Project Name: Downtown Campus Reinvestment Project
Project No.: 202169
Amendment No: One
Date:

This Amendment to that certain Standard Form Agreement dated by and between the City of Glendale and Okland Construction Company, Inc. (CM@Risk) for services, deliverables and work related to Project No. 202169, Project Name: Downtown Campus Reinvestment Project, (the "Agreement") is made and entered into effective this day of , 2023.

1. This Amendment #1 establishes a Guaranteed Maximum Price ("GMP") and Construction Phase Fee for Construction Services and incorporates such terms into the Agreement, making the Agreement effective for Construction Phase Services:

   a. The total fee for Construction Phase Services, which is included in the Guaranteed Maximum Price (GMP) as defined under the Agreement, shall be fixed at Two Million Sixteen Thousand Four Hundred Sixty Four and 00/100 Dollars ($2,016,464.00). This amendment for Construction Phase Services (GMP1) is the first of a multiple phased contract for the Downtown Campus Reinvestment Project. Construction Phase Services in this amendment include the former Bead Museum and Civic Annex renovations.

   b. The Guaranteed Maximum Price ("GMP") for Construction Services, as defined under the Agreement, shall be Two Million Two Hundred Five Thousand Seven Hundred Seventeen and 00/100 Dollars ($2,205,717.00). This amendment for a Gauranteed Maximum Price (GMP1) is the first of a multiple phased contract for the Downtown Campus Reinvestment Project. Total GMP1 in this ammendment includes the former Bead Museum and Civic Annex renovations.

   c. The total compensation under the Agreement, as amended by this Amendment, shall be:

	Pre-Construction Phase	Construction Phase	Total
Original Agreement:	$758,198	$	$758,198
Previous Amendments:	$	$	$
This Amendment:	$	$2,205,717	$2,205,717
Total (including this Amendment):	$758,198	$2,205,717	$2,963,915

2. DELETE the blank template "Exhibit C – Cost of the Work – Schedule of Values" from the Agreement, and ADD "Exhibit C – Okland Construction Company, Inc. Cost of the Work – Schedule of Values" dated 1/20/2023 (26 Pages), attached herein.

3. ADD "Exhibit E – Construction Documents necessary to define Scope of Work and deliverables for the Construction Phase Services, including plans, designs, drawings, specifications and other required Contract Documents" dated 1/20/2023 (50 Pages), attached herein.

4. ADD "Exhibit F - Statement of All Clarifications and Assumptions" dated 1/20/2023 (6 Pages), attached herein.

5. ADD "Exhibit G – Schedule of Major Milestones" dated 1/20/2023 (4 Pages), attached herein.

6. ADD July 7, 2023 for Article 5.3.1 and 5.3.2 for the former Bead Museum and Civic Center Annex only.

7. ADD August 17, 2023 for Article 5.4.1 and 5.4.2 2 for the former Bead Museum and Civic Center Annex

only.

8. ADD One Thousand Seventy Dollars and no/100 ($1,070.00) in Article 5.5 for substantial completion and final completion amounts.

9. All other provisions, terms and conditions of the Agreement shall remain unchanged and in full effect.

(Signature on following page)

IN WITNESS WHEREOF, the Parties hereto have duly executed this Amendment, effective as of the date first written above.

OWNER
City of Glendale
5850 W. Glendale Avenue
Glendale, AZ 85301

By: Its Authorized Representative:

Signature

Printed Name

Title

Date

CM@RISK
Okland Construction Company, Inc.
1700 N. McClintock Rd.
Tempe, AZ 85281

By Its Authorized Representative:

Signature

Jesse Lee
Printed Name

Project Director
Title

February 1st 2023
Date

DESIGN PROFESSIONAL
Holly Street Studio, LLC
1319 E. Van Buren Street
Phoenix, AZ 85006

By Its Authorized Representative:

Signature (Reviewed in accordance with the "Agreement Between Owner and Design Professional" Section 4.8.1.14 of Exhibit A "Scope of Services for the Design Professional")

MICHAEL JACOBS, AIA
Printed Name

PRINCIPAL
Title

1 FEB 2023
Date

ATTEST:

Julie K. Bower (SEAL)
City Clerk

APPROVED AS TO FORM:

Michael D. Bailey
City Attorney

EXHIBIT C
Cost of the Work

(One (1) page - template)
(26) pages - final document to be included with GMP Amendment)

[ATTACH BLANK TEMPLATE EXHIBIT C HERE. DO NOT INSERT ANY INFORMATION IN THE TEMPLATE DOCUMENT AT TIME OF MAIN AGREEMENT.]

Glendale City Hall - Bead & Annex TI's
City of Glendale
1/18/2023_REV 2

OKLAND

		GUARANTEED MAXIMUM PRICE	
	GROSS AREA (SF)		17,916
	DESCRIPTION	TOTAL	/SF
DIV 02	DEMOLITION	$ 58,968	3.29
DIV 04	STRUCTURAL	$ 8,791	0.49
DIV 06	CASEWORK	$ 22,131	1.24
DIV 07	CAULKING & INSULATION	$ 7,781	0.43
DIV 08	OPENINGS	$ 35,948	2.01
DIV 09	DRYWALL	$ 123,684	6.90
DIV 09	CEILINGS	$ 36,130	2.02
DIV 09	FLOORING & TILE	$ 83,377	4.65
DIV 09	PAINTING	$ 46,915	2.62
DIV 10	ACCESSORIES	$ 26,669	1.49
DIV 11	SYSTEM FURNITURE	$ 118,050	6.59
DIV 12	WINDOW TREATMENT	$ 8,400	0.47
DIV 21	FIRE SUPPRESSION	$ 114,745	6.40
DIV 22	MECH & PLUMBING	$ 226,577	12.65
DIV 26	ELECTRICAL	$ 260,299	14.53
	GENERAL CONDITIONS	$ 309,367	17.27
	GENERAL REQUIREMENTS	$ 138,154	7.71
4.00%	CONTRACTOR CONTINGENCY	$ 84,835	4.74
10.00%	OWNER CONTINGENCY	$ 200,520	11.19
SUBTOTAL DIRECT CONSTRUCTION COST (DCC)		**1,911,340**	**106.68**
CONSTRUCTION PHASE FEE (FEE)			
5.50%	CONTRACTOR FEE	105,124	
INDIRECT CONSTRUCTION COSTS (ICC)			
0.90%	SURETY BOND	17,202	
0.94%	GENERAL LIABILITY INSURANCE	17,967	
0.30%	BUILDERS RISK INSURANCE	5,734	
1.25%	SUBCONTRACTOR DEFAULT INSURANCE	23,892	
5.98%	GROSS RECEIPT TAXES	124,459	
TOTAL GMP = DCC + FEE + ICC		**2,205,717**	**123.11**

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 02-DEMOLITION

1/18/2023_REV 2

DESCRIPTION OF WORK	Recommended Award DICKENS DEMO (602) 653-7003 Chris Christensen	ADVANCED DEMO (602) 510-3540 Jerry Chandler	ARIZONA SPECIALTY (602) 349-8159 Nick Hooey
BASE BID	$ -		
Demolition Bid	$ 24,909	$ 39,000	$ 41,744
GENERAL ITEMS	$ -		
Subcontract Agreement	X	X	X
Bid Form	X	X	X
Addendums	X	X	X
Per specs.	X	X	X
Taxes per project requirements	X	X	X
	$ -		
SCOPE ITEMS	$ -		
	$ -		
TI ANNEX	$ -		
F3030 SELECTIVE DEMOLITION	$ -		
Floor Boxes & Power/Data - Note on 11/09 Markup	$ -		
Budget for Trenches to Floor Boxes	$ 900	$ 900	$ 900
Repair Slab Budget	$ 2,100	$ 2,100	$ 2,100
Floor Boxes & Power/Datain Ballroom - Note on 11/09 Markup	$ -		
Budget for Trenches to Floor Boxes	$ 378	$ 378	$ 378
Repair Slab Budget	$ 882	$ 882	$ 882
TI BEAD	$ -		
C1020 INTERIOR WINDOWS	$ -		
Cut New Openings in Exterior Skin - 8' Wide by 8'-6" Tall (Match Existing)	$ -		
Remove/Replace Landscaping North Elevation	$ 4,000	$ 4,000	$ 4,000
Sawcut for Lintel/Solid Grout Jambs/Patch CMU	$ 1,200	Included	Included
Protect Entry Door Frames to Remain	$ 560	$ 560	$ 560
Demo CMU @ New Opening	Included	Included	Included
F3030 SELECTIVE DEMOLITION	$ -		
Interior Demolition	$ -		
Selective Demolition	Included	Included	Included
Cut/Patch @ Interior for New Work	$ 3,249	$ 3,249	$ 3,249
Protect Storefront to Remain	$ 1,494	$ 1,494	$ 1,494
Protect Floor to Remain	$ 594	$ 594	$ 594
Grind Floor Slab @ Floor Finish Demo	$ 4,402	$ 4,402	$ 4,420
Interior Under Ground Plumbing Sawcut	$ -		
Budget for Trenches to Plumbing	By Plumbing	By Plumbing	By Plumbing
Repair Slab	By Plumbing	By Plumbing	By Plumbing
Interior Under Ground Electrical Sawcut	$ -		
Budget for Floor Box Trenching	Included	Included	Included
Repair Slab	$ 2,100	$ 2,100	$ 2,100
Misc Exterior Demo	$ -		
Grind Egress Path Sidewalks to Meet ADA A1.0/Keynote 18	$ 3,500	$ 3,500	$ 3,500
G3010 WATER UTILITIES	$ -		
Water To Building from 58th Ave.	$ -		
Remove	$ -		
Traffic Control	$ 6,600	Included	Included
Remove Asphalt w/Saw Cut	Included	Included	Included
Remove Curb w/Saw Cut	Included	Included	Included
Remove and Salvage Pavers	Included	Included	Included

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 02-DEMOLITION

1/18/2023_REV 2

	DESCRIPTION OF WORK	Recommended Award DICKENS DEMO (602) 653-7003 Chris Christensen	ADVANCED DEMO (602) 510-3540 Jerry Chandler	ARIZONA SPECIALTY (602) 349-8159 Nick Hooey
	Remove Concrete Sidewalk	Included	Included	Included
Quality Control		$ -		
	3rd Party Survey	$ -		
	Survey / Establish Points w/As-Builts	$ 1,400	$ 1,400	$ 1,400
	Existing Conditions Survey	$ 700	$ 700	$ 700
		$ -		
##	**TOTAL DEMOLITION**	**$ 58,968**	**$ 65,259**	**$ 68,021**
	COST DIFFERENCE		$ 6,291	$ 9,053
	PERCENT DIFFERENCE		11%	15%
	Annex Breakout	$ 4,260	$ 4,260	$ 4,260
	Bead Breakout	$ 54,708	$ 60,999	$ 63,761

Glendale City Hall - Bead & Annex TI's

City of Glendale

DIV 04-STRUCTURAL

1/18/2023_REV 2

		Recommended Award STONE COLD / ALIGNMEN (480) 645-0134 Greg Leavitt	STONE COLD / S&H (480) 926-6062 Jacob Odden	RE-CREATE (602) 677-7595 Rocky
DESCRIPTION OF WORK				
BASE BID		$ -		
Masonry Bid - Stone Cold		$ 4,728	$ 4,728	$ 12,165
Steel Bid - Alignment		$ 1,000	$ 5,047	Included
Stem Wall at Backflow Preventer - Stone Cold		$ 3,063	$ 3,063	$ 3,063
GENERAL ITEMS		$ -		
Subcontract Agreement		X	X	X
Bid Form		X	X	X
Addendums		X	X	X
Per specs.		X	X	X
Taxes per project requirements		X	X	X
		$ -		
SCOPE ITEMS		$ -		
		$ -		
C1020 INTERIOR WINDOWS		$ -		
Cut New Openings in Exterior Skin - 8' Wide by 8'-6" Tall (Match Existing)		$ -		
Purchase Steel Lintel - FOB		Included	Included	Included
Install Steel Lintel		Included	Included	Included
		$ -		
## **TOTAL STRUCTURAL**		**$ 8,791**	**$ 12,838**	**$ 15,228**
COST DIFFERENCE			$ 4,047	$ 6,437
PERCENT DIFFERENCE			46%	73%
Annex Breakout		$ -	$ -	$ -
Bead Breakout		$ 8,791	$ 12,838	$ 15,228

Print Date 1/20/2023

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 06-CASEWORK

1/18/2023_REV 2

DESCRIPTION OF WORK	Recommended Award EXHIBIT SW (480) 763-3333 Michael McDannell	SUN VALLEY (602) 352-6636 Mark Jones	FALKBUILT (574) 850-8507 Krista Wishmeier
BASE BID	$ -		
Casework Bid	$ 17,075	$ 18,186	$ 10,700
GENERAL ITEMS	$ -		
Subcontract Agreement	X	X	X
Bid Form	X	X	X
Addendums	X	X	X
Per specs.	X	X	X
Taxes per project requirements	X	X	X
	$ -		
SCOPE ITEMS	$ -		
	$ -		
TI BEAD	$ -		
C2020 INTERIOR FABRICATIONS	$ -		
Interior Casework	$ -		
Med. Conference Room 114	$ -		
Lower Cabinet - PLAM 1	Included	Included	$ 2,700
Countertop - SS 1	Included	Included	$ 3,000
Upper Cabinet - PLAM 1	Included	Included	$ 2,700
Open Office 1	$ -		
Countertop on Half Wall - SS 1	Included	Included	$ 5,000
3' 6" Wood Paneling - WD 1	Included	Included	Included
2' 10" Wood Paneling - WD 1	Included	Included	Included
Casework Blocking	$ -		
Casework Blocking Labor	$ 1,984	$ 1,984	$ 1,984
Casework Blocking Material	$ 635	$ 635	$ 635
Other	$ -		
Casework Protection - Labor	$ 1,984	$ 1,984	$ 1,984
Casework Protection - Material	$ 453	$ 453	$ 453
	$ -		
## **TOTAL CASEWORK**	**$ 22,131**	**$ 23,242**	**$ 29,156**
COST DIFFERENCE		$ 1,111	$ 7,025
PERCENT DIFFERENCE		5%	32%
Annex Breakout	$ -	$ -	$ -
Bead Breakout	$ 22,131	$ 23,242	$ 29,156

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 07-CAULKING & INSULATION

1/18/2023_REV 2

		Recommended Award 1604 SPECIALTIES (480) 238-2414 Roy Bellotte	ALCAL (719) 377-1569 Ralph Wilson	RITE-WAY (623) 707-3961 Brian Post
DESCRIPTION OF WORK				
BASE BID		$ -		
Insulation Bid		$ 4,532	$ 4,800	$ 6,150
GENERAL ITEMS		$ -		
Subcontract Agreement		X	X	X
Bid Form		X	X	X
Addendums		X	X	X
Per specs.		X	X	X
Taxes per project requirements		X	X	X
		$ -		
SCOPE ITEMS		$ -		
		$ -		
TI BEAD		$ -		
C1010 INTERIOR PARTITIONS		$ -		
Misc. Wall Items		$ -		
	Repair/Replace Existing Joint Sealants as Needed	$ 3,249	$ 3,249	$ 3,249
Insulation		$ -		
	Interior Wall Insulation	Included	Included	Included
	Perimeter Wall Insulation Repair	Included	Included	Included
Caulking		$ -		
	Acoustical Caulking on Top and Bottom of Walls	Included in Drywall	Included in Drywall	Included in Drywall
		$ -		
##	**TOTAL CAULKING & INSULATION**	**$ 7,781**	**$ 8,049**	**$ 9,399**
	COST DIFFERENCE		$ 268	$ 1,618
	PERCENT DIFFERENCE		3%	21%
	Annex Breakout	$ -	$ -	$ -
	Bead Breakout	$ 7,781	$ 8,049	$ 9,399

Glendale City Hall - Bead & Annex TI's

City of Glendale

DIV 08-OPENINGS

1/18/2023_REV 2

OKLAND

DESCRIPTION OF WORK	Recommended Award KELLEY / MIRROR WORKS (602) 254-5967 Dawn Graves	KELLEY / GIROUX GLASS (480) 694-2019 Zach Braden	KELLEY / MCKINNEY (602) 254-5967 Dawn Graves	KELLEY / WALTERS & WOLF (999) 999-9999 Cory Macdonald
BASE BID	$ -			
Door Bid - Kelley	$ 8,101	$ 8,101	$ 8,101	$ 8,101
Exterior Glazing Bid - Mirror Works	$ 5,840	$ 24,380	$ 21,575	$ 17,379
Auto Operator Bid - Mirror Works	$ 3,715	Included	$ 3,715	$ 9,458
GENERAL ITEMS	$ -			
Subcontract Agreement	X	X	X	X
Bid Form	X	X	X	X
Addendums	X	X	X	X
Per specs.	X	X	X	X
Taxes per project requirements	X	X	X	X
	$ -			
SCOPE ITEMS	$ -			
	$ -			
TI BEAD	$ -			
C1020 INTERIOR WINDOWS	$ -			
Exterior Glass	$ -			
Clean Existing Storefront/Inspect & Repair Sealants	$ 4,350	$ 4,350	$ 4,350	$ 4,350
Cut New Openings in Exterior Skin - 8' Wide by 8'-6" Tall (Match Existing)	$ -			
New Glazing	Included	Included	Included	Included
Interior Aestetic Sealant	$ 192	$ 192	$ 192	$ 192
Material Escalation	$ 10,000	Included	Included	Included
C1030 INTERIOR DOORS	$ -			
Standard Wood Doors	$ -			
Standard Door & Hardware (Knock Down & Off-Shelf Doors)	Included	Included	Included	Included
Existing Doors - Salvaged and Re-Installed	$ 3,750	$ 3,750	$ 3,750	$ 3,750
Auto Operators	$ -			
Descriptive Note 21 - ADA Actuator Added to Existing Opening	Included	Included	Included	Included
Low Voltage Cables at Operators	Included	Included	Included	Included
Pedestal with ADA Push Button for Door Operator	Included	Included	Included	Included
	$ -			
## **TOTAL OPENINGS**	**$ 35,948**	**$ 40,773**	**$ 41,683**	**$ 43,230**
COST DIFFERENCE		$ 4,825	$ 5,735	$ 7,282
PERCENT DIFFERENCE		13%	16%	20%
Annex Breakout	$ -	$ -	$ -	$ -
Bead Breakout	$ 35,948	$ 40,773	$ 41,683	$ 43,230

Print Date 1/20/2023

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 09-DRYWALL

1/18/2023_REV 2

DESCRIPTION OF WORK	Recommended Award CDS / DIV NINE (602) 258-0073 Brad Fenner	ADOBE / DIV NINE (602) 243-9097 Jake Lewis	PETE KING / DIV NINE (602) 944-4441 Todd Fife
BASE BID	$ -		
Drywall Bid - CDS	$ 90,281	$ 96,251	$ 98,741
EIFS Bid - Division Nine	$ 7,090	$ 7,090	$ 7,090
GENERAL ITEMS	$ -		
Subcontract Agreement	X	X	X
Bid Form	X	X	X
Addendums	X	X	X
Per specs.	X	X	X
Taxes per project requirements	X	X	X
	$ -		
SCOPE ITEMS	$ -		
	$ -		
TI ANNEX	$ -		
C1010 INTERIOR PARTITIONS	$ -		
Misc. Wall Scope	$ -		
Gyp Repair and Patching	$ 14,274	$ 14,274	$ 14,274
Backing Labor	$ 1,984	$ 1,984	$ 1,984
Backing Material	$ 1,142	$ 1,142	$ 1,142
TI BEAD	$ -		
B2010 EXTERIOR WALLS	$ -		
Exterior - EIFS Needs Some Work - Brick in Good Condition	$ -		
Walls - Not Shown on Drawings	$ -		
Repair EIFS at Building	Included in Div Nine	Included in Div Nine	Included in Div Nine
Soffit - Not Shown on Drawings	$ -		
Minor Repair At Soffit	Included in Div Nine	Included in Div Nine	Included in Div Nine
C1010 INTERIOR PARTITIONS	$ -		
Standard Partitions	$ -		
STC 00 Wall - Existing (Repair)	$ 3,240	$ 3,240	$ 3,240
STC 00 Wall - Perimeter Gyp Replacement	Included	Included	Included
Wall Type A - STC 35 Wall - 3 5/8" Stud	Included	Included	Included
Wall Type B - STC 35 Wall - 3 5/8" Stud - One-sided Only	Included	Included	Included
STC 45 Wall - 3 5/8" Stud - Above Glass	Included	Included	Included
Misc. Wall Items	$ -		
Moisture Resistant Gypsum	Included	Included	Included
Tile Backing Premium	Included	Included	Included
Acoustical Caulking	Included	Included	Included
Gyp Repair and Patching	$ 2,599	$ 2,599	$ 2,599
C1030 INTERIOR DOORS	$ -		
Other Items	$ -		
Set Door Frames	Included	Included	Included
Sort Frames	$ 1,575	$ 1,575	$ 1,575
Other Items - Not Shown on Drawings	$ -		
Install Access Doors	$ 500	$ 500	$ 500
Access Door Material	$ 1,000	$ 1,000	$ 1,000
C1070 SUSPENDED CEILING CONSTRUCTION	$ -		
Ceilings	$ -		
Bathroom Unisex - Gypsum (Existing)	Existing	Existing	Existing
Gypsum Ceilings	Included	Included	Included

Glendale City Hall - Bead & Annex TI's

City of Glendale

DIV 09-DRYWALL

1/18/2023_REV 2

	DESCRIPTION OF WORK	Recommended Award CDS / DIV NINE (602) 258-0073 Brad Fenner	ADOBE / DIV NINE (602) 243-9097 Jake Lewis	PETE KING / DIV NINE (602) 944-4441 Todd Fife
	Ceiling - Other	$ -		
	Gypsum Returns	Included	Included	Included
	4" Bulkhead	Included	Included	Included
		$ -		
##	**TOTAL DRYWALL**	**$ 123,684**	**$ 129,654**	**$ 132,144**
	COST DIFFERENCE		$ 5,970	$ 8,460
	PERCENT DIFFERENCE		5%	7%
	Annex Breakout	$ 17,400	$ 17,400	$ 17,400
	Bead Breakout	$ 106,285	$ 112,255	$ 114,745

Glendale City Hall - Bead & Annex TI's

City of Glendale

DIV 09-CEILINGS

1/18/2023_REV 2

OKLAND

DESCRIPTION OF WORK	Recommended Award WESTERN ACOUSTICS (480) 303-0056 Jason D. Lalonde	TP ACOUSTICS (602) 513-0783 Wayne Turcotte	BARRETT HOMES (602) 680-3774 Steve Kraimer	E&K (602) 269-8566 Dan Pignatari
BASE BID	$ -			
Ceiling Bid	$ 32,130	$ 38,148	DECLINED TO BID	DECLINED TO BID
GENERAL ITEMS	$ -			
Subcontract Agreement	X	X		
Bid Form	X	X		
Addendums	X	X		
Per specs.	X	X		
Taxes per project requirements	X	X		
	$ -			
SCOPE ITEMS	$ -			
Deduct to use ACT 2 ILO ACT 1	$ (3,820)	N/A		
	$ -			
TI ANNEX	$ -			
C1070 SUSPENDED CEILING CONSTRUCTION	$ -			
Ceilings	$ -			
ACT - Std.	Existing	Existing		
ACT - Wet Location	Existing	Existing		
ACT - Remove and Replace as Needed	$ 5,820	$ 5,820		
TI BEAD	$ -			
C1070 SUSPENDED CEILING CONSTRUCTION	$ -			
Ceilings	$ -			
ACT 1 - 2 x 6 Acoustical Ceiling Tiles	Included	Included		
ACT 2 - 2 x 4 Acoustical Ceiling Tiles	Included	Included		
Ceiling - Other	$ -			
Axom Trim - Grid Cloud Edge Finish	Included	Included		
Attic Stock	$ 2,000	$ 2,000		
	$ -			
## **TOTAL CEILINGS**	**$ 36,130**	**$ 45,968**	**DECLINED TO BID**	**DECLINED TO BID**
COST DIFFERENCE		$ 9,838		
PERCENT DIFFERENCE		27%		
Annex Breakout	$ 5,820	$ 5,820	$ -	$ -
Bead Breakout	$ 30,310	$ 40,148	$ -	$ -

