL.
- 18.2 PROVIDE WALL-MOUNTED SWITCH/OCCUPANCY SENSORS WATTSTOPPER PW-100 OR APPROVED EQUAL.
- 18.3 PROVIDE CEILING-MOUNTED OCCUPANCY SENSORS WATTSTOPPER LMDC-100 OR APPROVED EQUAL.
19. **DISTRIBUTED LIGHTING CONTROL SYSTEM**
- 19.1 PROVIDE ACUITY BRANDS FRESCO LIGHTING CONTROL SYSTEM INCLUDING POWER PACK RELAYS, POWER PACK DIMMERS, LOW-VOLTAGE CONTROL STATIONS, BRIDGES, LIGHTING CONTROL DISPLAY AND NECESSARY APPURTENANCES FOR A FULLY OPERATIONAL SYSTEM.
- 19.2 PLANS SHOW RELATIONSHIP BETWEEN POWER PACKS AND FIXTURES CONTROLLED, LOCATION OF LOW-VOLTAGE CONTROL STATIONS AND LIGHTING CONTROL DISPLAY. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING PRODUCT DATA, EQUIPMENT LOCATIONS AND WIRING FOR APPROVAL.
- 19.3 MANUFACTURER: ACUITY BRANDS FRESCO CONTROL SYSTEM.
- 19.4 PROVIDE UP TO 4 ADDITIONAL LOCATIONS FOR LOW-VOLTAGE CONTROL STATIONS AS REQUIRED BY OWNER DURING CONSTRUCTION.
- 19.5 NOTES ON PLANS INDICATE MINIMUM CONTROL REQUIREMENTS. CONSULT WITH OWNER FOR ADDITIONAL PROGRAMMING OF CONTROL STATIONS.
- 19.6 PROGRAM SYSTEM SO ALL POWER PACKS ARE AUTOMATICALLY CONTROLLED AND HAVE AT LEAST ONE LOW-VOLTAGE CONTROL STATION ASSIGNED.
- 19.7 THOROUGHLY TRAIN OWNER'S REPRESENTATIVE ON THE USE AND PROGRAMMING OF LIGHTING SYSTEM AND ITS FEATURES AND PROVIDE USER'S MANUAL AS REQUIRED IN THE OPERATING INSTRUCTIONS SECTION OF THESE SPECIFICATIONS.
20. **LIGHTING**
- 20.1 INSTALL LIGHT FIXTURES AS INDICATED ON THE ARCHITECTURAL REFLECTED CEILING PLANS. NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO PURCHASE OR INSTALLATION OF LUMINAIRES. PROVIDE LUMINAIRES AS INDICATED IN THE LIGHT FIXTURE SCHEDULE.
- 20.2 LAMPS PROVIDE LAMPS AS LISTED ON THE LIGHT FIXTURE SCHEDULE. EXACT BRAND AND TYPE ARE SHOWN ON THE LIGHT FIXTURE SCHEDULE. NO SUBSTITUTIONS WILL BE ACCEPTED..
- 20.3 BALLASTS PROVIDE CLASS "P," UL LABELED, HPF, ENERGY SAVING ELECTRONIC BALLASTS IN ALL FLUORESCENT LIGHTING FIXTURES. RECESSED FLUORESCENT LIGHTING FIXTURE BALLASTS SHALL BE PROVIDED WITH INTEGRAL THERMAL PROTECTION.
- 20.4 ALL LAMPS AND BALLASTS SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ENERGY POLICY ACT OF 1992 AND INTERNATIONAL ENERGY COMPLIANCE CODE ADOPTED.
- 20.5 ACCEPTABLE MANUFACTURER'S: ADVANCE, OSRAM-SYLVANIA, GENERAL ELECTRIC OR APPROVED EQUAL.
- 20.6 PROVIDE MOUNTING HARDWARE AND TRIM NECESSARY FOR PROPER INSTALLATION OF SPECIFIED LIGHTING FIXTURES FOR THE TYPE OF CEILING OR SURFACE WHERE INSTALLED.
- END OF SECTION



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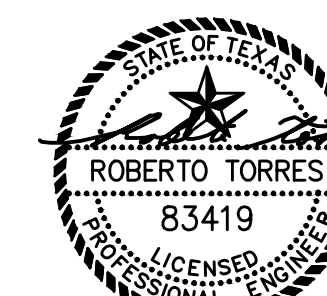
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