Print Date 1/20/2023

Glendale City Hall - Bead & Annex TI's

City of Glendale

DIV 09-FLOORING & TILE

1/18/2023_REV 2

DESCRIPTION OF WORK	Recommended Award INTERIOR WORX (602) 256-2862 Doug Auer	CONTEMPORARY (602) 529-3340 Erik	CONTINENTAL (480) 281-1282 Chris Lowenberg	WHOLESALE (602) 248-7878 Brett Dominguez
BASE BID	$ -			
Flooring Bid	$ 30,056	$ 29,630	$ 30,624	$ 32,144
Scrape Existing Adhesive at New Carpet Areas	$ 3,010	$ 3,010	$ 3,010	$ 3,010
GENERAL ITEMS	$ -			
Subcontract Agreement	X	X	X	X
Bid Form	X	X	X	X
Addendums	X	X	X	X
Per specs.	X	X	X	X
Taxes per project requirements	X	X	X	X
	$ -			
SCOPE ITEMS	$ -			
	$ -			
TI ANNEX	$ -			
C2030 FLOORING	$ -			
Flooring	$ -			
Tile	Existing	Existing	Existing	Existing
VCT	Existing	Existing	Existing	Existing
Carpet	Existing	Existing	Existing	Existing
Sealed Concrete	Existing	Existing	Existing	Existing
Carpet Repair	$ 2,668	$ 2,668	$ 2,668	$ 2,668
Banquet Floor Replacement w/Demo	$ 15,600	$ 15,600	$ 15,600	$ 15,600
Base	$ -			
Schluter Base	Existing	Existing	Existing	Existing
Rubber Base	$ 2,291	$ 2,291	$ 2,291	$ 2,291
Floor Preparation	$ -			
Carpet Preparation	$ 728	$ 728	$ 728	$ 728
Clean Carpet in Existing	$ 2,251	$ 2,251	$ 2,251	$ 2,251
Clean Other Floorings	$ 2,302	$ 2,302	$ 2,302	$ 2,302
Floor Protection	$ -			
Floor Protection - Material	$ 3,081	$ 3,081	$ 3,081	$ 3,081
Floor Protection - Labor	$ 3,968	$ 3,968	$ 3,968	$ 3,968
TI BEAD	$ -			
C2010 WALL FINISHES	$ -			
Wall Finish	$ -			
TILE2 - 9' Tall - Bathroom Wet Walls	Included	Included	Included	Included
TILE2 - 5' 4" Tall - Bathroom Remaining Walls	Included	Included	Included	Included
TILE2 - Wall Tile at Vestibule	Included	Included	$ 891	$ 891
Wall Preparation	$ -			
Patch/Repair Existing Walls for Tile	$ 1,802	$ 1,802	$ 1,802	$ 1,802
C2020 INTERIOR FABRICATIONS	$ -			
Interior Casework	$ -			
Med. Conference Room 114	$ -			
Tile Backsplash - TILE 2	Included	$ 900	$ 900	$ 900
C2030 FLOORING	$ -			
Flooring	$ -			
Bathroom Unisex - Gypsum (Existing)	Included	Included	Included	Included
Sealed Concrete (Existing)	Included	Included	Included	Included
TILE1 - 12" x 24" Daltile - Electric Moss Rectangle	Included	Included	Included	Included
CPT1 - 24" x 24" Mohawk Datum	Included	Included	Included	Included
Base	$ -			
Rubber Base	Included	Included	Included	Included
Floor Preparation	$ -			

Glendale City Hall - Bead & Annex TI's

City of Glendale

DIV 09-FLOORING & TILE

1/18/2023_REV 2

		Recommended Award INTERIOR WORX (602) 256-2862 Doug Auer	CONTEMPORARY (602) 529-3340 Erik	CONTINENTAL (480) 281-1282 Chris Lowenberg	WHOLESALE (602) 248-7878 Brett Dominguez
	DESCRIPTION OF WORK				
	Carpet Preparation	$ 8,351	$ 8,351	$ 8,351	$ 8,351
	Tile Preparation	$ 518	$ 518	$ 518	$ 518
	Patch Floor Anchors @ Wall Demo	$ 1,486	$ 1,486	$ 1,486	$ 1,486
	Floor Protection	$ -			
	Floor Protection - Material	$ 1,299	$ 1,299	$ 1,299	$ 1,299
	Floor Protection / QA & QC - Labor	$ 3,968	$ 3,968	$ 3,968	$ 3,968
		$ -			
##	**TOTAL FLOORING & TILE**	**$ 83,377**	**$ 83,851**	**$ 85,736**	**$ 87,256**
	COST DIFFERENCE		$ 474	$ 2,359	$ 3,879
	PERCENT DIFFERENCE		1%	3%	5%
	Annex Breakout	$ 32,887	$ 32,887	$ 32,887	$ 32,887
	Bead Breakout	$ 50,490	$ 50,964	$ 52,849	$ 54,369

Glendale City Hall - Bead & Annex TI's
City of Glendale
DIV 09-PAINTING
1/18/2023_REV 2

OKLAND

	Recommended Award					
	AZ PRO (480) 647-2003 Barbara Zalewski	COUNTRY BOYS (602) 944-4940 Melanie	PETE KING (602) 944-4441 Todd Fife	GANADO (602) 454-1295 Danny Thomas	CDS (602) 258-0073 Brad Fenner	PHP (623) 900-4747 Bill McCullough
DESCRIPTION OF WORK						
BASE BID	$ -					
Paint Bid	$ 24,000	$ 20,865	$ 20,953	$ 21,400	$ 14,981	$ 24,720
GENERAL ITEMS	$ -					
Subcontract Agreement	X	X	X	X	X	X
Bid Form	X	X	X	X	X	X
Addendums	X	X	X	X	X	X
Per specs.	X	X	X	X	X	X
Taxes per project requirements	X	X	X	X	X	X
	$ -					
SCOPE ITEMS	$ -					
	$ -					
TI ANNEX	$ -					
C1070 SUSPENDED CEILING CONSTRUCTION	$ -					
Ceilings	$ -					
Ceiling Finishes	$ -					
Misc Painting of Patch Work as Needed	$ 8,503	$ 8,503	$ 8,503	$ 8,503	$ 8,503	$ 8,503
TI BEAD	$ -					
B2010 EXTERIOR WALLS	$ -					
Exterior - EIFS Needs Some Work - Brick in Good Condition	$ -					
Walls - Not Shown on Drawings	$ -					
Paint EIFS	Included	$ 5,250	$ 5,250	$ 5,250	$ 5,250	$ 5,250
Paint Metal Elements	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Paint Exterior HM Doors	$ 1,100	$ 1,100	$ 1,100	$ 1,100	$ 1,100	$ 1,100
Paint Trellis	Included	Included	Included	$ 5,000	Included	Included
Soffit - Not Shown on Drawings	$ -					
Paint Soffit	$ 1,523	Included	$ 1,523	$ 1,523	$ 1,523	$ 1,523
C1030 INTERIOR DOORS	$ -					
Other Items	$ -					
Paint Door Frames	Included	Included	Included	Included	Included	Included
Door Frame Jamb Protection	$ 1,100	$ 1,100	$ 1,100	$ 1,100	$ 1,100	$ 1,100
Other Items - Not Shown on Drawings	$ -					
Paint Access Doors	$ 300	$ 300	$ 300	$ 300	$ 300	$ 300
C1070 SUSPENDED CEILING CONSTRUCTION	$ -					
Ceilings	$ -					
Exposed Ceilings - BOH	Existing	Existing	Existing	Existing	Existing	Existing
Exposed Ceilings - FOH - Paint	Included	Included	Included	Included	$ 12,655	$ 12,655
Ceiling Finishes	$ -					
Paint Gypsum Ceilings	Included	Included	Included	Included	Included	Included
C2010 WALL FINISHES	$ -					
Wall Finish	$ -					
Paint Gypsum Wall - UNO	Included	Included	Included	Included	Included	Included
Touch Up Paint	$ 2,889	$ 2,889	$ 2,889	$ 2,889	$ 2,889	$ 2,889
	$ -					
## **TOTAL PAINTING**	**$ 46,915**	**$ 47,507**	**$ 49,118**	**$ 54,565**	**$ 55,801**	**$ 65,540**
COST DIFFERENCE		$ 593	$ 2,203	$ 7,650	$ 8,886	$ 18,625
PERCENT DIFFERENCE		1%	5%	16%	19%	40%
Annex Breakout	$ 8,503	$ 8,503	$ 8,503	$ 8,503	$ 8,503	$ 8,503
Bead Breakout	$ 38,412	$ 39,004	$ 40,615	$ 46,062	$ 47,298	$ 57,037

Print Date 1/20/2023

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 10-ACCESSORIES

1/18/2023_REV 2

DESCRIPTION OF WORK	Recommended Award NTERSTATE / TRADEMARI (480) 813-3530 Bill Obarski	INTERCO (520) 591-3150 Mike Holler	Beach Products (602) 272-6754 Paul Berry
BASE BID	$ -		
Accessories Bid - Interstate	$ 7,847	DECLINED TO BID	DECLINED TO BID
Signage Bid - Trademark	$ 12,430	DECLINED TO BID	DECLINED TO BID
GENERAL ITEMS	$ -		
Subcontract Agreement	X		
Bid Form	X		
Addendums	X		
Per specs.	X		
Taxes per project requirements	X		
	$ -		
SCOPE ITEMS	$ -		
	$ -		
TI BEAD	$ -		
C1090 INTERIOR SPECIALTIES	$ -		
Signage	$ -		
Bathroom Signage	Included		
Janitor Closet Signage	Included		
Electrical & IDF Signage	Included		
In Case of Fire Signage	Included		
Installation of Signage	Included		
Mobilization | Design	Included		
General Room Signage	By Owner		
Directory	By Owner		
Minor Exterior Signage	By Owner		
Accessories	$ -		
ADA Restrooms	$ -		
Stainless Steel Hand Dryer (OFCI)	Included		
Stainless Steel Soap Dispenser (OFCI)	Included		
Mirror 24x36	Included		
Grab Bars at ADA Stall	Included		
Toilet Paper Dispenser (OFCI)	Included		
Sanitary Napkin Disposal	Included		
Wall Mounted Adult Changing Station	Included		
Support / Blocking for Adult Changing Station	$ 750		
Misc Accessories	$ -		
Other OFCI Items Installed	$ 1,984		
Accessories Backing | Blocking	$ -		
Backing - Labor	$ 391		
Backing - Material	$ 975		
FECs	$ -		
FEC's with 5 LB Extinguishers	$ 525		
Emergency Defibrillator	$ 1,000		
C2010 WALL FINISHES	$ -		
Wall Protection	$ -		
FRP at Janitor Closet - Not Shown - Assumed	$ 768		
	$ -		
## **TOTAL ACCESSORIES**	**$ 26,669**	**DECLINED TO BID**	**DECLINED TO BID**
COST DIFFERENCE			

Print Date 1/20/2023

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 10-ACCESSORIES

1/18/2023_REV 2

	Recommended Award		
	NTERSTATE / TRADEMARI (480) 813-3530 Bill Obarski	INTERCO (520) 591-3150 Mike Holler	Beach Products (602) 272-6754 Paul Berry
DESCRIPTION OF WORK			
PERCENT DIFFERENCE			
Annex Breakout	$ -	$ -	$ -
Bead Breakout	$ 26,669	$ -	$ -

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 11-SYSTEM FURNITURE

1/18/2023_REV 2

DESCRIPTION OF WORK	Recommended Award FALKBUILT (574) 850-8507 Krista Wishmeier	Recommended Award FALKBUILT (574) 850-8507 Krista Wishmeier	MIRROR WORKS (623) 435-9205 Marti Mahoney	GIROUX GLASS (480) 694-2019 Zach Braden
BASE BID	$ -			
System Furniture Bid	$ 62,000	$ 62,000	$ 52,160	$ 68,390
GENERAL ITEMS	$ -			
Subcontract Agreement	X	X	X	X
Bid Form	X	X	X	X
Addendums	X	X	X	X
Per specs.	X	X	X	X
Taxes per project requirements	X	X	X	X
	$ -			
SCOPE ITEMS	$ -			
Deduct to go to Mirror Works Proposed System Furniture	Deduct $9,840	Deduct $9,840	N/A	N/A
	$ -			
TI ANNEX	$ -			
C1020 INTERIOR WINDOWS	$ -			
Exterior Glass Doors	$ -			
Demo Existing Double Doors 18A and 17A	Alternate	Alternate	Alternate	Alternate
8' Tall Storefront Glass Double Doors	Alternate	Alternate	Alternate	Alternate
Allowance for Secure Counting at Annex - Furniture / Built in Walls / Electrical	$ 56,050	$ 56,050	$ 56,050	$ 56,050
Added Walls	$ -			
10' Tall Walls at Lobby	In Alw Above	In Alw Above	In Alw Above	In Alw Above
8' Tall Wall in Vault	In Alw Above	In Alw Above	In Alw Above	In Alw Above
Interior Security Doors	$ -			
Security Door into Common Space	In Alw Above	In Alw Above	In Alw Above	In Alw Above
Security Door into Vault Space	In Alw Above	In Alw Above	In Alw Above	In Alw Above
Interior Security Casework	$ -			
Modular Desk Casework w/ Clear Dividers for 5 Work Stations	In Alw Above	In Alw Above	In Alw Above	In Alw Above
Misc Electrical Pathway and Outlets	In Alw Above	In Alw Above	In Alw Above	In Alw Above
TI BEAD	$ -			
C1020 INTERIOR WINDOWS	$ -			
Glazing Wall	$ -			
8' Tall Glass Walls - No STC Rating	Included	Included	Included	Included
Sliding Glass Doors - One Locking and One Non-Locking	Included	Included	Included	Included
C1030 INTERIOR DOORS	$ -			
Glass Doors in Framed Walls	$ -			
3' x 8'10" Glass Door in AL Frame	Included	Included	Included	Included
	$ -		Not Specified	Not Specified
## **TOTAL SYSTEM FURNITURE**	**$ 118,050**	**$ 118,050**	**$ 108,210**	**$ 124,440**
COST DIFFERENCE		$ -	$ (9,840)	$ 6,390
PERCENT DIFFERENCE		0%	-8%	5%

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 12-WINDOW TREATMENT

1/18/2023_REV 2

DESCRIPTION OF WORK		Recommended Award BLINDS & BEYOND (480) 515-4606 Susan Blake	BASICALLY BLINDS (520) 809-2604 Jeremy Futa	PCI (480) 626-6850 Andy Moncher
BASE BID		$ -		
Window Covering Bid		$ 8,400	$ 18,000	DECLINED TO BID
GENERAL ITEMS		$ -		
Subcontract Agreement		X	X	
Bid Form		X	X	
Addendums		X	X	
Per specs.		X	X	
Taxes per project requirements		X	X	
		$ -		
SCOPE ITEMS		$ -		
		$ -		
TI BEAD		$ -		
C1090 INTERIOR SPECIALTIES		$ -		
Accessories Backing | Blocking		$ -		
Blinds		$ -		
Keynote 4 on A2.0 - Surface Mounted Window Shade		Included	Included	
Fascia in Standard Color		Included	Included	
		$ -		
##	**TOTAL WINDOW TREATMENT**	**$ 8,400**	**$ 18,000**	**DECLINED TO BID**
	COST DIFFERENCE		$ 9,600	
	PERCENT DIFFERENCE		114%	
	Annex Breakout	$ -	$ -	$ -
	Bead Breakout	$ 8,400	$ 18,000	$ -

Glendale City Hall - Bead & Annex TI's
City of Glendale
DIV 21-FIRE SUPPRESSION
1/18/2023_REV 2

OKLAND

DESCRIPTION OF WORK		Recommended Award COMPLETE FIRE (480) 987-8200 Steve Casterton	ARIZONA VERDE (623) 764-6855 Wade Green	OLYMPIC WEST (480) 266-1806 Beau Vargas	FOOTHILLS (602) 725-8515 Bob Mulch
BASE BID		$ -		$ -	
Sprinkler Bid		$ 30,620	$ 40,500	DECLINED TO BID	DECLINED TO BID
BIM Design Add		$ 4,800	$ 4,800	DECLINED TO BID	DECLINED TO BID
Underground Bid		$ 67,675	$ 88,400	DECLINED TO BID	DECLINED TO BID
GENERAL ITEMS		$ -			
Subcontract Agreement		X	X		
Bid Form		X	X		
Addendums		X	X		
Per specs.		X	X		
Taxes per project requirements		X	X		
		$ -			
SCOPE ITEMS		$ -			
		$ -			
TI BEAD		$ -			
D4010 FIRE SUPPRESSION		$ -			
Wet Fire Suppression		$ -			
Fire Riser		Included	Included		
NFPA Light Duty Wet Fire Suppression for Office Building		Included	Included		
Hangers / Lifts		Included	Included		
Shop Drawings | 3D		Included	Included		
G3010 WATER UTILITIES		$ -			
Water To Building from 58th Ave.		$ -			
New Service		$ -			
10" x 6" Tapping Sleeve | Valve w/Box & Cover		Included	Included		
Gate Valve w/ Box & Cover		Included	Included		
4" DIP Fire Water Line w/ Fittings		Included	Included		
6" Double Check Backflow Preventer COG		Included	Included		
Mobilization		Included	Included		
Replace		$ -			
Replace Asphalt		Included	Included		
Replace Curb		Included	Included		
Replace Salvaged Pavers		$ 1,110	$ 1,110		
Replace Concrete Sidewalk		$ 3,090	$ 3,090		
Slurry Seal Pavement		$ 7,450	$ 7,450		
		$ -			
##	**TOTAL FIRE SUPPRESSION**	**$ 114,745**	**$ 145,350**	**DECLINED TO BID**	**DECLINED TO BID**
	COST DIFFERENCE		$ 30,605		
	PERCENT DIFFERENCE		27%		
	Annex Breakout	$ -	$ -	$ -	$ -
	Bead Breakout	$ 114,745	$ 145,350	$ -	$ -

Glendale City Hall - Bead & Annex TI's
City of Glendale
DIV 22-MECH & PLUMBING
1/18/2023_REV 2

OKLAND

DESCRIPTION OF WORK		Recommended Award COMFORT / RYAN (602) 620-8633 Todd Stanfield	COMFORT / IRONTREE (602) 620-8633 Todd Stanfield	ALPINE / RYAN (623) 298-0611 Gary Hilton	ALPINE / IRONTREE (623) 298-0611 Gary Hilton	RKS / RYAN (602) 329-6634 Ron Leinen
BASE BID		$ -				$ 226,100
Mechanical Base Bid - Comfort Systems		$ 150,646	$ 150,646	$ 177,169	$ 177,169	
DDC Controls Bid - Comfort Systems		$ 22,601	$ 22,601	$ 22,601	$ 22,601	$ 22,601
Wi-Fi Thermostats Bid - Comfort Systems		$ 1,402	$ 1,402	$ 1,402	$ 1,402	$ 1,402
Plumbing Base Bid - Ryan		$ 26,900	$ 48,460	$ 26,900	$ 48,460	$ 26,900
Sawcut/Removal/Pourback of Plumbing Trenches - Ryan		$ 4,450	Included	$ 4,450	Included	$ 4,450
GENERAL ITEMS		$ -				
Subcontract Agreement		X	X	X	X	X
Bid Form		X	X	X	X	X
Addendums		X	X	X	X	X
Per specs.		X	X	X	X	X
Taxes per project requirements		X	X	X	X	X
		$ -				
SCOPE ITEMS		$ -				
	Alternate Deduct to Use T-Stat Controls Package	$ (22,601)	N/A	N/A	N/A	N/A
		$ -				
TI ANNEX		$ -				
B3010 ROOFING		$ -				
Existing Roof		$ -				
	Existing Roof to Remain	Existing	Existing	Existing	Existing	Existing
	Minor Patch of Roof for New Construction	$ 3,732	$ 3,732	$ 3,732	$ 3,732	$ 3,732
D3050 FACILITY HVAC DISTRIBUTION SYSTEMS		$ -				
Make-Safe		$ -				
	HVAC for Make-Safe for Demolition	None Assumed	None Assumed	None Assumed	None Assumed	None Assumed
HVAC		$ -				
	Ductwork - Plenum Return	Existing	Existing	Existing	Existing	Existing
	Ductwork Insulation	Existing	Existing	Existing	Existing	Existing
	Diffusers | Dampers - Std. Rectangular	Existing	Existing	Existing	Existing	Existing
	Break-Out Split to Two Work Rooms	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
TI BEAD		$ -				
B3010 ROOFING		$ -				
Existing Roof		$ -				
	Existing Roof to Remain - Good condition per walk	Existing	Existing	Existing	Existing	Existing
	Patching of Roof for New Construction	$ 15,447	$ 15,447	$ 15,447	$ 15,447	$ 15,447
D2010 DOMESTIC WATER DISTRIBUTION		$ -				
Make-Safe		$ -				
	Make Safe Plumbing for Demolition	Included	Included	Included	Included	Excluded
Med. Conference Room		$ -				
	Sink w/Faucet	Included	Included	Included	Included	Excluded
	Hook-Up Owner Furnished Items (Dish Washer | Fridge)	Included	Included	Included	Included	Excluded
	Water Filtration	Included	Included	Included	Included	Excluded
	General Plumbing	Included	Included	Included	Included	Excluded
ADA Restrooms		$ -				
	Free Standing Sink w/Faucet	Included	Included	Included	Included	Excluded
	Floor Drains	Included	Included	Included	Included	Excluded
	Water Closet (HC)	Included	Included	Included	Included	Excluded
	General Plumbing	Included	Included	Included	Included	Excluded
Janitor Closet		$ -				
	Floor Sink	Included	Included	Included	Included	Excluded
	General Plumbing	Included	Included	Included	Included	Excluded
Lobby		$ -				
	Bottle Filling Station	Included	Included	Included	Included	Excluded
	General Plumbing	Included	Included	Included	Included	Excluded
D3050 FACILITY HVAC DISTRIBUTION SYSTEMS		$ -				
Make-Safe & Demolition		$ -				
	HVAC for Make-Safe for Demolition	Included	Included	Included	Included	Included
HVAC		$ -				
	Ductwork - Plenum Return	Included	Included	Included	Included	Included

Glendale City Hall - Bead & Annex TI's
City of Glendale

DIV 22-MECH & PLUMBING

1/18/2023_REV 2

		Recommended Award				
		COMFORT / RYAN (602) 620-8633 Todd Stanfield	COMFORT / IRONTREE (602) 620-8633 Todd Stanfield	ALPINE / RYAN (623) 298-0611 Gary Hilton	ALPINE / IRONTREE (623) 298-0611 Gary Hilton	RKS / RYAN (602) 329-6634 Ron Leinen
	DESCRIPTION OF WORK					
	Ductwork Insulation	Included	Included	Included	Included	Included
	Diffusers | Dampers - Std. Rectangular	Included	Included	Included	Included	Included
Equipment		$ -				
	Packaged HP-3 (6 7.5 Tons)	Included	Included	Included	Included	Included
	Packaged HP-4 (6 7.5 Tons)	Included	Included	Included	Included	Included
	Packaged HP-5 (5 Tons)	Included	Included	Included	Included	Included
	Packaged HP-6 (6 7.5 Tons)	Included	Included	Included	Included	Included
	Power Relief per ESD	Included	Included	Included	Included	Included
	Condensate Drains for Above	Included	Included	Included	Included	Included
	Crane to Hoist Units	Included	Included	Included	Included	Included
	Management Labor | Labor to Install	$ 4,800	$ 4,800	$ 4,800	$ 4,800	$ 4,800
	Remove Misc Units	$ 4,800	$ 4,800	$ 4,800	$ 4,800	$ 4,800
	Dispose of Units	Included	Included	Included	Included	Included
	Unit Cost Transfer	Included	Included	Included	Included	Included
	Remove/Replace Screen Wall @ RTU Replacement	$ 7,400	$ 7,400	$ 7,400	$ 7,400	$ 7,400
	HVAC Equipment Escallation	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
TI Room		$ -				
	Mini Split - No Larger than 3 Tons	Included	Included	Included	Included	Included
Controls		$ -				
	Distech Controls	Included	Included	Included	Included	Included
Roof Vents		$ -				
	Roof Vent for Bathrooms	Included	Included	Included	Included	Included
	Curb - Wood Framing	Included	Included	Included	Included	Included
		$ -				
##	**TOTAL MECH & PLUMBING**	**$ 226,577**	**$ 266,288**	**$ 275,701**	**$ 292,811**	**$ 324,632**
	COST DIFFERENCE		$ 39,711	$ 49,124	$ 66,234	$ 98,055
	PERCENT DIFFERENCE		18%	22%	29%	43%
	Annex Breakout	$ 8,732	$ 8,732	$ 8,732	$ 8,732	$ 8,732
	Bead Breakout	$ 217,845	$ 257,556	$ 266,969	$ 284,079	$ 315,900

Glendale City Hall - Bead & Annex TI's
City of Glendale
DIV 26-ELECTRICAL
1/18/2023_REV 2

OKLAND

DESCRIPTION OF WORK	Recommended Award SECON (480) 363-0359 Scott Downey	ECHO CANYON (602) 331-3045 Ryan Ogg	PACIFIC POWER (480) 428-4956 Ryan Hernandez	CHAMBERLIN POWER (480) 563-2220 Kelly	COMMONWEALTH (602) 437-0354 Bob Philipps	ROSENDIN (480) 670-5354 Luke Stearns
BASE BID	$ -					
Bead Base Bid	$ 221,500	$ 174,444	$ 190,161	$ 209,850	$ 282,740	$ 318,195
Annex Base Bid	$ 32,850	$ 32,850	$ 32,850	$ 32,850	$ 32,850	$ 32,850
Budget for Added LV Pathway per Job Walk	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Fire Alarm	Inc $30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
GENERAL ITEMS	$ -					
Subcontract Agreement	X	X	X	X	X	X
Bid Form	X	X	X	X	X	X
Addendums	X	X	X	X	X	X
Per specs.	X	X	X	X	X	X
Taxes per project requirements	X	X	X	X	X	X
	$ -					
SCOPE ITEMS	$ -					
Alternate Deduct to VE Fixture Type L01	$ (6,000)	N/A	N/A	N/A	N/A	N/A
	$ -					
TI ANNEX	$ -					
D5020 ELECTRICAL SERVICE & DISTRIBUTION	$ -					
Make-Safe	$ -					
Electrical Make-Safe for Demolition	None Assumed	None Assumed	None Assumed	None Assumed	None Assumed	None Assumed
Electrical	$ -					
Distribution | Service | Transformers | Panel Boards	Existing	Existing	Existing	Existing	Existing	Existing
Power | Outlets	Existing	Existing	Existing	Existing	Existing	Existing
Lights	Existing	Existing	Existing	Existing	Existing	Existing
Re-Hook-Up HVAC	Existing	Existing	Existing	Existing	Existing	Existing
Low Voltage Pathways	Existing	Existing	Existing	Existing	Existing	Existing
Fire Alarm - Summit	Existing	Existing	Existing	Existing	Existing	Existing
Fire Caulking	Existing	Existing	Existing	Existing	Existing	Existing
Modified Scope	$ -					
Power for Break-Out Room	Included	See Secon	See Secon	See Secon	See Secon	See Secon
System Furniture Drops for Open Office (12)	Included	See Secon	See Secon	See Secon	See Secon	See Secon
System Drops for Open Office (25)	Included	See Secon	See Secon	See Secon	See Secon	See Secon
Power for One Stop | Security	Included	See Secon	See Secon	See Secon	See Secon	See Secon
Overhead or Below Budget Banquet Distribution - TBD w/Demo & Rep.	Included	See Secon	See Secon	See Secon	See Secon	See Secon
TI BEAD	$ -					
D5020 ELECTRICAL SERVICE & DISTRIBUTION	$ -					
Make-Safe	$ -					
Electrical Make-Safe for Demolition	Included	Included	Included	Included	Included	Included
Electrical	$ -					
Distribution | Service | Transformers | Panel Boards	$ -					
Power | Outlets	Included	Included	Included	Included	Included	Included
Lights	Included	Included	Included	Included	Included	Included
Re-Hook-Up HVAC	Included	Included	Included	Included	Included	Included
Low Voltage Pathways	Included	Included	Included	Included	Included	Included
Fire Alarm - Summit	Included	By Climatec	By Climatec	By Climatec	By Climatec	By Climatec
Fire Caulking	$ 1,949	$ 1,949	Included	$ 1,949	$ 1,949	$ 1,949
D6010 DATA COMMUNICATIONS	$ -					
Low Voltage Cabling - Data Drops	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner
Head End Equipment | Rack | Cable Tray	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner
D7010 ACCESS CONTROL AND INTRUSION DETECTION	$ -					
Card Readers / Cameras	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner
	$ -					
## **TOTAL ELECTRICAL**	**$ 260,299**	**$ 249,243**	**$ 263,011**	**$ 284,649**	**$ 357,539**	**$ 392,994**
COST DIFFERENCE		$ (11,056)	$ 2,712	$ 24,350	$ 97,240	$ 132,695
PERCENT DIFFERENCE		-4%	1%	9%	37%	51%
Annex Breakout	$ 32,850			$ 32,850	$ 32,850	$ 32,850
Bead Breakout	$ 227,449			$ 251,799	$ 324,689	$ 360,144

Glendale City Hall - Bead & Annex TI's
City of Glendale
General Conditions

Project Start	15-Feb-23	Project Duration Sub. Complete	Days	111
Substantial Completion	9-Aug-23	Project Duration Final Complete	Days	125
Final Completion	17-Aug-23	Project Duration	Week	17.9
Building sf	17,916	Project Duration	Mon	4.1

DESCRIPTION	COMMENTS	QUANTITY		DURATION		LABOR		MATERIAL		EQUIPMENT		TOTAL	CODE
		Qty	U/M	Qty	U/M	Rate	Labor	Cost	Matl	Cost	Equip		
JOBSITE MANAGEMENT													
Project Management													
Project Director	Jesse Lee	1.00	EA	1.9	MWK	7,392	14,413	-	-		-	14,413	01-0010
Project Manager	David Sanchez	1.00	EA	19.5	MWK	5,412	105,526	-	-		-	105,526	01-0100
Project Engineer		1.00	EA	6.1	MWK	3,388	20,552	-	-		-	20,552	01-0200
Field Supervision													
Project Superintendent		1.00	EA	19.5	MWK	5,324	103,810	-	-		-	103,810	01-0110
Support													
Scheduler		1.00	EA	1.2	MWK	4,664	5,558	-	-		-	5,558	01-0140
Project Accountant		1.00	EA	4.5	MWK	3,344	15,214	-	-		-	15,214	01-0230
Corporate Safety*	Incl. vehicle/phone	1.00	EA	1.0	MWK	6,776	6,606	-	-		-	6,606	01-0300
Future Year Rate Increases												-	
											JOBSITE MANAGEMENT	**271,679**	
OFFICES, STORAGE, FURNISH, SETUP													
Office Trailer	Office On-Site at Bead/Annex		EA	4.1	MN		-	50	-	525	-	-	01-1100
Telephone / Internet		1.0	EA	4.1	MN		-	250	1,025		-	1,025	01-1110
Cellular Phones		1.0	EA	12.4	MM		-	143	1,774		-	1,774	01-1112
IT Equipment & Support		1.0	EA	12.4	MM		-	939	11,653		-	11,653	01-1120
Copy Machine	Includes toner, etc.	1.0	EA	4.1	MN		-	90	369	450	1,844	2,213	01-1140
Office Furnishings		1.0	EA	1.0	LS		-	1,000	1,000		-	1,000	01-1100
Office Supplies		1.0	EA	17.9	WK		-	175	3,125		-	3,125	01-1160
											OFFICES, STORAGE, FURNISH, SETUP	**20,790**	
VEHICLES													
Pick-Up Truck/SUV		1.0	EA	9.5	MM		-	541	5,154	950	9,046	14,200	01-8510
											VEHICLES	**14,200**	
CONTRACT DOCUMENTATION													
Contract Documents		1.0	EA	1.0	LS		-	2,000	2,000		-	2,000	01-9100
Mail & Shipping		1.0	EA	4.1	MN		-	120	492		-	492	01-9200
Progress Photos		1.0	EA	4.1	MN		-	50	205		-	205	01-9300
											CONTRACT DOCUMENTATION	**2,697**	
TOTALS						LABOR	271,679	MAT	26,797	EQUIP	10,891	309,367	

Sum Totals Match	TRUE
Check L + M + E	309,367
L/M/E Columns Match Total	TRUE

Glendale City Hall - Bead & Annex TI's

GENERAL REQUIREMENTS

1/18/2023_REV 2

DESCRIPTION OF WORK			GEN REQ SUBTOTAL	GENERAL REQ TOTAL	COMMENTS
Z GENERAL					
Z10	**GENERAL REQUIREMENTS**				
	Z1020	**ADMINISTRATIVE REQUIREMENTS**		$ -	
		PRECONSTRUCTION			
		PRECONSTRUCTION SERVICES	**By Separate Contract**		
	Z1040	**QUALITY REQUIREMENTS**		$ -	
		Quality Control			
		3rd Party Survey			
		Survey / Establish Points w/As-Builts	**See Cost of Work**		
		REGULATORY REQUIREMENTS			
		OVERTIME INSPECTIONS	**By Owner**		
		ARCHEOLOGICAL MONITORING	**By Owner**		
		SPECIAL INSPECTIONS	**By Owner**		
		MEP COORDINATION - COMPLETE ONCE GETS GREG MODEL AND MENU			
		MEP COORDINATOR	**None**		
	Z1050	**TEMPORARY MEASURE REQUIREMENTS**		$ 15,996	
		TEMPORARY FENCING			
		Temporary Fence Rental 6 Months Rental	$ 4,000		
		Temporary Fence Installation Rate	$ 2,500		
		Temporary Fence Man Gates	$ 60		
		Temporary Fence Sandbags	$ 875		
		Temporary Fence Damaged Panels | Missing Hardware	$ 500		
		Temporary Fence Maintenance and Repair - Labor (8 Hrs/Wk)	$ 816		
		TEMPORARY FACILITIES			
		Lunch Rooms area - Tables, Structure, Cooling	$ 1,000		
		Chemical Toilets	$ 1,050		
		Hand Washing Stations	$ 100		
		Gang Boxes	$ 85		
		40' Secure Jobsite Storage	$ 190		
		PROJECT SET-UP			
		Move Off-On Trailer	$ 2,000		
		Project Sign	$ 2,000		
		TEMPORARY WATER			
		Water Consumption	**By Owner**		
		Drinking Water Consumption	$ 820		
		TEMPORARY UTILITIES			
		Temporary Power by Utility Company	**By Owner**		
	Z1060	**EQUIPMENT REQUIREMENTS**		$ 34,556	
		COMMUNICATIONS			
		Jobsite Radios	$ 820		
		HOISTING			
		FORKLIFTS			

	8,000 LB Reach Fork	$ 12,150	
	Fuel	$ 4,720	
	Operator	$ 13,571	
	SHOP | MAINTENANCE		
	Equipment Service	$ 3,295	
Z1070	WORK EXECUTION REQUIREMENTS		$ 81,602
	MISC TOOLS		
	Consumables (Saw Blades, Nails/Screws, Etc.)	$ 8,050	
	Light Strands / Chords / Etc.	$ 2,300	
	CLEANING & WASTE MANAGEMENT		
	PROGRESS CLEAN		
	Progressive Clean-Up	$ 18,929	
	Jobsite Organize Labor	$ 6,161	
	Rubbish Removal - Trash Pulls	$ 9,016	
	Concrete Wash-Out	$ 205	
	FINAL CLEAN		
	Final Cleaning	$ 9,854	
	Touch-Up Cleaning	$ 1,792	
	Window Cleaning	$ 762	
	SAFETY MAINTENANCE		
	Carpenter for General Safety	$ 10,518	
	Safety Training	$ 1,025	
	First Aid Supplies	$ 820	
	Safety Signage	$ 1,000	
	Drug Testing	$ 1,500	
	Safety Materials	$ 1,025	
	Personal Protective Equipment (PPE)	$ 2,000	
	SECURITY		
	Cameras		
	Security Cameras (1 Units)	$ 6,148	
	Set-Up Cameras	$ 500	
Z1080	WEATHER REQUIREMENTS		$ -
Z1090	WARRANTY & COMMISSIONING REQUIREMENTS		$ 6,000
	WARRANTY RESERVE		
	WARRANTY	$ 6,000	
	COMMISSIONING		
	COMMISSIONING SOFTWARE	By Owner	
	COMMISSIONING AGENT	By Owner	
	COMMISSIONING MANAGEMENT LABOR	By Owner	
##		$ 138,154	**$ 138,154**

OKLAND

Glendale City Hall - Bead & Annex TI's
City of Glendale
Exhibit Da

STANDARD LABOR RATES	ARIZONA		
TITLE	WEEKLY	HOURLY	OVERTIME
Senior Project Director	$ 8,228	$ 205.70	na
Project Director	$ 7,392	$ 184.80	na
Senior Project Manager	$ 6,556	$ 163.90	na
Project Manager	$ 5,412	$ 135.30	na
Assistant Project Manager	$ 4,488	$ 112.20	na
Field Director	$ 7,612	$ 190.30	na
Senior Project Superintendent	$ 6,688	$ 167.20	na
Project Superintendent	$ 5,324	$ 133.10	na
Assistant Project Superintendent	$ 4,356	$ 108.90	na
Senior Project Engineer	$ 3,696	$ 92.40	na
Project Engineer	$ 3,388	$ 84.70	na
Assistant Project Engineer	$ 3,036	$ 75.90	na
Quality Control Manager	$ 4,752	$ 118.80	na
Senior Project Controls Manager	$ 6,424	$ 160.60	na
Project Controls Manager	$ 5,368	$ 134.20	na
Senior Field Engineer	$ 3,696	$ 92.40	na
Field Engineer	$ 3,388	$ 84.70	na
Assistant Field Engineer	$ 3,036	$ 75.90	na
Preconstruction Manager	$ 6,204	$ 155.10	na
Senior Estimator	$ 5,940	$ 148.50	na
Estimator	$ 4,884	$ 122.10	na
Cost Engineer	$ 4,048	$ 101.20	na
Assistant Estimator	$ 3,432	$ 85.80	na
MEP Specialist*	$ 7,084	$ 177.10	na
Senior Scheduler	$ 5,148	$ 128.70	na
Scheduler	$ 4,664	$ 116.60	na
Senior BIM Manager*	$ 6,380	$ 159.50	na
BIM Manager*	$ 5,192	$ 129.80	na
BIM Engineer*	$ 4,136	$ 103.40	na
BIM Coordinator*	$ 3,388	$ 84.70	na
Corporate Safety*	$ 6,776	$ 169.40	na
Senior Safety*	$ 5,236	$ 130.90	na
Safety*	$ 4,488	$ 112.20	na
Senior Project Accountant	$ 4,048	$ 101.20	na
Project Accountant	$ 3,344	$ 83.60	na
Project Clerk - Assistant/Intern	$ 2,640	$ 66.00	$ 96.00
General Foreman	$ 3,476	$ 86.90	$ 126.00
Carpenter General Foreman	Hourly	$ 77.00	$ 112.00
Carpenter Foreman	Hourly	$ 69.00	$ 100.00
Carpenter	Hourly	$ 62.00	$ 90.00
Laborer Foreman	Hourly	$ 56.00	$ 81.00
Laborer	Hourly	$ 53.00	$ 77.00
Cmnt Mason Superintendent*	$ 5,676	$ 141.90	na
Cmnt Mason General Foreman	Hourly	$ 76.00	$ 110.00
Cmnt Mason Foreman	Hourly	$ 69.00	$ 100.00
Cmnt Mason	Hourly	$ 62.00	$ 90.00
Crane Operator	Hourly	$ 80.00	$ 116.00
Equipment Operator	Hourly	$ 76.00	$ 110.00
Survey Manager*	Hourly	$ 141.00	$ 204.00
Survey Field*	Hourly	$ 124.00	$ 180.00
Mechanic - Crane/Heavy Equipment*	Hourly	$ 136.00	$ 197.00
Mechanic - Service*	Hourly	$ 123.00	$ 178.00
Transport Driver *	Hourly	$ 87.00	$ 126.00
Delivery Driver*	Hourly	$ 80.00	$ 116.00

*Rate includes Vehicle, Cell Phone, Tools, IT Equipment

**Salaried employees that work on the project full-time will be billed to the project at the Weekly Rate.

OKLAND

Glendale City Hall - Bead & Annex TI's

City of Glendale

Exhibit Db

Standard Equipment Rental Rates - Billed as used
All Rates exclude Fuel, Maintenance, Insurance, and Operators

EQUIPMENT TYPE	ARIZONA 4 WK RATE
Office Trailer	$ 525.00
Copy Machine	$ 450.00
Jobsite Monitor (55")	$ 100.00
Jobsite Radio	$ 50.00
40' Secure Jobsite Storage	$ 190.00
Gang Box	$ 85.00
Pick-up Truck/SUV	$ 950.00
Electric Vehicle	$ 1,200.00
Jobsite Utility Vehicle*	$ 650.00
2,000 Gallon Water Truck	$ 2,650.00
All Terrain Forklift 6,000lb Max*	$ 3,800.00
Forklift Hook	$ 250.00
45 KVA Generator*	$ 1,350.00
5KW High Cycle Generator	$ 450.00
Diesel Light Plant*	$ 600.00
Robotic Total Station	$ 3,000.00
Total Station	$ 1,000.00
Rotary Laser	$ 510.00
Builders Level	$ 210.00
185 CFM Air Compressor*	$ 875.00
48" Power Trowel	$ 625.00
Early Entry Concrete Saw	$ 850.00
Ride On Street Sweeper	$ 1,500.00
19" Scissor Lift	$ 450.00

Standard Equipment Rental Rates - Billed as used
All Rates exclude Fuel, Maintenance, Insurance, and Operators *Indicates rate includes 160 hours per 4 week period

CRANES	HRS PER CYCLE	4 WK RATE
Rates Include: Crane, Insurance, Tax, 160 Hours per 4 week period		
Rates Exclude: Operator, Fuel, Maintenance, Freight, Erection, Dismantle, Anchors, Foundations, Certifications		
25 Ton Rough Terrain Hydraulic Crane		$ 17,000.00
Crane Landing Platform - Telescoping		$ 1,400.00

OTHER EQUIPMENT STANDARD RATES	TIME PERIOD	CHARGE
Cellular Phones	Monthly	$ 143.00
IT Equipment & Support	Management Hour	$ 5.46
Quality Software(Excludes iPads)	Monthly	$ 1,740.00
Job Specific Home Office Black and White Copies	Per Page	$ 0.06
Job Specific Home Office Color Copies	Per Page	$ 0.22
Job Specific Home Office Scans	Per Page	$ 0.01
Postage	Monthly	$ 48.00
BIM Software IT Equipment	BIM Hour	$ 15.12
BIM 360 Glue	Per Sub/Per Year	$ 1,500.00
Rental Insurance	OCC/Other Rentals	8%

160-240 hours billed at 1.5x rate
Above 240 hours billed at 2x the 4 week rate

Weekly rate = 4 week / 3
Daily Rate = weekly rate / 4

EXHIBIT E

Construction Documents necessary to define Scope of Work and Deliverables for the Construction Phase Services, including plans, designs, drawings, specifications and other required Contract Documents

(50 **pages - To be Incorporated by Amendment)**

THIS EXHIBIT COVER PAGE IS FOR REFERENCE ONLY AT TIME OF MAIN AGREEMENT. THE ACTUAL DOCUMENT WILL BE ATTACHED VIA AMENDMENT AT TIME OF GMP.]

Exhibit E - Drawing Log

Glendale City Hall Bead & Annex - Tenant Improvement

5752 W. Glenn Drive; Glendale, AZ 85301

January 18th, 2022

OKLAND

DIVISION	Sheet #	Description	Revision	Revision Date	Sealed Date	Issued Date	Set
City of Glendale 1st Review - Drawings by Holly Street Studio Dated 11/04/22							
Civil	C1.1	COVER SHEET	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Civil	C1.2	PROJECT NOTES	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Civil	C2.1	DEMO & SITE PLAN	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Civil	C3.1	FIRE LINE PLAN	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Civil	C4.1	DETAILS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A0.0	ARCHITECTURAL STANDARDS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A0.1	ADA STANDARDS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A0.2	CODE PLANS	Rev1	12/09/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A0.3	SPECIFICATIONS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A1.0	DEMO & FLOOR PLAN	Rev1	12/09/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A2.0	RCP & ROOF PLAN	Rev1	12/09/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A3.0	SCHEDULES & PARTITION TYPES	Rev1	12/09/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A3.1	ELEVATIONS	Rev1	12/09/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Architectural	A3.2	INTERIOR ELEVATIONS	Rev1	12/09/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Structural	S1.0	FRAMING PLAN	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Mechanical	M0.0	MECHANICAL LEGEND AND GENERAL NOTES	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Mechanical	M0.1	MECHANICAL SPECIFICATIONS & CODE COMPLIANCE	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Mechanical	M1.0	MECHANICAL SCHEDULES	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Mechanical	M2.0	MECHANICAL DEMO PLANS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Mechanical	M3.0	MECHANICAL FLOOR PLANS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Mechanical	M4.0	MECHANICAL DETAILS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Mechanical	M4.1	MECHANICAL DETAILS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Plumbing	P1.0	PLUMBING LEGEND AND NOTES	Rev1	12/05/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Plumbing	P2.0	PLUMBING FLOOR PLAN	Rev1	12/05/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E0.0	SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E0.1	LIGHTING, COMCHECK, AND EQUIPMENT SCHEDULES	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E0.2	FIRE ALARM SYMBOLS, NOTES, AND RISER	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E0.3	ELECTRICAL SPECIFICATIONS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E1.0	BEAD BUILDING - ELECTRICAL DEMO PLANS	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E2.0	BEAD BUILDING POWER PLANS	Rev1	12/05/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E3.0	BEAD BUILDING LIGHTING PLAN	Rev1	12/05/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E5.0	BEAD ONE-LINE DIAGRAM	None	NA	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Electrical	E5.1	BEAD BUILDING - PANEL SCHEDULES	Rev1	12/05/22	11/04/22	11/04/22	Glendale DCRP Bead Museum Renovation
Glendale City Hall Annex - Drawings by Holly Street Studio Dated 12/09/22							
		COVER	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Architectural	A0.0	ARCHITECTURAL STANDARDS	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Architectural	A0.1	ADA STANDARDS	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Architectural	A0.2	CODE PLANS	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Architectural	A1.0	FLOOR PLAN	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Mechanical	M0.0	MECHANICAL LEGEND AND GENERAL NOTES	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Mechanical	M0.1	MECHANICAL SPECIFICATIONS	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Mechanical	M2.0	MECHANICAL DEMO PLANS	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Mechanical	M3.0	MECHANICAL FLOOR PLAN	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Electrical	E0.0	SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Electrical	E0.1	SPECIFICATIONS	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Electrical	E1.0	EXISTING POWER PLAN - ANNEX	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Electrical	E2.0	POWER PLAN - ANNEX	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Electrical	E5.0	ONE-LINE DIAGRAM	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation
Electrical	E5.1	PANEL SCHEDULES	None	NA	12/09/22	12/09/22	Glendale DCRP C.C Annex Renovation

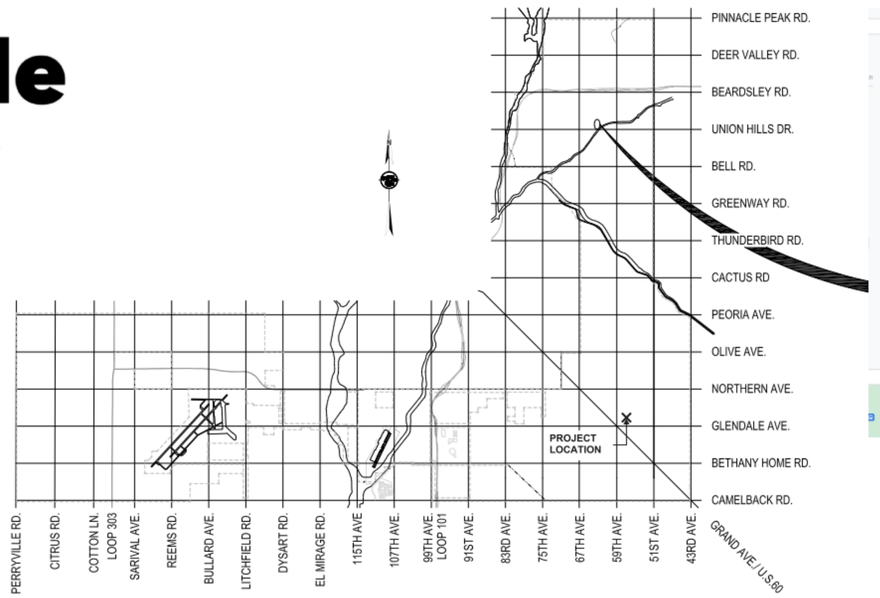
CITY OF GLENDALE

GLENDALE, ARIZONA

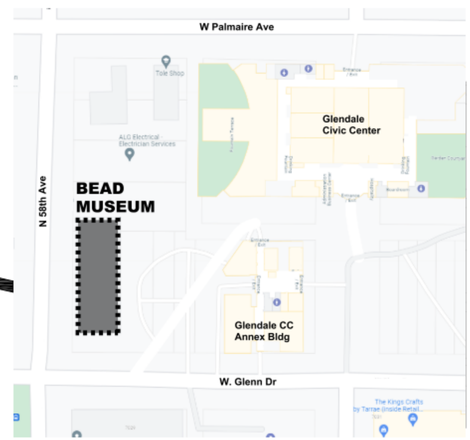
PROJECT # 202169.4

Glenn Dr & 58th Ave
Glendale DCRP Bead Museum Renovation
5754 W Glenn Dr

Glendale
ARIZONA



VICINITY MAP



KEY MAP

SHEET INDEX	
Sheet Number	Sheet Name
C1.1	COVER
C1.2	NOTES
C2.1	DEMO/SITE PLAN
C3.1	FIRELINE PLAN
C4.1	DETAILS
A0.0	ARCHITECTURAL STANDARDS
A0.1	ADA STANDARDS
A0.2	CODE PLANS
A0.3	SPECIFICATIONS
A1.0	DEMO + FLOOR PLAN
A2.0	RCP + ROOF PLAN
A3.0	SCHEDULES + PARTITION TYPES
A3.1	ELEVATIONS
A3.2	INTERIOR ELEVATIONS
S1.0	FRAMING PLAN
M0.0	LEGEND AND GRAL NOTES
M0.1	SPECS AND CODE
M1.0	SCHEDULES
M2.0	DEMO PLANS
M3.0	FLOOR PLANS
M4.0	DETAILS
M4.1	DETAILS
P1.0	LEGEND AND NOTES
P2.0	FLOOR PLAN
E0.0	SYMBOLS, ABBREVIATIONS AND GRAL NOTES
E0.1	SCHEDULES
E0.2	FIRE ALARM NOTES AND RISER
E0.3	SPECS
E1.0	DEMO PLANS
E2.0	POWER PLANS
E3.0	LIGHTING PLAN
E5.0	ONE LINE DIAGRAM
E5.1	PANEL SCHEDULES

MAYOR
JERRY P. WEIERS

CITY COUNCIL
JAMIE ALDAMA
JOYCE V. CLARK
IAN HUGH
RAY MALNAR
LAUREN TOLMACHOFF
BART TURNER

CITY MANAGER
KEVIN R. PHELPS

CITY CLERK
JULIE K. BOWER

CITY ATTORNEY
MICHAEL D. BAILEY

MARICOPA COUNTY DEPARTMENT
OF ENVIRONMENTAL SERVICES

DATE

RECORD DRAWING

I certify that the locations, elevations, depths and record drawing comments accurately reflect the existing field conditions and materials actually used during construction. This certification is based on periodic field observations and the contractors representations of the facilities as constructed.

NAME _____ DATE _____ (SEAL)

REGISTRATION NO. _____ EXP. DATE _____

REVD. BY: _____
CONSTRUCTION ENGINEER

PLANS ACCEPTANCE

The City of Glendale accepts these plans for construction, as being in general compliance with plan preparation requirements of the City. Responsibility for the completeness and accuracy of the plans and related design resides with the Engineer and the Engineering Firm of Record.

_____ CITY ENGINEER _____ DATE

_____ TRANSPORTATION DIRECTOR _____ DATE

_____ WATER SERVICES DIRECTOR _____ DATE

_____ FIELD OPERATIONS DIRECTOR _____ DATE

CITY OF GLENDALE
ENGINEERING DEPARTMENT
5850 W. GLENDALE AVE.
GLENDALE, ARIZONA 85301 (623) 930-3630

REGISTERED ARCHITECT
CERTIFICATE NO.
32961
MICHAEL E
JACOBS
Date signed JUN/22
ARIZONA, U.S.A.
expiration: 9.30.2025

Designed | Drawn | Checked

REVISIONS

No.	Date	Description
1		

Two Working Days Before You Dig
CALL FOR THE BLUE STAKES
602.263.1100
BLUE STAKES CENTER
CALL COLLECT

SHT. _____
OF _____

DSC #

7/5/2022 5:58:53 PM

CITY OF GLENDALE

GLENDALE, ARIZONA

PROJECT # 202169.4

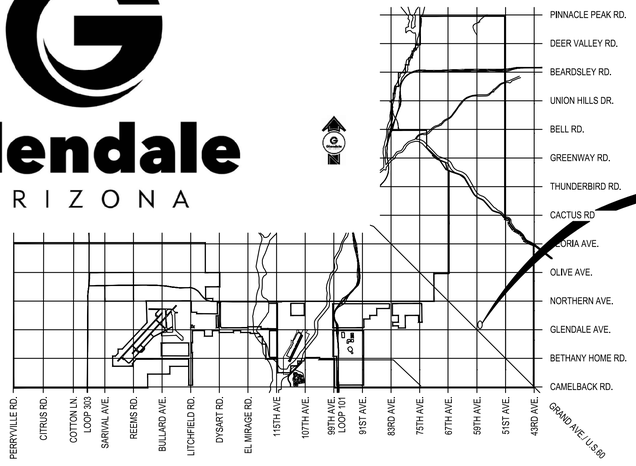
GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W. GLENN DRIVE

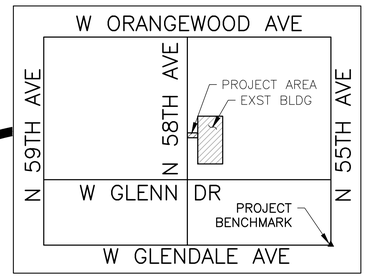
BENCHMARK

PROJECT BENCHMARK:
POINT NUMBER 16
SOUTH 1/4 CORNER SEC 5, T2N, R2E
FOUND CITY OF GLENDALE BRASS CAP IN HANDHOLE
AT THE INTERSECTION OF W GLENDALE AVENUE AND
N 55TH AVENUE
NORTHING = 923705.5210'
EASTING = 620648.1313'
PUBLISHED ELEVATION = 1159.961 (NAVD 88)

Glendale
ARIZONA



VICINITY MAP
NTS



LOCATION MAP
SEC 5, T2N, R2E, G&SRM

MAYOR

JERRY P. WEIERS

CITY COUNCIL

JAMIE ALDAMA
JOYCE V. CLARK
IAN HUGH
RAY MALNAR
LAUREN TOLMACHOFF
BART TURNER

CITY MANAGER

KEVIN R. PHELPS

CITY CLERK

JULIE K. BOWER

CITY ATTORNEY

MICHAEL D. BAILEY

PROJECT INFORMATION

ENGINEER: DIBBLE
7878 NORTH 16TH STREET, SUITE 300
PHOENIX, ARIZONA 85020
VU NGUYEN, PE
PHONE: 602.957.1155
EMAIL: VU.NGUYEN@DIBBLECORP.COM

ARCHITECT: HOLLY STREET STUDIOS
1319 E VAN BUREN
PHOENIX, ARIZONA 85006
MICHAEL JACOBS
PHONE: (602)258-8555
EMAIL: MICHAEL@HOLLYSTREETSTUDIO.COM

OWNER: CITY OF GLENDALE
ENGINEERING DEPARTMENT
5850 W GLENDALE AVE
GLENDALE, ARIZONA 85301
EDDIE GARCIA
PHONE: (623)930-3630
EMAIL: EGARCIA3@GLENDALEAZ.COM

DRAWING INDEX

C1.1	COVER
C1.2	NOTES
C2.1	DEMOLITION / SITE PLAN
C3.1	FIRE LINE PLAN
C4.1	DETAILS

UTILITY COMPANY SUBMITTALS

1. THESE PLANS HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES AND THE WORK CONTAINED IN THESE PLANS HAS BEEN APPROVED BY THESE COMPANIES WITHIN THEIR AREA OF INTEREST. THE SIZE AND LOCATIONS, AS SHOWN, OF THE GAS, TELEPHONE, AND POWER LINES, AND CONNECTIONS AGREE WITH THE INFORMATION CONTAINED IN THE UTILITY COMPANY'S RECORDS. WHERE THE WORK TO BE DONE CONFLICTS WITH ANY OF THESE UTILITIES, THE CONFLICTS SHALL BE RESOLVED AS SPECIFIED IN THE SPECIAL PROVISIONS AND/OR AS OTHERWISE NOTED ON THESE PLANS. CONFLICTS ARISING DURING THE COURSE OF CONSTRUCTION FROM UNFORESEEN CIRCUMSTANCES SHALL BE REPORTED TO THE INTERESTED UTILITY COMPANY AND RESOLVED BY THEM AND THE DESIGN ENGINEER.

2. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION OR UTILITY RELOCATION.

UTILITY COORDINATION

APS	UTILITY CONFLICT LIAISON / COMPANY REPRESENTATIVE CONTACTED	SENT:	11-04-2022
COX COMMUNICATIONS	UTILITY CONFLICT LIAISON / COMPANY REPRESENTATIVE CONTACTED	SENT:	11-04-2022
CENTURY LINK	UTILITY CONFLICT LIAISON / COMPANY REPRESENTATIVE CONTACTED	SENT:	11-04-2022
SOUTHWEST GAS	UTILITY CONFLICT LIAISON / COMPANY REPRESENTATIVE CONTACTED	SENT:	11-04-2022

APPROVALS

MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES — DATE

RECORD DRAWING

I CERTIFY THAT THE LOCATIONS, ELEVATIONS, DEPTHS AND RECORD DRAWING COMMENTS ACCURATELY REFLECT THE EXISTING FIELD CONDITIONS AND MATERIALS ACTUALLY USED DURING CONSTRUCTION. THIS CERTIFICATION IS BASED ON PERIODIC FIELD OBSERVATIONS AND THE CONTRACTORS REPRESENTATIONS OF THE FACILITIES AS CONSTRUCTED.

NAME _____ DATE _____

REGISTRATION NO._____ EXP. DATE_____

REVD. BY:_____
CONSTRUCTION ENGINEER

PLAN ACCEPTANCE

THE CITY OF GLENDALE ACCEPTS THESE PLANS FOR CONSTRUCTION, AS BEING IN GENERAL COMPLIANCE WITH PLAN PREPARATION REQUIREMENTS OF THE CITY. RESPONSIBILITY FOR THE COMPLETENESS AND ACCURACY OF THE PLANS AND RELATED DESIGN RESIDES WITH THE ENGINEER AND THE ENGINEERING FIRM OF RECORD.

CITY ENGINEER — DATE

TRANSPORTATION DIRECTOR — DATE

WATER SERVICES DIRECTOR — DATE

FIELD OPERATIONS DIRECTOR — DATE

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

DIBBLE
7878 N 16th St
Suite 300
Phoenix, AZ 85020
Phone: 602.957.1155
Contact: Vu Nguyen

Holly Street Studio
1319 E. VAN BUREN STREET
PHOENIX, AZ 85006
PHONE: 602.258.8555
CONTACT: MICHAEL E. JACOBS, AIA

GLENDALE DCRP BEAD MUSEUM RENOVATION
5750 WEST GELNN DRIVE, GLENDALE, AZ 85301

COVER

Rev.
Date 11/04/2022
Issued for

Registered Professional Engineer (Civil)
CERTIFICATE NO.
50050
VU T.
NGUYEN
Date Signed 11/4/22
ARIZONA U.S.A.

PHASE:
CONSTRUCTION DOCUMENTS

Project No. 1022150

Designed: JR | Drawn: JR | Checked: VTN

Drawing Title
COVER

Dwg No.
C1.1

DSC # - - - -

PLOT DATE:November 4, 2022
FILE:J:\2022\1022150_Glendale Downtown Modernization\CAD\1022150-C1X_COVER.dwg

CITY OF GLENDALE GENERAL NOTES FOR CONSTRUCTION

A. THE DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR PAYING PERMIT FEES PRIOR TO CONSTRUCTION OF ANY WATERLINES AND APPURTENANCES.
B. BEDDING AND BACKFILL OF ALL WATER MAINS AND SERVICES WITHIN CITY RIGHTS–OF–WAY OR EASEMENTS SHALL FOLLOW CITY OF GLENDALE STANDARD DETAIL G–690.
C. GATE VALVES SHALL BE RESILIENT SEATED, SOLID WEDGE GATE, FULLY ENCAPSULATED AND OPEN LEFT. BUTTERFLY VALVES ARE NOT ALLOWED IN LINES 12–INCH AND SMALLER.
D. TAPPING VALVES SHALL BE FLANGE BY MECHANICAL JOINT TO ALLOW TAPPING BY CONTRACTOR.
E. TAPS TO EXISTING MAINS SHALL BE DONE BY A CITY APPROVED CONTRACTOR. NO TAP SHALL BE MADE UNTIL THE CITY'S CONSTRUCTION ENGINEERING INSPECTOR HAS APPROVED THE INSTALLATION OF THE TAPPING SLEEVE, THRUST BLOCK, VALVE, AND VALVE BLOCKING. NO TAP SHALL BE MADE WITHOUT A CITY WATER SERVICES DEPARTMENT REPRESENTATIVE PRESENT. PRIOR TO ALL TAPS, THE CITY'S CONSTRUCTION ENGINEERING INSPECTOR WILL CONTACT THE CITY'S WATER SERVICES DEPARTMENT NO LESS THAN 24 HOURS PRIOR TO TAPPING.
F. CONFLICTS WITH EXISTING UTILITIES DISCOVERED DURING CONSTRUCTION SHALL BE CALLED TO THE ATTENTION OF THE CITY AND RESOLVED PRIOR TO PROCEEDING.
G. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO HAVE THE SERVICE LINE VISIBLE AND ACCESSIBLE WHEN REQUESTING THE INSTALLATION OF A WATER METER OR A FINAL INSPECTION.
H. ONLY CITY FORCES ARE AUTHORIZED TO OPEN AND CLOSE WATER VALVES CONNECTED TO THE SYSTEM.
I. LOCATION OF ALL WATER VALVES MUST BE REFERENCED AT ALL TIMES DURING CONSTRUCTION AND MADE AVAILABLE TO THE WATER SERVICES DEPARTMENT.
J. ALL MATERIALS WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL CONFORM TO THE NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.
K. THRUST BLOCKS SHALL BE INSTALLED AT ALL VALVES, FIRE HYDRANTS AND FITTINGS WHERE THERE IS A CHANGE IN SIZE OR DIRECTION UNLESS APPROVAL IS OBTAINED FROM THE CITY.
L. THE CONTRACTOR SHALL PLACE AN "OUT OF SERVICE" DISK ON ALL NEW HYDRANT INSTALLATIONS UNTIL THE WATER LINES HAVE PASSED ALL BACTERIOLOGICAL TESTS AND HAVE BEEN ACCEPTED BY THE CITY.
M. ALL PROCEDURES FOR TESTING, FLUSHING AND DISINFECTION MUST BE DONE IN ACCORDANCE TO CHAPTER 6 OF THE CITY'S DESIGN STANDARDS.
N. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING CUSTOMERS IN WRITING THAT THEY WILL BE OUT OF WATER AT LEAST 24–HOURS IN ADVANCE OF ANY WATER MAIN SHUTDOWN.
O. NO PERSON SHALL USE ANY MECHANICAL EQUIPMENT FOR CLEARING, GRUBBING, ROAD CONSTRUCTION, TRENCHING, EXCAVATING, DEMOLITION OR ENGAGE IN ANY EARTHMOVING ACTIVITY WITHOUT FIRST OBTAINING A DUST CONTROL PERMIT FROM AIR POLLUTION CONTROL, MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES.
P. ANY EXISTING WATER LINES AND WATER SERVICE LINES TO THE PROPERTY THAT WILL NOT BE USED MUST BE ABANDONED BY THE DEVELOPER PER CHAPTER 6 EVEN IF DISCOVERED DURING CONSTRUCTION.

CITY OF GLENDALE GENERAL NOTES FOR WATER MAIN CONSTRUCTION

A. THE DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR PAYING PERMIT FEES PRIOR TO CONSTRUCTION OF ANY WATERLINES AND APPURTENANCES.
B. BEDDING AND BACKFILL OF ALL WATER MAINS AND SERVICES WITHIN CITY RIGHTS–OF–WAY OR EASEMENTS SHALL FOLLOW CITY OF GLENDALE STANDARD DETAIL G–690.
C. GATE VALVES SHALL BE RESILIENT SEATED, SOLID WEDGE GATE, FULLY ENCAPSULATED AND OPEN LEFT. BUTTERFLY VALVES ARE NOT ALLOWED IN LINES 12–INCH AND SMALLER.
D. TAPPING VALVES SHALL BE FLANGE BY MECHANICAL JOINT TO ALLOW TAPPING BY CONTRACTOR.
E. TAPS TO EXISTING MAINS SHALL BE DONE BY A CITY APPROVED CONTRACTOR. NO TAP SHALL BE MADE UNTIL THE CITY'S CONSTRUCTION ENGINEERING INSPECTOR HAS APPROVED THE INSTALLATION OF THE TAPPING SLEEVE, THRUST BLOCK, VALVE, AND VALVE BLOCKING. NO TAP SHALL BE MADE WITHOUT A CITY WATER SERVICES DEPARTMENT REPRESENTATIVE PRESENT. PRIOR TO ALL TAPS, THE CITY'S CONSTRUCTION ENGINEERING INSPECTOR WILL CONTACT THE CITY'S WATER SERVICES DEPARTMENT NO LESS THAN 24 HOURS PRIOR TO TAPPING.
F. CONFLICTS WITH EXISTING UTILITIES DISCOVERED DURING CONSTRUCTION SHALL BE CALLED TO THE ATTENTION OF THE CITY AND RESOLVED PRIOR TO PROCEEDING.
G. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO HAVE THE SERVICE LINE VISIBLE AND ACCESSIBLE WHEN REQUESTING THE INSTALLATION OF A WATER METER OR A FINAL INSPECTION.
H. ONLY CITY FORCES ARE AUTHORIZED TO OPEN AND CLOSE WATER VALVES CONNECTED TO THE SYSTEM.
I. LOCATION OF ALL WATER VALVES MUST BE REFERENCED AT ALL TIMES DURING CONSTRUCTION AND MADE AVAILABLE TO THE WATER SERVICES DEPARTMENT.
J. ALL MATERIALS WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL CONFORM TO THE NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.
K. THRUST BLOCKS SHALL BE INSTALLED AT ALL VALVES, FIRE HYDRANTS AND FITTINGS WHERE THERE IS A CHANGE IN SIZE OR DIRECTION UNLESS APPROVAL IS OBTAINED FROM THE CITY.
L. THE CONTRACTOR SHALL PLACE AN "OUT OF SERVICE" DISK ON ALL NEW HYDRANT INSTALLATIONS UNTIL THE WATER LINES HAVE PASSED ALL BACTERIOLOGICAL TESTS AND HAVE BEEN ACCEPTED BY THE CITY.
M. ALL PROCEDURES FOR TESTING, FLUSHING AND DISINFECTION MUST BE DONE IN ACCORDANCE TO CHAPTER 6 OF THE CITY'S DESIGN STANDARDS.
N. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING CUSTOMERS IN WRITING THAT THEY WILL BE OUT OF WATER AT LEAST 24–HOURS IN ADVANCE OF ANY WATER MAIN SHUTDOWN.
O. NO PERSON SHALL USE ANY MECHANICAL EQUIPMENT FOR CLEARING, GRUBBING, ROAD CONSTRUCTION, TRENCHING, EXCAVATING, DEMOLITION OR ENGAGE IN ANY EARTHMOVING ACTIVITY WITHOUT FIRST OBTAINING A DUST CONTROL PERMIT FROM AIR POLLUTION CONTROL, MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES.
P. ANY EXISTING WATER LINES AND WATER SERVICE LINES TO THE PROPERTY THAT WILL NOT BE USED MUST BE ABANDONED BY THE DEVELOPER PER CHAPTER 6 EVEN IF DISCOVERED DURING CONSTRUCTION.

CITY OF GLENDALE GENERAL NOTES FOR STREET CONSTRUCTION

A. THE DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR PAYING PERMIT FEES PRIOR TO CONSTRUCTION OF ANY STREET IMPROVEMENTS.
B. THE PAVING CONTRACTOR IS RESPONSIBLE FOR OBTAINING WATER AND SEWER AS–BUILT PLANS BEFORE START OF CONSTRUCTION TO DETERMINE THE LOCATION OF ALL EXISTING UTILITY FRAMES AND COVERS THAT MUST BE ADJUSTED TO FINISH GRADE.
C. THE PAVING CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL CONFLICTING UNDERGROUND UTILITY CONSTRUCTION IS COMPLETED AND SERVICE STUBS TO ALL LOTS HAVE BEEN ADEQUATELY EXTENDED TO THE RIGHT–OF–WAY OR EASEMENT LINE.
D. IF THE EXISTING PAVEMENT DOES NOT MEET CITY REQUIREMENTS, THE DEVELOPER WILL BE REQUIRED TO REMOVE AND REPLACE THE PAVEMENT TO STREET CENTERLINE. THE CITY SHALL DETERMINE THE EXACT LIMITS OF PAVEMENT TO BE REMOVED AND REPLACED.
E. ALL EXISTING STREET MONUMENTS MUST BE PRESERVED. PRIOR TO CONSTRUCTION, MONUMENTS WILL BE REFERENCED HORIZONTALLY AND VERTICALLY. AFTER CONSTRUCTION, MONUMENTS SHALL BE RESET AND ANY NEW INFORMATION SHALL BE REFLECTED ON THE AS–BUILT PLANS.
F. THE MAXIMUM STAKE INTERVAL FOR GRADES OF 0.2% OR LESS SHALL BE 25 FEET FOR CONCRETE WORK AND 50 FEET FOR ASPHALT ROADWAY SECTION, EXCEPT ON HORIZONTAL OR VERTICAL CURVES WHERE A MAXIMUM STAKE INTERVAL OF 20 FEET FOR CONCRETE WORK SHALL BE REQUIRED. ALL CURB RETURNS SHALL BE STAKED AT THE P.C. AND THE MIDPOINT OF THE RETURN. NO GRADE STAKE INTERVAL SHALL EXCEED 50 FEET.
G. THE DEVELOPER IS RESPONSIBLE FOR THE INSTALLATION OF ALL NEW PAVEMENT MARKINGS AND THE REMOVAL OF ALL EXISTING PAVEMENT MARKING THAT ARE IN CONFLICT WITH THE NEW PAVEMENT MARKINGS.
H. NO PERSON SHALL USE ANY MECHANICAL EQUIPMENT FOR CLEARING, GRUBBING, ROAD CONSTRUCTION, TRENCHING, EXCAVATING, DEMOLITION OR ENGAGE IN ANY EARTHMOVING ACTIVITY WITHOUT FIRST OBTAINING A DUST CONTROL PERMIT FROM AIR POLLUTION CONTROL, MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES.

ENGINEER'S GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM WITH THE LATEST EDITION OF THE MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) STANDARDS AND SPECIFICATIONS, THE PLUMBING CODE ADOPTED BY THE LOCAL JURISDICTION, AND ALL APPLICABLE CODES & ORDINANCES. WHERE SPECIFICATIONS PROVIDE OVERLAPPING REQUIREMENTS, THE MOST STRINGENT REQUIREMENT SHALL APPLY
2. ALL CONSTRUCTION SHALL CONFORM TO THE PROJECT GEOTECHNICAL REPORT RECOMMENDATIONS & REQUIREMENTS
3. CONSTRUCTION STAKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR
4. CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED
5. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCLUDING INCIDENTAL, SURVEYING & INSPECTION.
6. CONTRACTOR SHALL INSTALL SIGNAGE, PAINT, PAVEMENT MARKINGS, REFLECTORS AND OTHER REQUIRED COMPONENTS AS DIRECTED BY THE FIRE MARSHAL
7. ALL QUANTITIES SHOWN ON PLANS ARE APPROXIMATE. CONTRACTOR SHALL INDEPENDENTLY VERIFY QUANTITIES
8. CONTRACTOR SHALL WARRANT ALL WORK FOR A MINIMUM OF 1 YEAR
9. CONTRACTOR SHALL PROVIDE REPRODUCIBLE "AS–BUILT RECORD DRAWINGS" SEALED BY A REGISTERED LAND SURVEYOR TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE WORK
10. ALL DIMENSIONS ARE FROM FACE OF CURB UNLESS OTHERWISE NOTED

ENGINEER'S UTILITY NOTES

1. EXISTING UTILITIES ARE SHOWN WITH BEST AVAILABLE INFORMATION HOWEVER NOT ALL UTILITIES MAY BE SHOWN. CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ARIZONA 811 PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE THAT MAY BE INCURRED TO THE UTILITIES AND BE LIABLE FOR ANY REPAIR COSTS INCLUDING ACCIDENTAL COSTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING THE OWNER OF EACH VARIOUS UTILITY AND FACILITY WITH WHICH THERE ARE CONFLICTS WITH THE NEW CONSTRUCTION AND MAKING ALL NECESSARY ARRANGEMENTS WITH THE OWNER FOR RELOCATION OR ABANDONING THE UTILITY OR FACILITY AS REQUIRED BY ITS OWNER
2. ALL PIPE TRENCH CROSS SECTIONS SHALL CONFORM TO COG STD DET G–690 UNLESS OTHERWISE NOTED PER PLAN
3. ALL WATER PIPING SHALL BE INSTALLED WITH RESTRAINED JOINTS
4. LOCATOR MARKER BALLS SHALL BE LOCATED AT ALL FITTINGS AND SERVICE CONNECTIONS AND AT MINIMUM 200' SPACING ALONG THE PIPE FOR WATER & SEWER LINES
5. ALL PIPING SHALL BE INSTALLED WITH TRACER WIRE AND WARNING TAPE 6" ABOVE THE PIPE
6. CONTRACTOR SHALL VERTICALLY REALIGN WATER LINES AS REQUIRED AT UTILITY CROSSINGS PER MAG STD DET 370. CONTRACTOR SHALL MEET WATER/SEWER SEPARATION AND ADD EXTRA PROTECTION PER MAG STD DET 404–1, 2 & 3 WHERE REQUIRED
7. ALL WATER LINES SHALL BE DISINFECTED IN ACCORDANCE WITH MAG SPEC 610.16 AND 611.
8. ALL DIP PIPING SHALL BE INSTALLED WITH POLYWRAP
9. ALL DAMAGED OR DISTURBED FINISH GRADE MATERIALS (DG, ROCK MULCH, RIPRAP, GRASS, ETC) SHALL BE REPLACED IN–KIND. GRASS SHALL BE REPLACED WITH SOD AND MATCH TO THE EXISTING VARIETY AND A SAMPLE SHALL BE SUBMITTED TO THE OWNER FOR APPROVED PRIOR TO CONSTRUCTION. DG, ROCK MULCH AND RIPRAP SHALL MATCH TO EXISTING ON–SITE COLOR & TYPE AND A SAMPLE SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION
10. IN ACCORDANCE WITH THE SAFE DRINKING WATER ACT AND AAC R18–4–213, ALL MATERIALS INSTALLED AFTER JANUARY 4, 2014 WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60, 61, & 372. ALL POTABLE WATERLINES AND FITTINGS SHALL HAVE A NSF–PW SEAL. ALL MATERIALS SHALL BE LEAD FREE AS DEFINED IN NSF 372, AAC R18–5–504 & AAC R18–4–101
11. ALL ABOVE GROUND PIPING AND PIPING EXPOSED TO THE ATMOSPHERE SHALL BE COATED WITH A PRIMER COAT AND A FINISH COAT AS FOLLOWS:
    FERROUS METAL: PRIME COATS SHALL BE AN EPOXY PRIMER COMPATIBLE FOR USE WITH URETHANE FINISH COATS AND APPLIED IN ACCORDANCE WITH WRITTEN INSTRUCTIONS OF THE COATING MANUFACTURER

    NONFERROUS AND GALVANIZED METAL: NONFERROUS AND GALVANIZED METAL SHALL BE CLEANED PRIOR TO THE APPLICATION OF THE PRIME COAT PRIMER SHALL BE ONE COATING AT MANUFACTURER'S RECOMMENDED DRY FILM THICKNESS FINISH SHALL BE ONE OR MORE COATS AT MANUFACTURER'S RECOMMENDED DRY FILM THICKNESS PER COAT TO A DRY SYSTEM THICKNESS OF 2 MILLS
12. CONTRACTOR SHALL PERFORM A DEFLECTION TEST OF THE TOTAL LENGTH OF ALL SEWER LINES MADE OF FLEXIBLE MATERIALS TO ENSURE THAT THE INSTALLATION MEETS OR EXCEEDS THE MANUFACTURER'S RECOMMENDATIONS AND RECORD THE RESULT (R18–9–E301.D.2.I / MAG 615.11)
13. CONTRACTOR SHALL TEST EACH SEGMENT OF THE SEWER LINE FOR LEAKAGE USING THE APPROPRIATE ASTM TEST FOR THE PIPE MATERIAL (R18–9–E301.D.2.J / MAG 615.11)
14. CONTRACTOR SHALL TEST EACH MANHOLE ACCORDING TO R18–9–E301.D.3.E AND F.
15. IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODE (A.A.C). R18–4–213, ALL MATERIALS ADDED AFTER JANUARY 1ST, 1993, WHICH MAY COME INTO CONTACT WITH DRINKING WATER, SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.
16. ALL WATER LINE MATERIALS MUST BE ABLE TO WITHSTAND A WORKING PRESSURE OF 150 PSI PLUS ALLOWANCE FOR WATER HAMMER. (EB 10, CHAP. 7, SECT. C, PART 2 / MAG 610.3.A
17. ALL PIPES, FITTINGS, VALVES, FIRE HYDRANTS AND OTHER APPURTENANCES SHALL CONFORM TO CURRENT AWWA, ASTM, AND NSF STANDARDS. (EB 10, CHAP. 7, SECTION B).

ENGINEER'S PAVING NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE BARRICADING AND TRAFFIC CONTROL, WHERE THE CONSTRUCTION OF THE NEW IMPROVEMENTS IS ADJACENT TO OR CONNECTING TO ANY EXISTING FACILITIES
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY AND FINAL CLEAN–UP OPERATIONS OF ADJACENT, EXISTING PAVED STREETS USED BY CONSTRUCTION TRAFFIC. THIS WORK INCLUDES STREET SWEEPING, POWER BROOM AND WATER AS NEEDED
3. CONTRACTOR SHALL SUBMIT ASPHALT MIX DESIGN TO ENGINEER
5. DAMAGED OR CRACKED CONCRETE CURB, GUTTER, VALLEY GUTTER, SIDEWALK, CONCRETE PAVEMENT, OR DRIVEWAY SLABS SHALL BE REPLACED IN–KIND BEFORE FINAL ACCEPTANCE OF THE WORK AT NO ADDITIONAL COST TO THE OWNER
6. CORRECTION OF CONCRETE AND ASPHALT DEFICIENCIES:
   A. INVERSE FLOWS IN CONCRETE CURB & GUTTER AND VALLEY GUTTER APRONS: TO BE REPLACED. NO GRINDING ALLOWED.
   B. INCORRECT ELEVATIONS WITH CORRECT FLOW DIRECTION: FLAT GRINDING MAY BE ALLOWED, BUT NO SLOT GRINDING.
   C. LOW SPOTS IN ASPHALT: TACK AND SKIN PATCH WITH CEMENT BASED AC, 1/2" MIX. SLURRY SEAL MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
   D. HIGH SPOTS IN ASPHALT: GRINDING OR MILLING, 3/4" MINIMUM WITH TACK AND A.C. PATCH, CEMENT BASED. SLURRY SEAL MAY BE REQUIRED.
   E. RE–HEATING OR "BURNING" OF ASPHALT NOT ALLOWED.
   F. ASPHALT REPLACEMENT: SAWCUT AND REMOVE WITH LIKE REPLACEMENT OF AC MIX MATCHING EXST THICKNESS. RECOMPACTION OF ABC SUBGRADE REQUIRED. SLURRY SEAL MAY BE REQUIRED. TACK REQUIRED.
   G. CURB & GUTTER, VALLEY GUTTER, SIDEWALK & PCCP CRACKS: TO BE REMOVED AND REPLACED TO THE NEAREST JOINT.
   H. ASPHALT GAPS AND SEAMS: SLURRY SEAL OR MICRO SEAL. MILLING AND AC PATCH MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.

LEGEND

EXST	NEW
BENCHMARK	BACKFLOW PREVENTER
BRASS CAP FLUSH	DRYWELL
BRASS CAP IN HANDHOLE	FIRE HYDRANT
BACKFLOW PREVENTER	FIRE DEPT CONNECTION
DRYWELL	GATE/DOOR
FIRE HYDRANT	HEADWALL
FIRE DEPT CONNECTION	MANHOLE (TYPE NOTED)
GRATE	METER (TYPE NOTED)
GUY WIRE	PIPE PLUG
HEADWALL	RIPRAP
MANHOLE (TYPE NOTED)	SIGN
METER (TYPE NOTED)	STREET LIGHT
PULLBOX (TYPE NOTED)	VALVE
RIPRAP	CENTERLINE
SIGN	EASEMENT
STREET LIGHT	LIMITS OF CONSTRUCTION
TREE	RIGHT–OF–WAY
UTILITY POLE	FENCE CHAINLINK
VALVE (TYPE NOTED)	MASONRY WALL
EASEMENT	MAJOR CONTOUR
PROPERTY LINE	MINOR CONTOUR
RIGHT–OF–WAY	STORM DRAIN
FENCE CHAINLINK	UTILITY LINE (TYPE NOTED)
MASONRY WALL/RETAINING WALL	
MAJOR CONTOUR	
MINOR CONTOUR	
UTILITY LINE (TYPE NOTED)	

ABBREVIATIONS

ABC	AGGREGATE BASE COURSE
AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
B/C	BACK OF CURB
BC	BRASS CAP
BCF	BRASS CAP FLUSH
BCHH	BRASS CAP IN HANDHOLE
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BM	BENCHMARK
BOT	BOTTOM
C	CONCRETE ELEVATION
CATV	CABLE TELEVISION
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COMM	COMMUNICATION
CONC	CONCRETE
CONST	CONSTRUCTION
DET	DETAIL
DIP	DUCTILE IRON PIPE
E/P	EDGE OF PAVEMENT
EL	ELEVATION
ESMT	EASEMENT
EXST	EXISTING
F/C	FACE OF CURB
FF	FINISH FLOOR ELEVATION
FG	FINISH GRADE ELEVATION
FL	FIRE LINE, FLOWLINE
FND	FOUND
FO	FIBER OPTIC
FT	FOOT OR FEET
G	GUTTER ELEVATION, GAS
GB	GRADE BREAK
GR	GRATE ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
IRR	IRRIGATION
LF	LINEAR FEET
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
ME	MATCH EXISTING
M	MONUMENT LINE
MOD	MODIFIED
NTS	NOT TO SCALE
OC	ON CENTER
OHE	OVERHEAD ELECTRIC
P	PAVEMENT ELEVATION
PCCP	PORTLAND CEMENT CONCRETE PAVEMENT
PL	PROPERTY LINE
PUE	PUBLIC UTILITY EASEMENT
PVC	POLY VINYL CHLORIDE
PVMT	PAVEMENT
R	RADIUS
R/W	RIGHT–OF–WAY
RCP	REINFORCED CONCRETE PIPE
S	SLOPE, SEWER
SD	STORM DRAIN
SEC	SECTION
SF	SQUARE FOOT
SPEC	SPECIFICATIONS
STA	STATION
STD	STANDARD
STL	STEEL
SY	SQUARE YARD
TC	TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL	TELEPHONE
TYP	TYPICAL
UNK	UNKNOWN
VCP	VITRIFIED CLAY PIPE
W	WATER
W/	WITH
WM	WATER METER
WSE	WATER SURFACE ELEVATION

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA 811
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7878 N 16th St
Suite 300
Phoenix, AZ 85020
Phone: 602.957.1155
Contact: Vu Nguyen

Holly Street Studio
1319 E. VAN BUREN STREET
PHOENIX, AZ 85006
PHONE: 602.258.8555
CONTACT: MICHAEL E. JACOBS, AIA

GLENDALE DCRP BEAD MUSEUM RENOVATION
5750 WEST GELNN DRIVE, GLENDALE, AZ 85301

NOTES

Rev.
Date 11/04/2022
Issued for

Registered Professional Engineer (Civil)
CERTIFICATE NO.
50050
VU T.
NGUYEN
Date Signed 11/4/22
ARIZONA, U.S.A.

PHASE:
CONSTRUCTION DOCUMENTS

Project No. 1022150

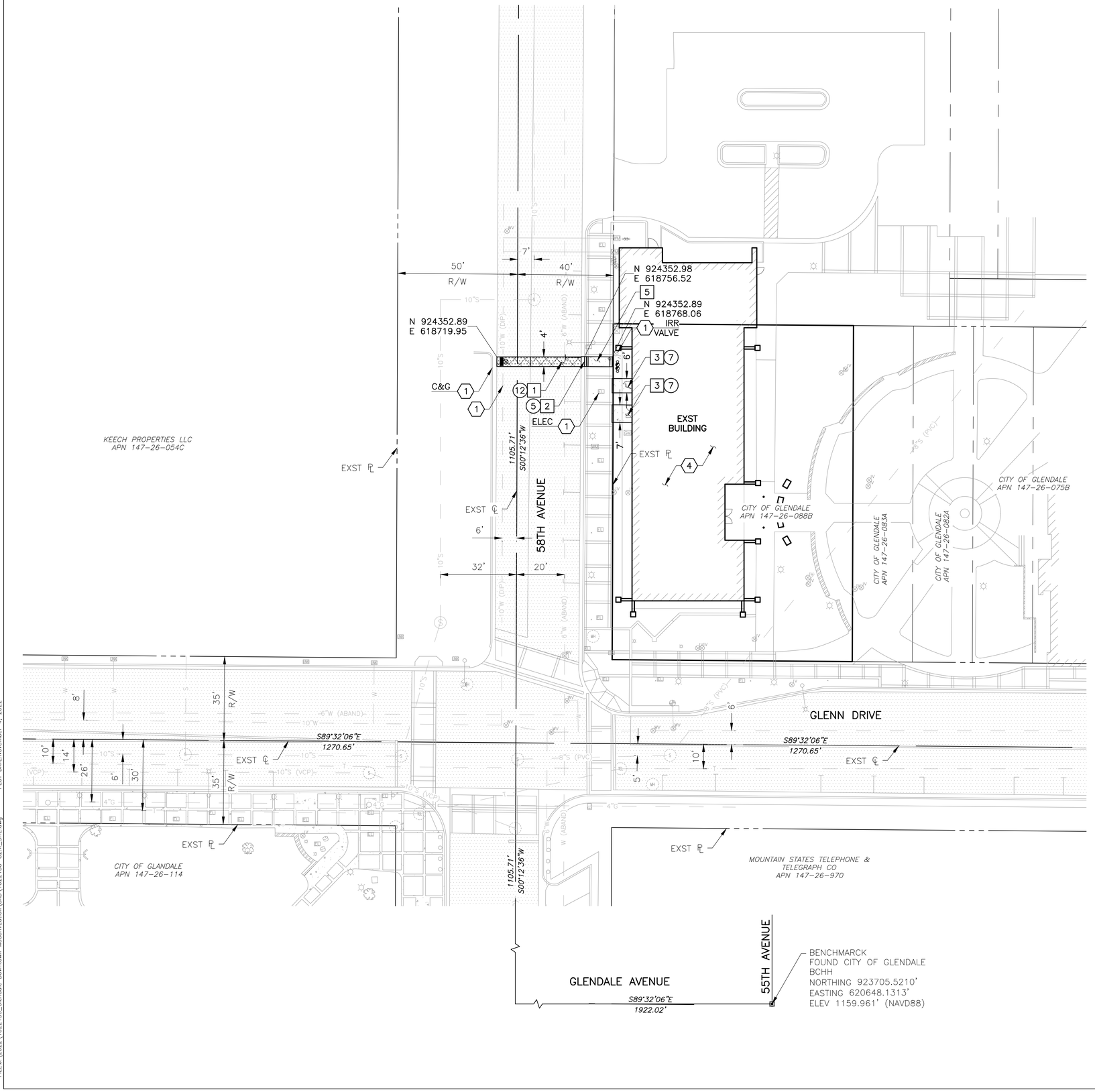
Designed:	Drawn:	Checked:
JR	JR	VTN

Drawing Title
NOTES

Dwg No.
C1.2

DSC # - - - -

FILE:J:\2022\1022150_Glendale Downtown Modernization\CAD\1022150-C1.X_COVER.dwg PLOT DATE:November 4, 2022



REMOVAL NOTES

1. SAWCUT (NEAT LINE) & REMOVE AC PAVEMENT FULLL DEPTH
2. REMOVE CONCRETE CURB & GUTTER TO NEAREST JOINT
3. REMOVE AND REPLACE CONCRETE SIDEWALK
5. REMOVE AND REPLACE CONCRETE PAVERS MATCH IN KIND

CONSTRUCTION NOTES

5. CONCRETE CURB & GUTTER MAG STD DET 220-1, TYPE A
7. CONCRETE SIDEWALK, WIDTH PER PLAN MAG STD DET 230
12. AC PAVEMENT REPLACEMENT MAG STD DET 200, TYPE B

REFERENCE NOTES

1. PROTECT IN PLACE
4. EXST BUILDING INTERIOR RENOVATIONS REFER TO ARCHITECTURAL PLANS

NOTES:
1. ALL DIMENSIONS ARE MEASURED TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. REFER TO ARCHITECTURAL OR LANDSCAPE PLANS FOR ALL PAVERS, CUSTOM CONCRETE FINISHES, COLORS, JOINT LAYOUTS, GEOMETRIC LAYOUTS AND ADDITIONAL INFORMATION

0' 10' 20' 40'
SCALE: 1"=20'

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GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 WEST GELNN DRIVE, GLENDALE, AZ 85301

DEMOLITION & SITE PLAN

Rev.
Date 11/04/2022
Issued for

Registered Professional Engineer (Civil)
CERTIFICATE NO. 50050
VU T. NGUYEN
Date Signed 11/4/22
ARIZONA U.S.A.

PHASE:
CONSTRUCTION DOCUMENTS

Project No. 1022150

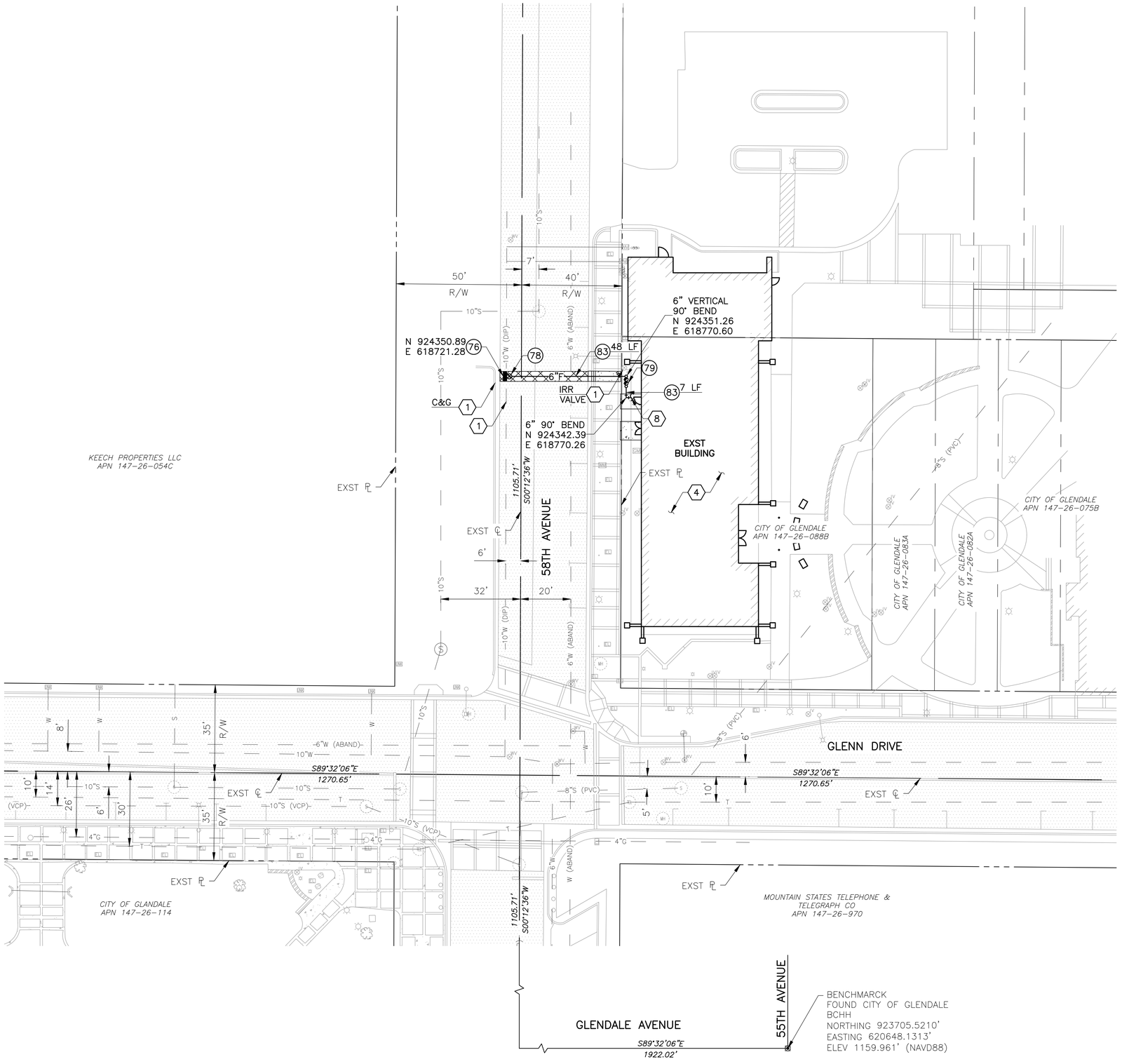
Designed:	Drawn:	Checked:
JR	JR	VTN

Drawing Title
DEMOLITION & SITE PLAN

Dwg No.
C2.1

DSC # - - - - -

FILE:J:\2022\1022150_Glendale Downtown Modernization\CAD\1022150-C2.X_SITE.dwg PLOT DATE:November 4, 2022



CONSTRUCTION NOTES

(76) 10"X6" TAPPING SLEEVE & VALVE W/ BOX & COVER, MAG STD DET 340

(78) GATE VALVE W/BOX & COVER MAG STD DET 391-1&2 SIZE PER PLAN

(79) 6" DOUBLE CHECK BACKFLOW PREVENTER COG STD DET G670 AND G672

(83) FIRE LINE W/FITTINGS, DIP CL 350 W/POLYWRAP, SIZE PER PLAN

REFERENCE NOTES

(1) PROTECT IN PLACE

(4) EXST BUILDING INTERIOR RENOVATIONS REFER TO ARCHITECTURAL PLANS

(8) FOR CONTINUATION REFER TO FIRE PROTECTION PLANS

NOTES:

1. EXISTING UTILITIES ARE SHOWN WITH BEST AVAILABLE INFORMATION. NOT ALL UTILITIES MAY BE SHOWN. CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. ALL EXISTING UTILITIES TO BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.
3. ALL WATER LINES AND FIRE LINES WITHIN PUBLIC RIGHT-OF-WAY AND PUBLIC WATER EASEMENTS SHALL BE DUCTILE IRON PIPE, PRESSURE CLASS 350 AND HAVE BOTH THRUST BLOCKS AND JOINT RESTRAINTS PER MAG STD DET 303 AND DET 308.
4. WHERE UTILITIES CROSSINGS PROVIDE LESS THAN 2-FT OF VERTICAL SEPARATION, EXTRA PROTECTION SHALL BE PROVIDED PER MAG STD SPEC 610 AND 725.

0' 10' 20' 40'

SCALE: 1"=20'

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GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 WEST GELNN DRIVE, GLENDALE, AZ 85301

FIRE LINE PLAN

Rev.

Date 11/04/2022

Issued for

Registered Professional Engineer (Civil) CERTIFICATE NO. 50050 VU T. NGUYEN Date Signed 11/4/22 ARIZONA U.S.A.

PHASE:
CONSTRUCTION DOCUMENTS

Project No. 1022150

Designed:	Drawn:	Checked:
JR	JR	VTN

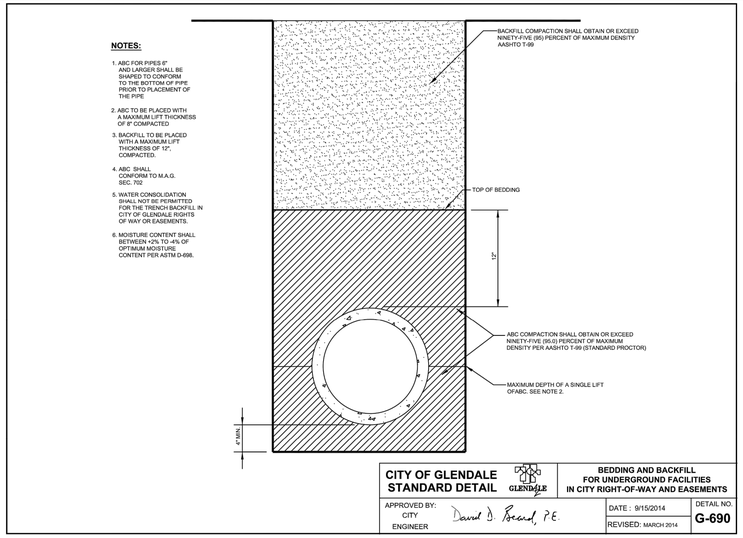
Drawing Title
FIRE LINE PLAN

Dwg No.
C3.1

DSC # - - - -

PLOT DATE:November 4, 2022

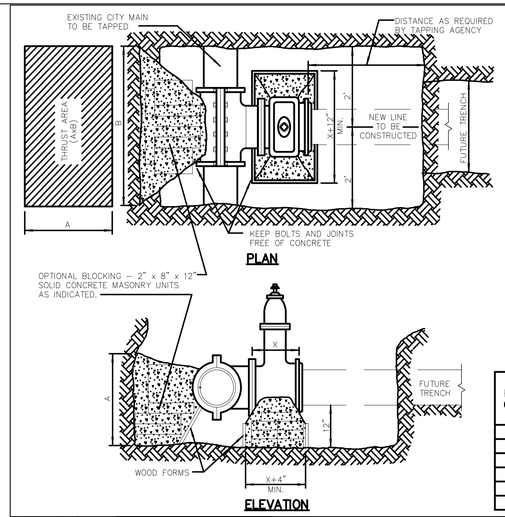
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NOTES:

1. ABC FOR PIPES 8" AND LARGER SHALL BE SHAPED TO CONFORM TO THE BOTTOM OF PIPE PRIOR TO PLACEMENT OF THE PIPE
2. ABC TO BE PLACED WITH A MAXIMUM LIFT THICKNESS OF 8" COMPACTED
3. BACKFILL TO BE PLACED WITH A MAXIMUM LIFT THICKNESS OF 12", COMPACTED.
4. ABC SHALL CONFORM TO M.A.G. SEC. 702
5. WATER CONSOLIDATION SHALL NOT BE PERMITTED FOR THE TRENCH BACKFILL IN CITY OF GLENDALE RIGHTS OF WAY OR EASEMENTS.
6. MOISTURE CONTENT SHALL BETWEEN +2% TO -4% OF OPTIMUM MOISTURE CONTENT PER ASTM D-698.

CITY OF GLENDALE STANDARD DETAIL	BEDDING AND BACKFILL FOR UNDERGROUND FACILITIES IN CITY RIGHT-OF-WAY AND EASEMENTS	
APPROVED BY: CITY ENGINEER David D. Beard, P.E.	DATE : 9/15/2014 REVISED: MARCH 2014	DETAIL NO. G-690



NOTES:

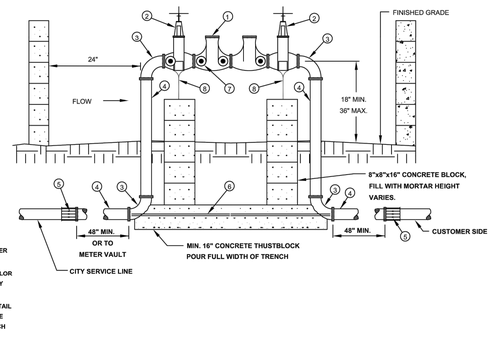
1. TAPPING SLEEVE TO BE PLACED A MINIMUM OF 18" FROM ANY BELL COUPLING, VALVE, FITTING OR OTHER OBSTRUCTION
2. CONTRACTOR SHALL EXCAVATE AS SHOWN AND SHALL SET TAPPING SLEEVE AND VALVE AND TIGHTEN ALL BOLTS PRIOR TO THE PRESSURE TEST.
3. ALL TAPPING SLEEVES AND VALVES MUST BE PRESSURE TESTED PRIOR TO BLOCKING OR TAPPING. THE TEST MUST BE WITNESSED AND APPROVED BY THE INSPECTOR.
4. BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND AND BE INSTALLED BEFORE THE TAP IS MADE. ALL FLANGE BOLTS SHALL BE FREE AND CLEAR OF CONCRETE.
5. CONCRETE THRUST BLOCKS SHALL BE CLASS 'B' PER SECT. 725. NORMALLY, CURE TIME FOR CONCRETE IS 24 HOURS BEFORE BACKFILLING.
6. TAPS SHALL BE MADE BY CITY CREWS AT PREVAILING RATES OR BY APPROVED CONTRACTORS WHEN ALLOWED BY AGENCY.
7. THIS DETAIL COVERS TAPPING SLEEVES 4" THROUGH 16" IN SIZE ON DUCTILE IRON, CAST IRON AND ASBESTOS CEMENT PIPE. ANY OTHER SIZE OR TYPE OF PIPE WILL REQUIRE A SEPARATE SUBMITTAL AND APPROVAL BY THE ENGINEER.

SIZE OF PIPE BEING CONNECTED	MINIMUM THRUST AREA REQUIRED EQUALS (AxB) (SQUARE FEET)
4" AND LESS	3
6"	4
8"	6
10"	9
12"	13
16"	23

DETAIL NO.	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	INSTALLING TAPPING SLEEVES AND VALVES	REVISED	DETAIL NO.
340			01-03-2002	340

LIST OF MATERIALS

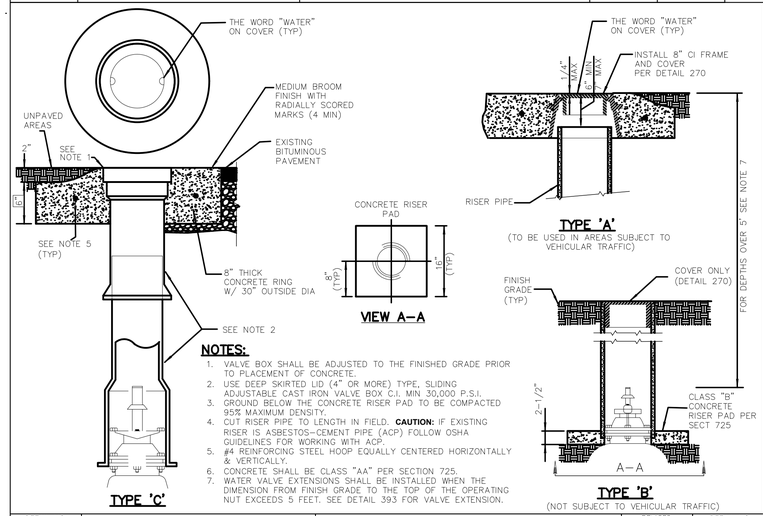
1. APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY.
2. RESILIENT SEATED GATE VALVE. O.S. & Y. (FIRE LINE CONNECTION) N.R.S. (NON FIRE LINE)
3. 90° ELL. FLANGED D.I.P. 3" THRU 10".
4. PIPE SPOOL FLANGED D.I.P. 3" THRU 10".
5. FLANGED ADAPTER (WHEN REQUIRED).
6. 3/4" ZINC COATED THREADED ROD, BOLT TO FLANGES AS SHOWN, TYPICAL BOTH SIDES.
7. TEST COCKS WITH BRASS PLUGS OR ADAPTERS WITH CAPS INSTALLED. (4 REQUIRED).
8. ADJUSTABLE METAL PIPE SUPPORTS. (ASSEMBLIES 4" AND LARGER).



GENERAL NOTES

1. CONTACT CITY OF GLENDALE FOR LATEST LIST OF APPROVED CERTIFIED TESTERS.
2. BACKFLOW PREVENTERS MUST BE TESTED BY A CERTIFIED TESTER BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED.
3. BACKFLOW PREVENTERS SHALL BE PAINTED LIGHT TAN OR A COLOR TO MATCH THE BUILDING. DO NOT PAINT THE NAME PLATE OR ANY BRASS PARTS ON THE ASSEMBLY.
4. FOR BACKFLOW PREVENTERS REQUIRING GUARD POSTS SEE DETAIL G-672. BACKFLOW PREVENTERS FOR 3-INCH AND LARGER WILL BE ENCLOSED BY A SCREENING WALL AND SHALL MAINTAIN A 24 INCH CLEARANCE AROUND THE ASSEMBLY.
5. BACKFLOW PREVENTERS ON FIRE LINES MAY REQUIRE TAMPER SWITCHES ON THE SHUT OFF VALVES.
6. CALL FOR UNDERGROUND INSPECTION BEFORE BACKFILLING TRENCH.

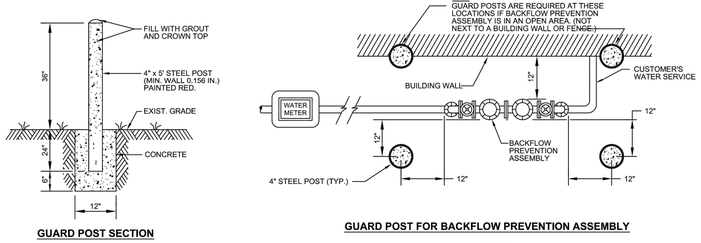
CITY OF GLENDALE STANDARD DETAIL	DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY 3 INCHES AND LARGER	
APPROVED BY: CITY ENGINEER David D. Beard, P.E.	DATE : 9/15/2014 REVISED: MARCH 2014	DETAIL NO. G-670



NOTES:

1. VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACEMENT OF CONCRETE.
2. USE DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX C.I. MIN 30,000 P.S.I.
3. GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.
4. CUT RISER PIPE TO LENGTH IN FIELD. **CAUTION:** IF EXISTING RISER IS ASBESTOS-CEMENT PIPE (ACP) FOLLOW OSHA GUIDELINES FOR WORKING WITH ACP.
5. #4 REINFORCING STEEL HOOP EQUALLY CENTERED HORIZONTALLY & VERTICALLY.
6. CONCRETE SHALL BE CLASS "AA" PER SECTION 725.
7. WATER VALVE EXTENSIONS SHALL BE INSTALLED WHEN THE DIMENSION FROM FINISH GRADE TO THE TOP OF THE OPERATING NUT EXCEEDS 5 FEET. SEE DETAIL 393 FOR VALVE EXTENSION.

DETAIL NO.	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	VALVE BOX INSTALLATION AND GRADE ADJUSTMENT	REVISED	DETAIL NO.
391-1			01-01-2018	391-1

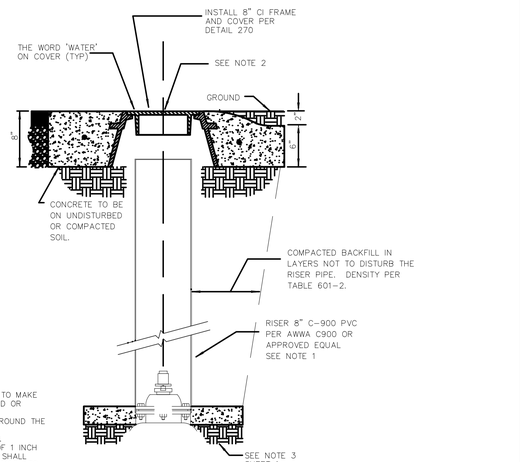


GUARD POST SECTION

GUARD POST FOR BACKFLOW PREVENTION ASSEMBLY

PLAN VIEW

CITY OF GLENDALE STANDARD DETAIL	GUARD POST FOR BACKFLOW PREVENTION ASSEMBLY	
APPROVED BY: CITY ENGINEER David D. Beard, P.E.	DATE : 9/15/2014 REVISED: MARCH 2014	DETAIL NO. G-672



NOTES:

1. IF TWO OR MORE SECTIONS OF PIPE ARE USED TO MAKE THE VALVE BOX RISER, THEY SHALL BE COUPLED OR BONDED TO FORM DEBRIS-TIGHT JOINTS.
2. VALVE BOX SHALL BE PLUMB AND CENTERED AROUND THE OPERATING NUT.
3. THE TOP OF THE VALVE SHALL BE KEPT CLEAN.
4. THE TOP OF THE RISER SHALL BE A MINIMUM OF 1 INCH ABOVE UNDISTURBED OR COMPACTED SOIL AND SHALL HAVE A MINIMUM CLEARANCE OF 2" FROM THE RISER TO THE LID SKIRT.

DRAFT	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	VALVE BOX INSTALLATION AND GRADE ADJUSTMENT	REVISED	DETAIL NO.
391-2			01-01-2017	391-2

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GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 WEST GELNN DRIVE, GLENDALE, AZ 85301

Rev. Date 11/04/2022

Issued for

Registered Professional Engineer (Civil) CERTIFICATE NO. 50050 VU T. NGUYEN Date Signed 11/4/22 ARIZONA, U.S.A.

PHASE: CONSTRUCTION DOCUMENTS

Project No. 1022150

Designed: JR | Drawn: JR | Checked: VTN

Drawing Title: DETAILS

Dwg No. C4.1

DSC # - - - -

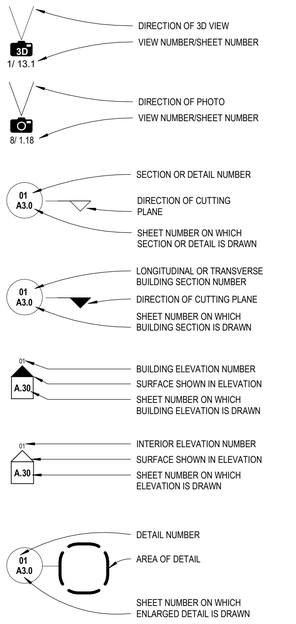
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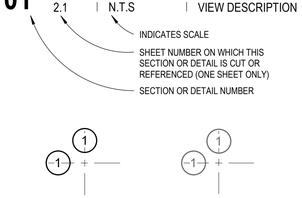
abbreviations

A/C	AIR CONDITIONING
A/V	AUDIO VISUAL
AB	ANCHOR BOLT
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
ABV	ABOVE
ACC	ACCESS
ACC PNL	ACCESS PANEL
ACST	ACOUSTICAL
AD	AREA DRAIN
ADD'L	ADDITIONAL
ADD.	ADDENDUM
ADJ	ADJACENT, ADHUSTABLE
AFF	ABOVE FINISH FLOOR
AGG.	AGGREGATE
AHR	ANCHOR
AHU	AIR HANDLING UNIT
AL. ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ASI	ARCHITECT'S SUPPLEMENTAL INFORMATION
AUTO	AUTOMATIC
AUX	AUXILARY
AVE	AVENUE
AVG	AVERAGE
BAL	BALANCE
BD	BOARD
BF	BACK FACE
BFE	BOTTOM FOOTING ELEVATION
BITUM	BITUMINOUS
BJT	BED JOINT
BL	BUILDING LINE
BLDG	BUILDING
BLKG	BLOCKING
BLT	BOLT
BLW	BELOW
BM	BEAM
BM	BENCH MARK
BO	BOTTOM OF
BO	BY OTHERS/OWNER
BRG	BEARING
BRKT	BRACKET
BS	BOTH SIDES
BSMT	BASEMENT
BTWN	BETWEEN
BVL	BEVEL(ED)
BW	BOTH WAYS
C	CELSIUS
C to C	CENTER TO CENTER
CAB	CABINET
CAL	CALIPER
CANTL	CANTILEVER
CB	CATCH BASIN
CCD	CONSTRUCTION CHANGE DIRECTIVE
CD	CONSTRUCTION DOCUMENT
CEM	CEMENT(ITIOUS)
CFLG	COUNTERFLASHING
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CHEM	CHEMICAL, CHEMISTRY
CHFR	CHAMFER
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CLL	CONTRACT LIMIT LINE
CLR	CLEAR
CLRM	CLASSROOM
CM	CONSTRUCTION MANAGER
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CHANGE ORDER
CO	CLEANOUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONF	CONFERENCE
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CT	COOLING TOWER
CTR	CENTER
CTSK	COUNTERSINK
CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CU YD	CUBIC YARD
D	DEEP/DEPTH
DBL ACT	DOUBLE ACTING
DC	DIRECT CURRENT
DEG	DEGREE
DEMO	DEMOLISH, DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DH	DOUBLE HUNG
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFUSER
DIM	DIMENSION
DIR	DIRECT(ION)(OR)
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DEAD LOAD
DMPF	DAMPPROOF(ING)
DN	DOWN
DR	DOOR
DWG	DRAWING
E	EAST
EA	EACH
EJT	EXPANSION JOINT
EL	ELEVATION
ELAST	ELASTOMERIC
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOS(URE)(ED)
ENL	ENLARGED
ENTR	ENTRANCE
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPAN(SION)(DED)
EXT	EXTERIOR
EXTRU	EXTRU(SION)(DED)
F	FARENHEIT
FBO	FURNISHED BY OTHERS
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISHED FLOOR
FF EL	FINISHED FLOOR ELEVATION
FF&E	FURNITURE, FURNISHINGS, & EQUIPMENT
FHMS	FLAT HEAD MACHINE SCREWS
FHWS	FLAT HEAD WOOD SCREWS
FIN	FINISH
FIP	FOAM IN PLACE
FIXT	FIXTURE
FL. FLR	FLOOR
FLASH	FLASHING
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FP	FIREPROOF
FSTNR	FASTENER
FT	FEET, FOOT
FTG	FOOTING
FURN	FURNI(SH)(TURE)
FURR	FURRING
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACT(OR)
GEN	GENERATOR
GLAZ	GLAZING
GRND	GROUND
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HIGH
HB	HOSE BIB
HC	HANDICAP
HCFC	HYDRO-CHLOROFLUOROCARBON
HD	HEAD
HDBD	HARDBOARD
HDR	HEADER
HDW	HARDWARE
HDWD	HARDWOOD
HM	HOLLOW METAL
HNDRL	HANDRAIL
HORIZ	HORIZONTAL
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTG	HEATING
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HW	HOT WATER
HWH	HOT WATER HEATER
HWY	HIGHWAY
HYD	HYDRANT
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IF	INSIDE FACE
ILLUM	ILLUMINATION
IN	INCHES
INCL	INCLUD(E)(ED)(ING)
INFO	INFORMATION
INSUL	INSULAT(ED)(ION)
INT	INTERIOR
INVT, INV	INVERT
J-BOX	JUNCTION BOX
JAN	JANITOR
JC	JANITOR CLOSET
JST	JOIST
JST BR	JOIST BEARING
JT	JOINT
K	KIPS
KD	KNOCK DOWN
KIT	KITCHEN
KO	KNOCKOUT
KPL	KICK PLATE
KVA	KILOVOLT AMPS
KW	KILOWATTS
L	LENGTH
LAB	LABORATORY
LAM	LAMINATED
LAV	LAVATORY
LDR	LEADER
LG	LARGE
LH	LEFT HAND
LIN	LINEAR
LIQ	LIQUID
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCAT(E)(ION)
LONG	LONGITUDINAL
LP	LOW POINT
LT	LIGHT
LTG	LIGHTING
LTL	LINTEL
LTWT	LIGHTWEIGHT
LVR	LOUVER
M	METER
MACH	MACHINE
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MBR	MEMBER
MDF	MEDIUM-DENSITY FIBERBOARD
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MEZZ	MEZZANINE
MFR	MANUFACTUR(ER)(ED)
MH	MANHOLE
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MIX	MIXTURE
MLWK	MILLWORK
MM	MILLIMETER
MO	MASONRY OPENING
MOD	MODIFIED, MODULAR
MS	MACHINE SCREW
MTD	MOUNTED
MTL	METAL
MTR	MORTAR
MULL	MULLION
N	NORTH
NA	NOT APPLICABLE
NAT	NATURAL
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO/NUM	NUMBER
NOM	NOMINAL
NORM	NORMAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
NW	NORTHWEST
O/O	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OH	OVERHEAD
OPER	OPERABLE
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
ORIG	ORIGINAL
OZ	OUNCE
LB, #	POUND
PC	POINT OF CURVE
PCF	POUNDS PER CUBIC FOOT
PERF	PERFORAT(ED)(ION)
PERIM	PERIMETER
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLVC	PLASTER VENEER COAT
PLYWD	PLYWOOD
PNL	PANEL
PR	PAIR
PR	PROPOSAL REQUEST
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRELIM	PRELIMINARY
PROJ	PROJECT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
PT	POINT, POINT OF TANGENT
PT	PRESSURE TREATED
PTD	PAINTED
PTN	PARTITION
PV	PHOTOVOLTAIC
PVG	PAVING
PVMT	PAVEMENT
PWR	POWER
QT	QUART
QT	QUARRY TILE
QTR	QUARTER
QUAL	QUALITY
R	RADIUS
RA	RETURN AIR
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RE	REFER
REBAR	REINFORCING BAR
REC	RECESSED
RECT	RECTANGLE
REF	REFERENCE
REF	REFRIGERATOR
REG	REGISTER
REG	REGULAR
REINF	REINFORC(E)(ED)(ING)
REQD	REQUIRED
RET	RETURN
REV	REVISION
RFG	ROOFING
RH	RIGHT HAND
RLF	RELIEF
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
S	SOUTH
S&R	STILE & RAIL
SA	SUPPLY AIR
SALV	SALVAGE(D)
SAN	SANITARY
SC	SOLID CORE
SCD JT	SCORED JOINT
SCHED	SCHEDULE
SE	SOUTHEAST
SECT	SECTION
SF	SQUARE FOOT
SF	STOREFRONT
SHT	SHEET
SIM	SIMILAR
SM	SHEET METAL
SP	STAND PIPE
SPEC	SPECIFICATION
SPK	SPEAKER
SPL	SPECIAL
SQ	SQUARE
SST	STAINLESS STEEL
STAG	STAGGERED
STC	SOUND TRANSMISSION COEFFICIENT
STD	STANDARD
STL	STEEL
STN	STONE
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPEN(DED)(SION)
SW	SOUTHWEST
SYS	SYSTEM
T	TREAD
T&G	TONGUE & GROOVE
TC	TERRA COTTA
TEL	TELEPHONE
TEMP	TEMPERTURE
THERM	THERMAL
THK	THICK(NESS)
THOLD	THRESHOLD
TMPD	TEMPERED
TO	TOP OF
TOPAR	TOP OF PARAPET
TOS	TOP OF STEEL
TRANS	TRANSOM
TRANSL	TRANSLUCENT
TRANSP	TRANSPARENT
TRTD	TREATED
TV	TELEVISION
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
USG	UNITED STATES GAGE
UTIL	UTILITY
V	VOLT
VAL	VALUE
VAR	VARIES
VAV	VARIABLE AIR VOLUME
VB	VAPOR BARRIER
VENT	VENTILAT(ING)(ION)
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VIT	VITREOUS
VNR	VENEER
VOC	VOLATILE ORGANIC COMPOUND
VOL	VOLUME
W	WEST
W	WIDTH
W/	WITH
W/O	WITHOUT
W/W	WALL TO WALL
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WF	WIDE FLANGE
WGL	WIRED GLASS
WH	WATER HEATER
WT	WEIGHT
WWF	WELDED WIRE FABRIC
YD	YARD

drafting symbols



01 drawing title 2.1 | N.T.S | VIEW DESCRIPTION



general notes

THESE NOTES ARE IN ADDITION TO ANY INFORMATION IN THE DRAWINGS, SPECIFICATIONS, OR THE NOTES PROVIDED BY THE PRIME CONSULTANT.

1. DO NOT SCALE DRAWINGS - USE DIMENSIONS ONLY. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE ON CONSTRUCTION DOCUMENTS.
2. VERIFY ALL DIMENSIONS AND CONDITIONS IN FIELD. IF CONDITION NOT COVERED IN THE DRAWINGS IS ENCOUNTERED, CONTRACTOR SHALL NOTIFY ARCHITECT, IN WRITING, BEFORE COMMENCING THAT PORTION OF THE WORK.
3. DIMENSIONS WHERE SHOWN ARE NORMALLY GIVEN:
   A. TO FACE OF CONCRETE OR MASONRY UNIT, OR FINISHED FACE
   B. TO CENTER LINES
4. NOTIFY ARCHITECT IF DISCREPANCIES ARE NOTED IN THESE CONTRACT DOCUMENTS IN SUFFICIENT TIME AS TO NOT CAUSE DELAY. DO NOT DEVIATE WITHOUT WRITTEN AUTHORIZATION FROM THE ARCHITECT.
5. DETAILS, NOTES AND FINISHES SHALL BE APPLICABLE TO ALL TYPICAL CONDITIONS WHETHER OR NOT REFERENCED AT ALL PLACES ON THESE PLANS.
6. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED, AND CONDITIONED, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS OR INSTRUCTIONS UNLESS SPECIFIED TO THE CONTRARY HEREIN.
7. THE STARTING OF WORK BY ANY CONTRACTOR OR SUBCONTRACTOR SHALL BE CONSIDERED PRIMA FACIE EVIDENCE THAT HE HAS INSPECTED THE DOCUMENTS AND FINDS THEM SATISFACTORY.
8. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE PUBLIC AND ADJACENT PROPERTIES FROM DAMAGE THROUGHOUT CONSTRUCTION.
9. ALL STUDS AND ANY OTHER FRAMING ARE AT 24" O.C. MINIMUM UNLESS OTHERWISE NOTED.
10. ALL MATERIALS FOR USE SHALL BE NEW UNLESS OTHERWISE NOTED.
11. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING.
12. CAULK, SEAL, AND/OR WEATHERPROOF ALL PENETRATIONS IN WALLS, CEILINGS, AND FLOORS FOR PLUMBING, ELECTRICAL, AND OTHER OPENINGS IN THE BUILDING ENVELOPE.
13. THE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK WITH THE ARCHITECTURAL DRAWINGS BEFORE PROCEEDING WITH THE INSTALLATION OF MECHANICAL, PLUMBING AND ELECTRICAL WORK. SHOULD THERE BE A DISCREPANCY BETWEEN THE ARCHITECTURAL DRAWINGS AND THE CONSULTING ENGINEERS DRAWINGS THAT WOULD CAUSE AN AWKWARD INSTALLATION, IT SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION FOR CLARIFICATION PRIOR TO INSTALLATION OF SAID WORK. ANY WORK INSTALLED IN CONFLICT WITH THE ARCHITECTURAL DRAWINGS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO ADDITIONAL EXPENSE TO THE OWNER.
14. THE ARCHITECTURAL DRAWINGS SHOW PRINCIPAL AREAS WHERE WORK MUST BE ACCOMPLISHED UNDER THIS CONTRACT. INCIDENTAL WORK MAY ALSO BE NECESSARY IN AREAS NOT SHOWN ON THE ARCHITECTURAL DRAWINGS DUE TO CHANGES AFFECTING EXISTING MECHANICAL, ELECTRICAL, PLUMBING OR OTHER SYSTEMS. SUCH INCIDENTAL WORK IS ALSO PART OF THIS CONTRACT. INSPECT THOSE AREAS AND ASCERTAIN WORK NEEDED, AND COMPLETE THAT WORK AS PART OF THE ORIGINAL CONTRACT SUM.
15. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF APPLICABLE CODES AND ALL OTHER GOVERNING AUTHORITIES HAVING JURISDICTION.
16. ISOLATE CONTACT BETWEEN DISSIMILAR METALS
17. ANY ITEMS OR FEATURES IN CEILINGS, SUCH AS, BUT NOT LIMITED TO, LIGHT FIXTURES AND AIR DIFFUSERS SHALL BE PLACED OR INSTALLED WITH SPECIAL ATTENTION TO CENTERING, SPACING AND ALIGNMENT WITH OTHER FEATURES IN PROXIMITY. CONSULT WITH THE ARCHITECT CONCERNING ANY QUESTIONS OR CONFLICTS ABOUT LOCATIONS.
18. PROVIDE BLOCKING BEHIND ALL WALL MOUNTED DOOR STOPS, AND AS REQUIRED FOR MILLWORK, EXHIBIT CASEWORK, AND ALL WALL MOUNTED SHELVING OR EQUIPMENT.
19. ALL RUBBISH AND DEBRIS RESULTING FROM DEMOLITION AND/OR NEW WORK SHALL BE SORTED AND RECYCLED OR DISPOSED OF IN A SUITABLE MANOR AND SHALL NOT BE ALLOWED TO ACCUMULATE.
20. GENERAL CONTRACTOR SHALL HIRE A DETECTION SERVICE TO LOCATE ALL EXISTING ON-SITE UTILITIES WITHIN THE PROJECT BOUNDARY AND A REASONABLE DISTANCE OUTSIDE OF THE PROJECT BOUNDARY WHERE LOCATIONAL UNCERTAINTY OCCURS

Holly Street Studio
1319 E VanBuren St.
Phoenix, AZ 85006
o: 602.258.8555
hollystreetstudio.com

LIGHTVOX

REGISTERED ARCHITECT
CERTIFICATE NO.
32961
MICHAEL E JACOBS
Date Signed
ARIZONA U.S.A.
expiration: 9.30.2025

CITY OF GLENDALE
ENGINEERING DEPT.
5850 W. Glendale ave.
Glendale, AZ 85301
(623) 930 3630

GLENDALE DCRP BEAD
MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title
ARCHITECTURAL STANDARDS

phase
CONSTRUCTION DOCUMENTS

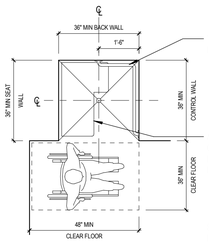
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4 NOVEMBER 2022

project no.
202169.4

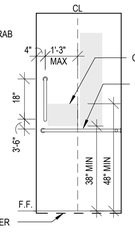
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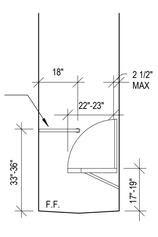
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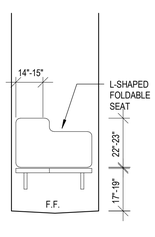
PLAN VIEW



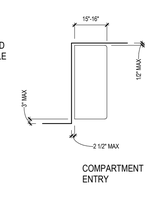
ELEVATION: TRANSFER SHOWER CONTROL WALL



ELEVATION: BACK WALL (WITH SEAT)

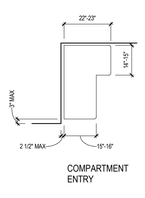


ELEVATION: SIDE WALL (WITH SEAT)



COMPARTMENT ENTRY

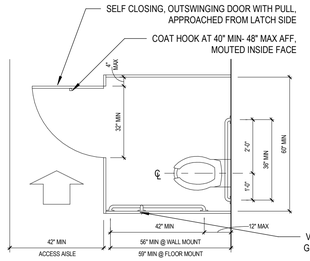
RECTANGULAR SHOWER SEAT

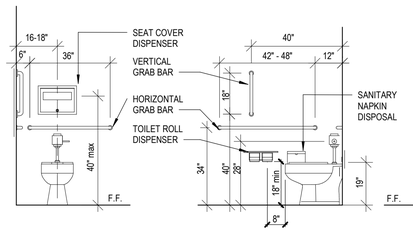


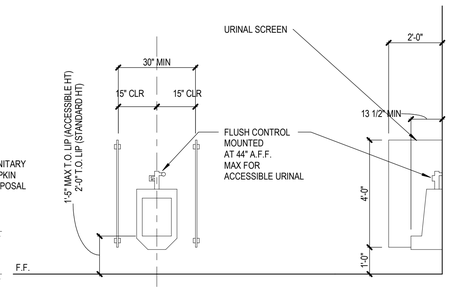
COMPARTMENT ENTRY

L-SHAPED SHOWER SEAT

transfer shower compartment



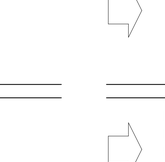




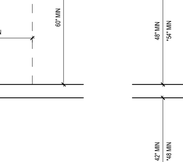
accessible toilet compartment

urinals

UNOBSTRUCTED FORWARD REACH

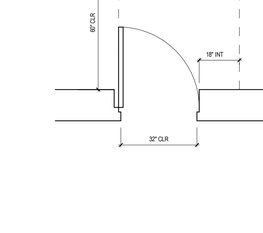


UNOBSTRUCTED HIGH FORWARD REACH



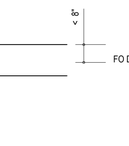
UNOBSTRUCTED SIDE REACH

OBSTRUCTED HIGH SIDE REACH



FRONT ELEV

SIDE ELEV



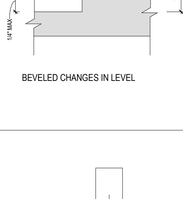
FRONT APPROACH - SINK

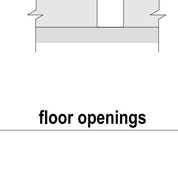


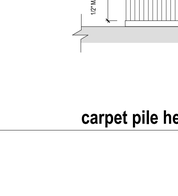
SIDE APPROACH - SINK



FRONT APPROACH - LAVATORY





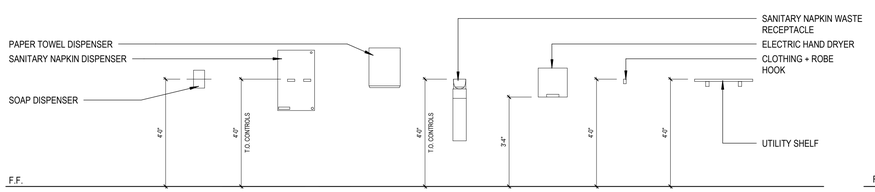


reach ranges

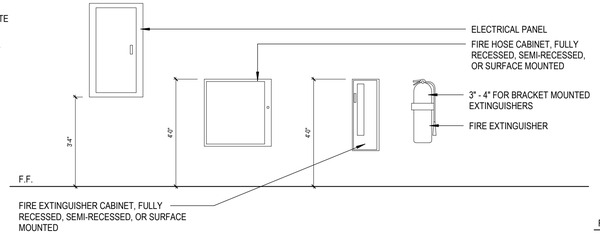
lavatories + mirrors

drinking fountains

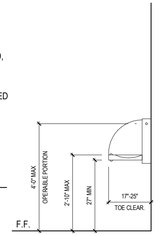
all fixtures to protrude no less than 4" from face of wall



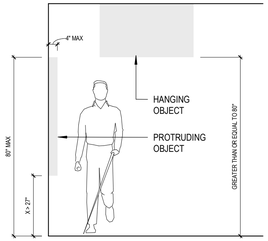
restroom accessories mounting heights



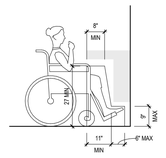
miscellaneous mounting heights



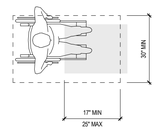
baby changing station



protruding objects

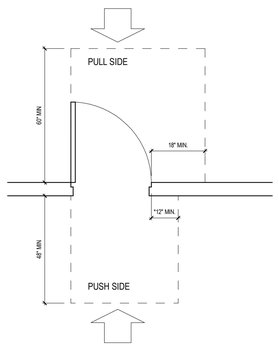


toe clear elevation

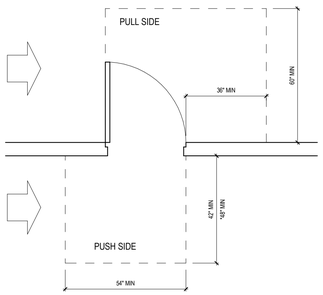


toe clear plan

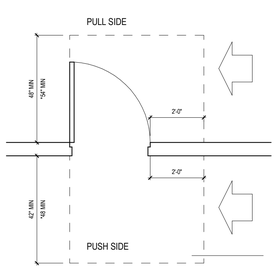
knee + toe clearance



* IF DOOR HAS BOTH A LATCH AND A CLOSER

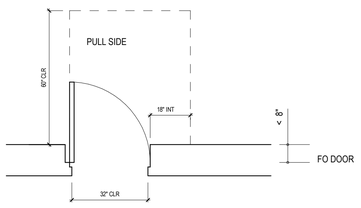


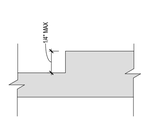
* IF DOOR HAS BOTH A LATCH AND A CLOSER



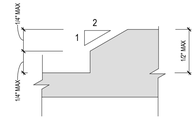
* IF DOOR HAS BOTH A LATCH AND A CLOSER

door clearance requirements for accessible routes

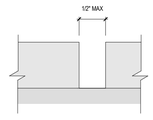


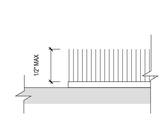


VERTICAL CHANGE



BEVELED CHANGES IN LEVEL

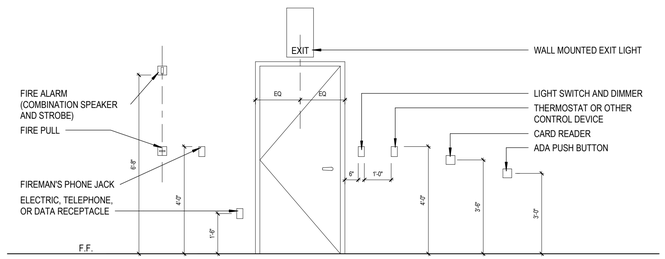




changes in level

floor openings

carpet pile height



controls mounting height

1. REFER TO THE DIAGRAMS ON THIS SHEET FOR ADDITIONAL ACCESSIBILITY DIAGRAMS.
2. WHERE APPLICABLE, THE CODE AND SECTION FOR EACH CORRESPONDING STANDARD HAS BEEN LISTED (ADA/ANSI/IBC).
3. NOT ALL ACCESSIBILITY STANDARDS APPLY TO THIS PROJECT.

12/6/2022 5:55:09 PM

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Studio
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Phoenix, AZ 85006
o: 602.258.8555
hollystreetstudio.com

LIGHTVOX

REGISTERED ARCHITECT
CERTIFICATE NO.
32961
MICHAEL E. JACOBS
STATE OF ARIZONA U.S.A.
expiration: 9.30.2025

CITY OF GLENDALE
ENGINEERING DEPT.
5850 W. Glendale ave.
Glendale, AZ 85301
(623) 930 3630

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title

ADA STANDARDS

phase

CONSTRUCTION DOCUMENTS

date

4 NOVEMBER 2022

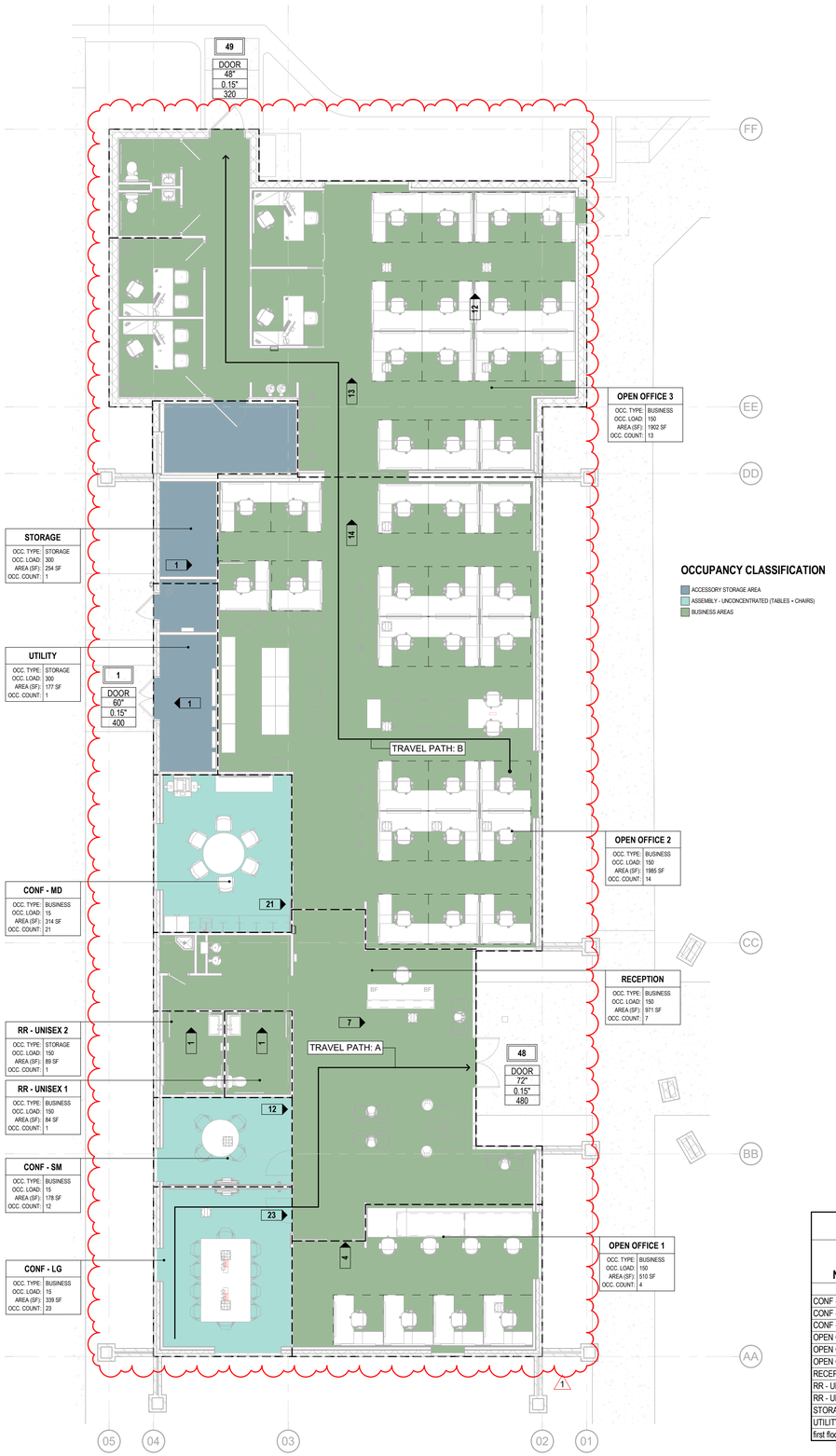
project no.

202169.4

sheet number

A0.1

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1 code plan - first floor - Bead
1/8" = 1'-0"

12/9/2022 3:55:16 PM

CH.3: USE + OCCUPANCY

Occupancy: B [Business]
S-2 [Storage]

CH.5: HEIGHT + AREA

B	ACTUAL	ALLOWABLE
Stories	1	< 3 Story (Table 504.4)
Height	20'-0"	< 60' (Talbe 504.3)
Area	6,802 sf	< 36,000 sf (Table 506.2)
Gross Area	xxx sf	

CH.6: TYPES OF CONSTRUCTION

GROUP	FIRE RESISTANCE RATING REQUIREMENTS	
V-B	Bearing Walls	
Per Table 602	Exterior	0 HR
	Interior	0 HR
	Non-Bearing Walls	
	Exterior	0 HR
	Interior	0 HR
	Floor Construction	0 HR
	Roof Construction	0 HR
	Corridors (1018.1)	0 HR
	Stairs	0 HR

CH.8: INTERIOR FINISHES

Interior wall and ceiling finishes shall be Class B or C rated per Table 803.13

CH.9: FIRE PROTECTION

Fully Sprinkled per NFPA 13

CH.10: MEANS OF EGRESS

See Occupant Load Schedule.

1005.3.2.1
Egress Sizing (Sprinklered): 98 x .15 = 14.70" min.
Provided: 72" (door 1) + 48" (door 2) = 120"

1006.2.1
Common Path of Egress Travel (Sec. 1006.2.1): 100' (B)

1017.2
Exit Access Travel Distance (Table 1017.2): 300' (B, Sprinkled)

EGRESS TRAVEL DISTANCES	
PATH NAME	DISTANCE
TRAVEL PATH: A	67'-11"
TRAVEL PATH: B	108'-0"

CH.11: ACCESSIBILITY

100% Entrances are accessible > 60% minimum required by Sec. 1105.1

CH.29: PLUMBING SYSTEMS

OCCUPANT LOADS: B (Business): 96 Occupants
S-2 (Storage) 2 Occupants

FIXTURE COUNTS:

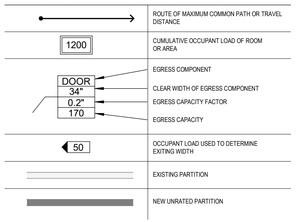
B	**WC-M** [48]	**WC-W** [48]	**LAV-M** [48]	**LAV-W** [48]
96	1/25 = 1.92	1/25 = 1.92	1/40 = 1.20	1/40 = 1.20
S-2	**WC-M** [1]	**WC-W** [1]	**LAV-M** [1]	**LAV-W** [1]
2	1/100 = .01	1/100 = .01	1/1000 = .001	1/1000 = .001

COMPLIANCE:	REQUIRED	PROVIDED
M - WC	2	2
W - WC	2	2
M - LAV	2	2
W - LAV	2	2
Drinking Fountains	1	2
Service Sinks	1	1

OCCUPANT LOAD - IBC 2018 TABLE 1004.5

NAME	AREA	IBC OCC TYPE	FUNCTION OF SPACE	LOAD FACTOR	SF TYPE	OCC. #	0.15" EGRESS WIDTH
CONF - LG	339 SF	B BUSINESS	ASSEMBLY - UNCONCENTRATED (TABLES + CHAIRS)	15 SF	NET	23	3.45"
CONF - MD	314 SF	B BUSINESS	ASSEMBLY - UNCONCENTRATED (TABLES + CHAIRS)	15 SF	NET	21	3.15"
CONF - SM	178 SF	B BUSINESS	ASSEMBLY - UNCONCENTRATED (TABLES + CHAIRS)	15 SF	NET	12	1.8"
OPEN OFFICE 1	510 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	4	0.6"
OPEN OFFICE 2	1985 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	14	2.1"
OPEN OFFICE 3	1902 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	13	1.95"
RECEPTION	971 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	7	1.05"
RR - UNISEX 1	84 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	1	0.15"
RR - UNISEX 2	89 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	1	0.15"
STORAGE	254 SF	S-2 STORAGE	ACCESSORY STORAGE AREA	300 SF	GROSS	1	0.15"
UTILITY	177 SF	S-2 STORAGE	ACCESSORY STORAGE AREA	300 SF	GROSS	1	0.15"
first floor: 11	6802 SF					98	14.7"

CLARIFICATION OF SYMBOLS



OWNER/TENANT

owner
City of Glendale
Representative: Eddie Garcia
2850 W. Glendale Ave
Glendale, AZ 85301
O: 623-930-3652
EGarcia3@glendaleaz.com

PROJECT DESCRIPTION

The project is a tenant improvement of an existing XXXX SF freestanding single-story building to accomodate new Offices and Conferencing spaces with supporting program. Interior architecture, exterior alterations, electrical, plumbing, and mechanical improvements are defined in the documents.

ZONING + USE

C-2 - General Commercial; APN: 147-26-088B

BUILDING CODE

2018 International Building Code (IBC) - with link to amendments effective April 26, 2019
2018 International Mechanical Code (IMC)
2018 International Plumbing Code (IPC)
2018 International Energy Conservation Code (IECC)
2018 International Fuel Gas Code (IFGC)
2018 International Fire Code (IFC)
2017 National Electrical Code (NEC)
2018 ADA Standards for Accessible Design
Arizonans with Disabilities Act
2018 International Existing Building Code (IEBC)
2018 International Property Maintenance Code (IPMC)
City of Glendale Revised Sound Attenuation Standards

CODE SUMMARY

Bulding Construction Type:	V-B
Automatic Fire Sprinkler System:	Yes
Building Maximum Height:	20 ft
Stories:	1 story
Area:	6,802 sf

GENERAL NOTES

1. INSULATION & INSULATION ASSEMBLIES SHALL MEET THE FOLLOWING REQ'S.
   A. CONCEALED INSULATION SHALL HAVE A FLAME SPREAD OF 0-25 AND SMOKE DEVELOPED OF 0-450 FACING MAY COMPLY WITH APPLICABLE SBC CODES.
   B. EXPOSED INSULATION SHALL HAVE A FLAME SPREAD OF 0-25 AND A SMOKE DEVELOPED OF 0-450.
2. INTERIOR WALLS AND CEILINGS SHALL HAVE A FLAME SPREAD OF 0-25 AND A SMOKE DEVELOPMENT RATING OF 0-450.
3. PENETRATIONS THROUGH RATED CONSTRUCTION SHALL BE SEALED W/ A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES & HOT GASSES WHEN TESTED IN ACCORDANCE W/ ASTM-E814. PROVIDE ASSEMBLY DOCS. TO THE INSPECTOR.

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LIGHTVOX

REGISTERED ARCHITECT
CERTIFICATE NO.
32961
MICHAEL E
JACOBS
STATE OF ARIZONA U.S.A.
expiration: 9.30.2025

CITY OF GLENDALE
ENGINEERING DEPT.
5850 W. Glendale ave.
Glendale, AZ 85301
(623) 930 3630

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date
1	PERMIT COMMENTS	09 DIC 2022

title
CODE PLANS

phase
CONSTRUCTION DOCUMENTS

date
4 NOVEMBER 2022

project no.
202169.4

sheet number
A0.2

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finish legend

1. ALL INTERIOR FINISHES SHALL COMPLY WITH REQUIREMENTS DEFINED IN 2018 IBC, CHAPTER 8.
2. 2018 IBC 2018 803.13. INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE 803.13 FOR THE GROUP AND LOCATION DESIGNATED.
3. SEE FLOOR PLANS, RCP'S, ELEVATIONS FOR REFERENCE TO THESE FINISHES.

06 06 20 plastic laminate

PLAM1
PLASTIC LAMINATE VENEER
(PANOLAM SURFACE SYSTEMS)
PRODUCT: NEVAMAR - STANDARD HPL
COLOR: STUDIO GRAY
TEXTURE: SUPER-MATTE

06 41 13 wood-veneer carpentry

WD1
WOOD-VENEEER-FACED ARCHITECTURAL CABINETS
(APPLE PLY OR SIM)
FINISH: BIRCH OUTER VENEER, CLEAR SATIN FINISH
THICKNESS: VARIES. SEE DETAILS
BIO-BASED MATERIAL

08 80 00 glazing

GLZ1
STOREFRONT GLAZING
COLOR: CLEAR
LOCATION: NORTH EXTERIOR WALL. SEE NORTH BUILDING ELEVATION

09 30 13 ceramic tiling

TILE1
CERAMIC FLOOR TILE
PRODUCT: DALTILE, 12"x24", ELECTRIC MOSS RECTANGLE
FINISH: MATTE
COLOR: VL79, V2:MEDIUM

TILE2
CERAMIC WALL TILE (STACK BOND)
PRODUCT: DALTILE, 3"x6", RITTENHOUSE SQUARE
FINISH: SEMI-GLOSS
COLOR: ARCTIC WHITE 0190

09 51 13 acoustical panel ceilings

ACT1
ACOUSTICAL CEILING TILE
PRODUCT: 2'x6' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

ACT2
ACOUSTICAL CEILING TILE
PRODUCT: 2'x4' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

09 65 13 resilient wall base

RB1
RUBBER WALL BASE
PRODUCT: JOHNSONITE IRONSTONE, 4" HIGH
LOCATION: SEE ROOM FINISH SCHEDULE

09 68 13 tile carpeting

CPT1
CARPET TILE
PRODUCT: 24"x24" MOHAWK DATUM, SHALE, BT284
LOCATION: SEE ROOM FINISH SCHEDULE

09 91 23 interior painting

PNT1
WALL / CEILING PAINTING
PRODUCT: BENJAMIN MOORE DECORATORS - WHITE, OC.149
FINISH: EGGSHELL
LOCATION: ALL EXPOSED DRYWALL LOCATIONS

09 96 00 high performance coating

PNT(E)
EXTERIOR STEEL PAINTING
PRODUCT: TNEMEC HI-BUILD TNEME-GLOSS SERIES 2H
COLOR: MATCH EXISTING EXTERIOR

12 36 61 solid surfaces

SS1
SOLID SURFACE COUNTERTOP
(CORIAN)
COLOR: PEARL GRAY
LOCATION: CLASSROOMS TYP

specifications

SECTION 01 40 00 - QUALITY REQUIREMENTS
1.1 SUMMARY
Procedural requirements for quality control and quality assurance.
1.2 QUALITY ASSURANCE
Installers shall have experience with materials and designs similar to those specified in this Project and shall possess a record of work that has resulted in construction with successful in-service performance.
Mock-ups: When required, provide mock-ups in locations demonstrative of the final location and allow time for the architect and owner to assess the acceptability of the work performed prior to final installation.
1.3 QUALITY CONTROL
Contractor shall engage the services of a qualified testing agency when necessary to fulfill the obligations of this contract.

SECTION 02 41 19 - SELECTIVE DEMOLITION
1.1 SUMMARY
Removal of selected non-structural portions of the building.
Temporary and permanent decommissioning and removal of service appurtenances.
1.2 FIELD CONDITIONS
Notify the Architect of discrepancies between existing conditions and Drawings prior to proceeding with selective demolition.
1.3 PERFORMANCE REQUIREMENTS
Conform to regulatory requirements of governing EPA notifications prior to performing selective demolition.
Use caution when Work areas adjoin or intersect elements with historic value.
Comply with hauling and disposal regulations of authorities having jurisdiction.
1.4 SELECTIVE DEMOLITION
Thoroughly examine the Work areas and perform necessary engineered surveys to ensure safety to structures that remain.
Erect temporary facilities to provide barricades and protection from injury to people and damage to structures that remain.
Erect and maintain temporary shoring or bracing to preserve stability and prevent movement, settlement, or collapse in finishes or structures that remain.
Demolish and remove existing construction only to the extent required by new construction and as indicated.
Neatly cut openings or holes plumb, level, and true to dimensions indicated.
Drill or cut holes from the finished side into unfinished or concealed spaces to avoid damage to existing finish surfaces.

SECTION 06 06 20 PLASTIC LAMINATE
1.1 SUMMARY
Plastic Laminate - vertical and horizontal surfaces
1.2 SUBMITTALS
Manufacturers product data and warranty
Samples of plastic laminate: Panolam Surface Systems - Nevamar - Standard HPL, Studio Gray, Super-Matter
1.3 PRODUCTS
PLAM1 - Nevamar - Standard HPL, Studio Gray, Super-Matter

SECTION 06 41 13 - WOOD-VENEER CARPENTRY
1.1 SUMMARY
Wood-Veneer-Faced architectural cabinets
1.2 SUBMITTALS
Manufacturers product data and warranty.
1.3 PRODUCTS
Apple ply or sim, Birch outer veneer, clear satin finish

SECTION 07 21 00 - THERMAL INSULATION
1.1 SUMMARY
Acoustical glass-fiber blankets: ASTM C 665 Type I, unfaced.
1.2 INSTALLATION
Install in cavities formed by framing members to fill to full depth and width of cavity.
Maintain clearances around equipment and devices as specified by device manufacturer.
Friction-fit blankets into cavities and protect from damage by weather, physical abuse, or other causes.

SECTION 07 94 00 - JOINT SEALANTS
1.1 SUMMARY
Non-staining silicone sealants for interior and exterior perimeter joints around windows, doors, and louvers.
Urethane sealants for interior perimeter joints in structural walls and slabs.
Latex sealants for interior perimeter joints in walls, ceilings, and trims.
Acoustical sealants for interior acoustical joints.
1.2 PRODUCTS
General: VOC content shall be less than 250g/L.
Silicone sealants: Non-staining, Type S, Grade NS, Class 50, Use NT - ASTM C 1248.
Urethane sealants: Type S, Grade NS, Class 25, Use NT - ASTM C 920.
Latex Sealants: Acrylic latex, Type OP, Grade NF - ASTM C 834.
Acoustical sealants: Non-Sag, paintable, non-staining latex - ASTM C 834.
Accessories
Primer: Material recommended by joint-sealant manufacturer where required for adhesion to particular substrate.
Backing: Cylindrical closed-cell, sized appropriately for opening - ASTM C 1330 Type C.

SECTION 08 42 13 - ALUMINUM FRAMED ENTRANCES
1.1 SUMMARY
Aluminum framed entry doors.
Aluminum framed door hardware.
1.2 RELATED SECTIONS
Door Hardware.
Glazing.
1.3 SUBMITTALS
Manufacturer's product data, test results, and maintenance recommendations.
Shop drawings: ¼" scale elevations, layout and installation details, hardware mounting heights, detail sections for fittings and anchorage, and reinforcing details.
Samples of metal finishes.
1.4 PRODUCTS
Obtain all glass entrance systems from a single-source to ensure full compatibility and warranty of parts.
Provide all glass entrance door with top and bottom patch fittings with ⅜" thick fully tempered glazing, recessed floor mounted double-acting closer with hold-open and dead stop.
Hardware: Refer to Drawings.
Threshold shall be 5" x 36" Panic Threshold by C.R. Laurence (CRL), 800-421-6144, www.crlaurence.com

SECTION 08 71 00 - DOOR HARDWARE
1.1 SUMMARY
Closers, Stops, Cylinders, and Cores for swinging doors.
1.2 SUBMITTALS
Product Data and Schedule of components for each opening specified.
1.3 PRODUCTS
Refer to Door Hardware Schedule.

SECTION 08 80 00 - GLAZING
1.1 SUMMARY
Glazing for storefront systems.
1.2 SUBMITTALS
Manufacturer's product data for each type of glazing scheduled, including test data, certifications and warranties.
Samples, minimum 6" square for each type of glazing scheduled.
1.3 QUALITY ASSURANCE
Obtain float glass and accessories from a single source manufacturer.
Safety glazing labelling shall be permanently marked indicating manufacturer name, type of glass, thickness, and safety glazing standard of compliance.
1.4 PRODUCTS
Heat-treated Float Glass conforming to ASTM C 1048 TYpe I Quality Q3 CLass I [clear]
Accessories:
Neutral-curing silicone sealant, closed-cell PVC tape.
Aluminum rails and channels.
FIlms for obscuring vision, 3M FasaraSH2CHML, Cross Hairline Milky, or similar.
Glazing Schedule:
GLZ1 - Clear tempered to match existing glass, clear film applied as indicated on drawings.

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING
1.1 SUMMARY
Non-load-bearing metal framing for interior gypsum board partitions and furring assemblies.
Suspension systems for gypsum board soffits and bulkheads.
1.2 PRODUCTS
Framing members, studs, and runners: ASTM C645, minimum 0.018-inch thick x depth indicated on drawings.
Slip-type head channels: ASTM C645
Provide bridging, bracing, and lateral reinforcing to minimize deflection.
Install to Standards of ASTM C754.

SECTION 09 29 00 - GYPSUM BOARD
1.1 SUMMARY
Interior gypsum board.
1.2 PRODUCTS
GYpsum board, Type X, ASTM C1396M, ⅝" thick.
Trim: Corner bead, L-shaped bead and J-shaped bead.
Sound attenuation blankets: Refer to 07 21 00.
1.3 PRODUCTS
Level 5 in all locations.

SECTION 09 30 13 - CERAMIC TILING
1.1 SUMMARY
Porcelain tile, walls and floors - complies with ANSI A137.1
1.2 SUBMITTALS
Manufacturers product data and warranty
Samples of tile and pattern
1.3 PRODUCTS
TILE1: 12"x24", Daltile Electric Moss Rectangle, VL79 V2: Medium, Matte
TILE2: 3"x6" Daltile Rittenhouse Square - Arctic White 0190, Semi-Gloss
1.4 INSTALLATION
Install to manufacturer's standards.
Setting materials comply with ANSI A118.4
Grout Materials comply with ANSI A118.7

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS
1.1 SUMMARY
Suspended ceiling panels and exposed suspension system.
1.2 SUBMITTALS
Manufacturers product data and warranty.
Samples of tile and suspension grid.
1.3 PRODUCTS
Refer to Drawings.

SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES
1.1 SUMMARY
Straight rubber base 4" height
1.2 PRODUCTS
Use Johnsonite rubber base, 'Ironstone' color or sim

SECTION 09 68 13 - TILE CARPETING
1.1 SUMMARY
24" x 24" modular carpet tiles.
1.2 SUBMITTALS
Manufacturer's product data and warranty.
Samples of each type.
Mock up tiles in selected pattern for acceptance by Owner in 1-square yard area prior to full installation.
Extra materials for Owner maintenance - 5-square yards full-sized pieces.
1.3 PRODUCTS
Refer to Drawings.
1.4 INSTALLATION
Install tile in monolithic or quarter-turned pattern, determined in field based on mock-up.
Prepare and level subfloor as recommended by manufacturer.
Adhere tiles to subfloor as recommended by manufacturer using low-VOC mastic.

SECTION 09 91 23 - INTERIOR PAINTING
1.1 SUMMARY
Surface preparation and application of paint on interior surfaces.
1.2 SUBMITTALS
Manufacturer's product data.
Color draw-downs for each type specified.
Mock-up each color type on the actual surface for final approval prior to completion of painting.
1.3 PRODUCTS
Provide paint products, primers, and sealers that conform to MPI standards.
Paints shall have VOC content less than 10g/L.
Primers and sealers shall have VOC content less than 200g/L.
1.4 APPLICATION
Prepare surfaces as recommended by manufacturer.
Cover or protect trims, devices, equipment, and adjacent finished surfaces from being affected by application of paint.
Clean or restore damaged surfaces or areas affected by application of paint during construction.
1.5 PAINT SCHEDULE
Refer to drawings.

SECTION 09 96 00 - HIGH PERFORMANCE COATING
1.1 SUMMARY
High Performance Coating - exterior steel
1.2 SUBMITTALS
Manufacturer's product data and warranty
Samples of high performance coating
1.3 PRODUCTS
Tnemec - Hi-Build Tnemec-Gloss Series 2H - color TBD in field

SECTION 12 36 61 SOLID SURFACES
1.1 SUMMARY
Solid surface countertop
1.2 SUBMITTALS
Manufacturers product data and warranty.
1.3 PRODUCTS
Corian, pearl gray

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LIGHTVOX

REGISTERED ARCHITECT
CERTIFICATE NO.
32961
MICHAEL E
JACOBS
Date Signed
ARIZONA U.S.A.
expiration: 9.30.2025

CITY OF GLENDALE
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5850 W. Glendale ave.
Glendale, AZ 85301
(623) 930 3630

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title
SPECIFICATIONS

phase
CONSTRUCTION DOCUMENTS

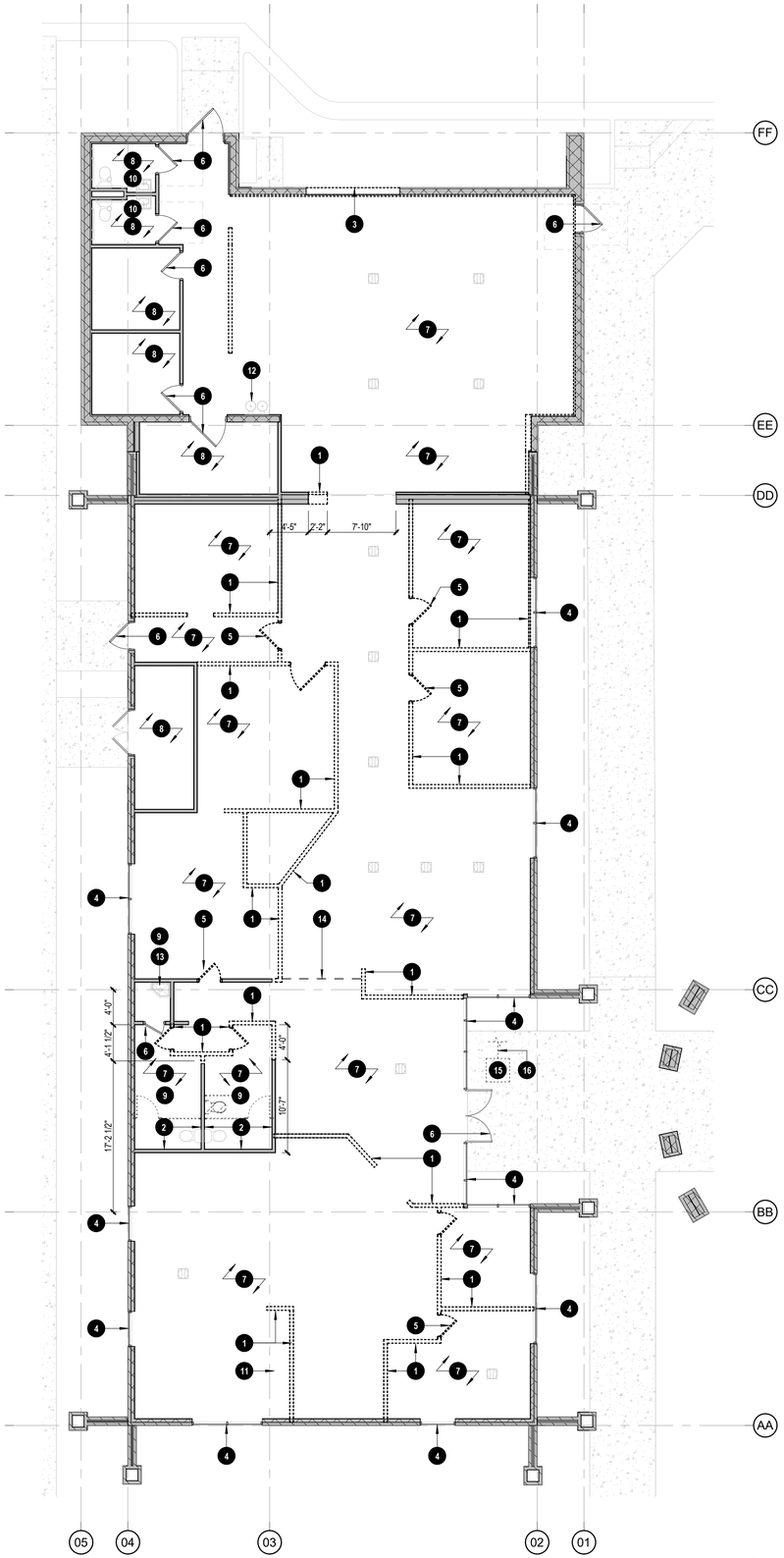
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project no.
202169.4

sheet number
A0.3

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general notes - floor plan

1. FIELD CONDITIONS SHOULD BE VERIFIED AT ALL LOCATIONS NOTED TO BE DEMOLISHED. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO COMMENCING.
2. MECHANICAL, STRUCTURAL, PLUMBING, AND ELECTRICAL APPURTENANCES SHALL BE VERIFIED, TAKEN OUT OF SERVICE OR MADE SAFE PRIOR TO REMOVAL
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH EXISTING CONDITIONS FOR SIZES, QUANTITIES, AND LOCATIONS.
4. ITEMS NOTED AS SALVAGED SHALL BE PROTECTED AND STORED IN A LOCATION DETERMINED BY THE ARCHITECT AND/OR OWNER
5. ALL EXISTING ITEMS TO REMAIN SHALL BE PROTECTED DURING DEMOLITION AND NEW CONSTRUCTION.
6. IN AREAS OF WORK, AT EXISTING WALLS TO REMAIN WHERE OUTLETS, ETC. ARE REMOVED, PATCH AND REPAIR WALL TO MATCH EXISTING WALL TEXTURE. PREPARE WALL TO RECEIVE NEW FINISHES.
7. ALL EXISTING WALLS SHALL BE REPAINTED AS SCHEDULED. CONTRACTOR RESPONSIBLE FOR PREPARING WALLS AND MINOR PATCHING (IN ADDITION TO SPECIFIC PATCHING AS NOTED). ALL EXISTING DOOR FRAMES SHALL BE REPAINTED. PREPARE EXISTING FRAMES PRIOR TO PAINTING.
8. REMOVE ALL INTERIOR BLINDS.
9. REMOVE ALL UNUSED UTILITIES IN EXPOSED CEILING IN PREPARATION FOR SCRIM.

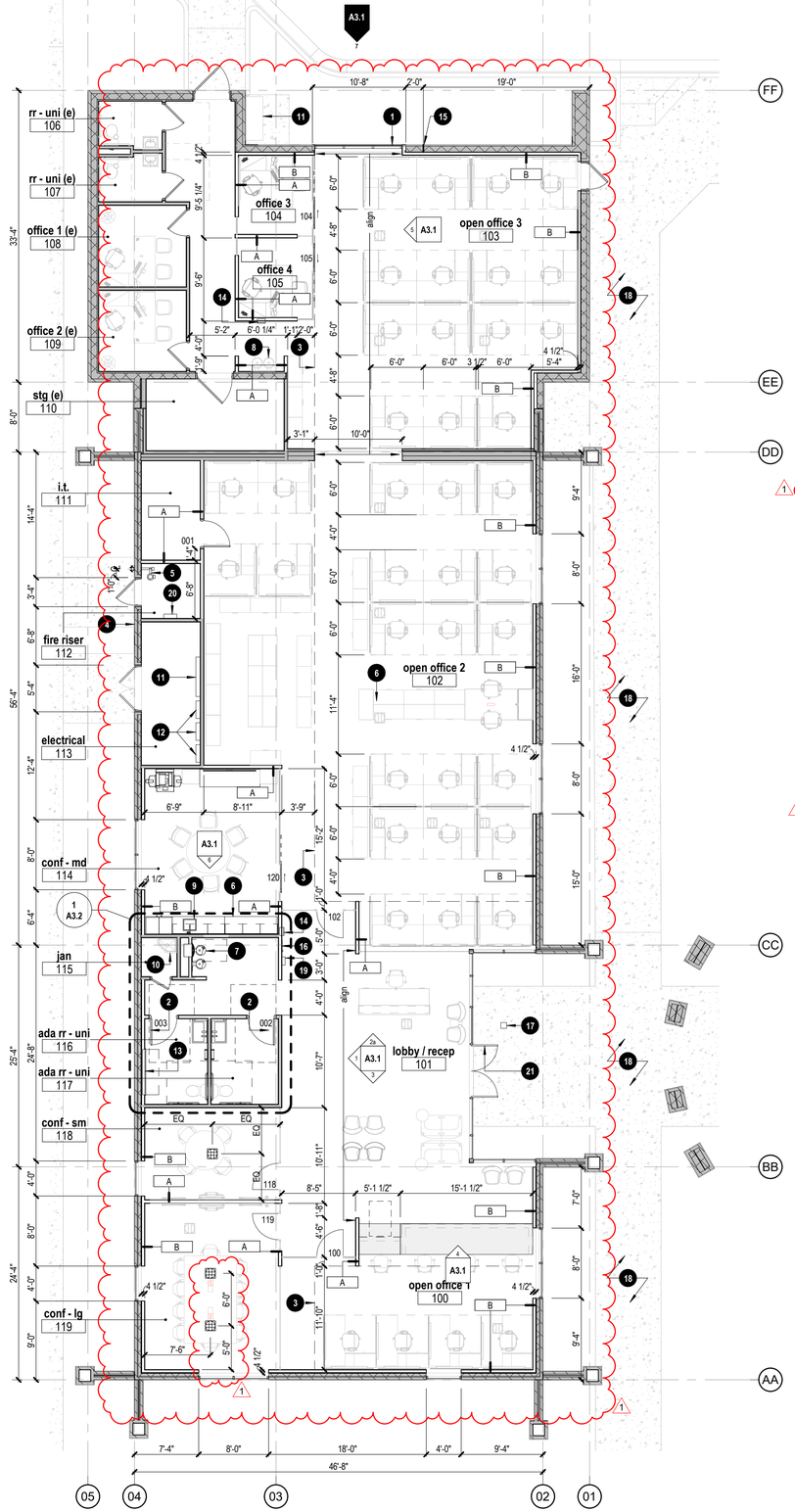
descriptive notes - floor plan demo

1 REMOVE WALL(S) AS SHOWN (INCLUDE DOORS IF SHOWN); REPAIR SLAB AND PREPARE FOR NEW CONSTRUCTION.
2 REMOVE ALL WALL FINISHES DOWN TO EXISTING STUDS.
3 REMOVE PORTION OF EXTERIOR WALL. COORDINATE EXTENT WITH NEW WORK.
4 EXISTING STOREFRONT GLAZING TO REMAIN.
5 REMOVE FRAME AND DOOR; STORE FOR REUSE, TYP.
6 EXISTING FRAME AND DOOR TO REMAIN; PROTECT IN-PLACE DURING DEMO.
7 REMOVE ALL CEILING AND FLOORING FINISHES; PREPARE FOR NEW CONSTRUCTION.
8 EXISTING FLOORING TO REMAIN; PROTECT IN-PLACE DURING DEMO.
9 REMOVE ALL TOILET ACCESSORIES AND EXISTING PLUMBING FIXTURES. CAP PLUMBING LINES AS REQUIRED; REPAIR SLAB AND PREPARE FOR CONSTRUCTION.
10 EXISTING TOILET ACCESSORIES AND EXISTING PLUMBING TO REMAIN; PROTECT IN-PLACE DURING DEMO.
11 REMOVE MILLWORK AND COUNTER SURFACE.
12 DRINKING FOUNTAIN TO REMAIN.
13 MOP SINK TO REMAIN.
14 EXISTING CONCRETE FLOOR BUMP. GRIND AND REPAIR AS NEEDED TO PROVIDE SMOOTH CONCRETE SURFACE. FIELD VERIFY LOCATION.
15 REMOVE CONCRETE AS REQUIRED. FINAL ROUTING TO BE DETERMINED IN FIELD.COORDINATE LOCATION WITH ADA BOLLARD SHOWN IN ARCH FLOOR PLAN.
16 REMOVE CONCRETE AS REQUIRED. FINAL ROUTING TO BE DETERMINED IN FIELD.COORDINATE LOCATION WITH ADA BOLLARD SHOWN IN ARCH FLOOR PLAN.

demolition legend

- EXISTING TO REMAIN
- EXISTING TO BE DEMOLISHED
- NEW CONSTRUCTION
- NOT IN SCOPE
- FLOOR MOUNTED DUPLEX RECEPTACLE (LEAVE IN PLACE)

02 Bead - floor plan - demo
1/8" = 1'-0"



general notes - floor plan

1. DIMENSIONS ARE FROM FACE OF PARTITION FINISH OR STRUCTURAL GRIDLINE UNLESS OTHERWISE NOTED
2. CONTINUE GYPSUM BOARD AT ALL WALLS TO BOTTOM OF DECK. COVER ALL EXPOSED INSULATION.
3. PARTITIONS ILLUSTRATED ON COLUMN CENTERLINES ARE CENTERED ON CENTERLINE.
4. PROVIDE BLOCKING IN WALLS FOR ALL WALL MOUNTED EQUIPMENT/DEVICES.
5. REFERENCE A0.1 FOR ACCESSIBILITY REQUIREMENTS AND TYPICAL MOUNTING HEIGHTS.
6. REFERENCE A0.03 FOR DOOR & PARTITION SCHEDULES.
7. REFER TO ROOM FINISH SCHEDULE FOR INFORMATION ON FLOOR, WALL, AND CEILING FINISHES.
8. REFERENCE INTERIOR AND EXTERIOR ELEVATIONS FOR ADDITIONAL FINISH INFORMATION
9. REFER TO INTERIOR ELEVATIONS FOR MILLWORK CONFIGURATIONS.
10. MEP EQUIPMENT SHOWN FOR REFERENCE ONLY. SEE MEP DRAWINGS FOR FURTHER INFORMATION.
11. LIGHT FIXTURES, ELECTRICAL FIXTURES, BOXES, ETC., LOCATED IN RATED ASSEMBLIES SHALL BE INSTALLED WITH RATED HOUSING -OR- BE INSTALLED WITH A FIVE SIDED ENCLOSURE AS REQUIRED TO RETAIN RATING OF ASSEMBLY.
12. KITCHEN APPLIANCES AND EQUIPMENT SHOWN FOR REFERENCE ONLY.
13. ELECTRICAL EQUIPMENT AND DEVICES SHOWN FOR REFERENCE AND ARCHITECTURAL PLACEMENT. SEE ELEVATIONS FOR DIMENSIONS. SEE ELECTRICAL DRAWINGS FOR FURTHER INFORMATION.
14. VERIFY ALL EXTERIOR LIGHT FIXTURES WORK PROPERLY AND REPLACE LIGHT BULBS.

1 ALL GLAZING TO BE TEMPERED.

descriptive notes - floor plan

1 NEW STOREFRONT, SEE EXTERIOR ELEVATIONS
2 REUSE SALVAGED DOOR
3 LINE OF SOFFIT ABOVE.
4 KNOX BOX LOCATION, CONFIRM MOUNTING HEIGHT W/ AHJ PRIOR TO INSTALL
5 FIRE CONNECTION, SEE PLUMBING DWGS.
6 CASEWORK
7 DRINKING FOUNTAIN, SEE PLUMBING DWGS
8 DRINKING FOUNTAIN (E).
9 SINK, SEE PLUMBING DWGS.
10 MOP SINK (E).
11 ELECTRICAL EQUIPMENT, SEE ELECTRICAL DWGS
12 ELECTRICAL PANELS, SEE ELECTRICAL DWGS
13 ADULT CHANGING STATION
14 SEMI-RECESSED FIRE EXTINGUISER CABINET.
15 EXISTING MASONRY CONTROL JOINT, MAINTAIN REQUIRED CLEARANCE PER STRUCTURAL DWGS. FIELD VERIFY LOCATION.
16 EMERGENCY DEFIBRILLATOR
1 17 PEDESTAL WITH ADA PUSH BUTTON FOR DOOR OPERATOR AND KEY CARD ACCESS
18 EXTERIOR EGRESS PATH TO MEET ADA REQUIREMENTS. GRIND AREAS THAT ARE RAISED TO MEET CODE REQUIREMENTS.
19 FIRE ALARM ANNUNCIATOR PANEL
20 FIRE ALARM CONTROL PANEL
21 MODIFY DOOR TO RECEIVE ADA ACTUATOR AND ASSOCIATED HARDWARE FOR LOCKING AND OPERATION.

graphic legend

- WALL MOUNTED DUPLEX RECEPTACLE. SEE ELECTRICAL DWGS.
- FLOOR MOUNTED QUADPLEX RECEPTACLE. SEE ELECTRICAL DWGS.

01 Bead - floor plan
1/8" = 1'-0"

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LIGHTVOX

REGISTERED ARCHITECT CERTIFICATE NO. 32961 MICHAEL JACOBS Date Signed ARIZONA U.S.A.
expiration: 9.30.2025

CITY OF GLENDALE
ENGINEERING DEPT.
5850 W. Glendale ave.
Glendale, AZ 85301
(623) 930 3630

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date
1	PERMIT COMMENTS	09 DIC 2022

title
DEMO + FLOOR PLAN

phase
CONSTRUCTION DOCUMENTS

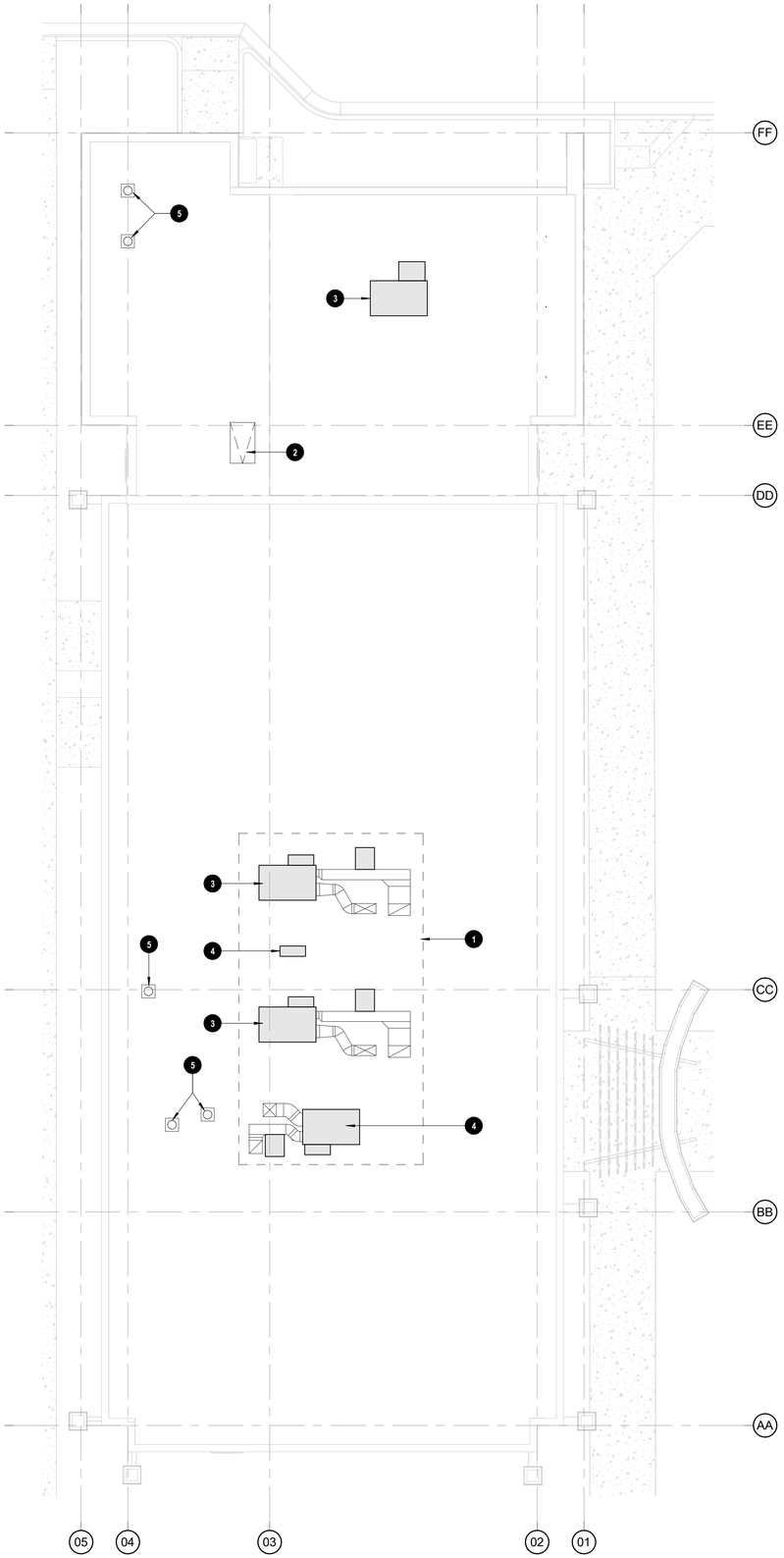
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4 NOVEMBER 2022

project no.
202169.4

sheet number
A1.0

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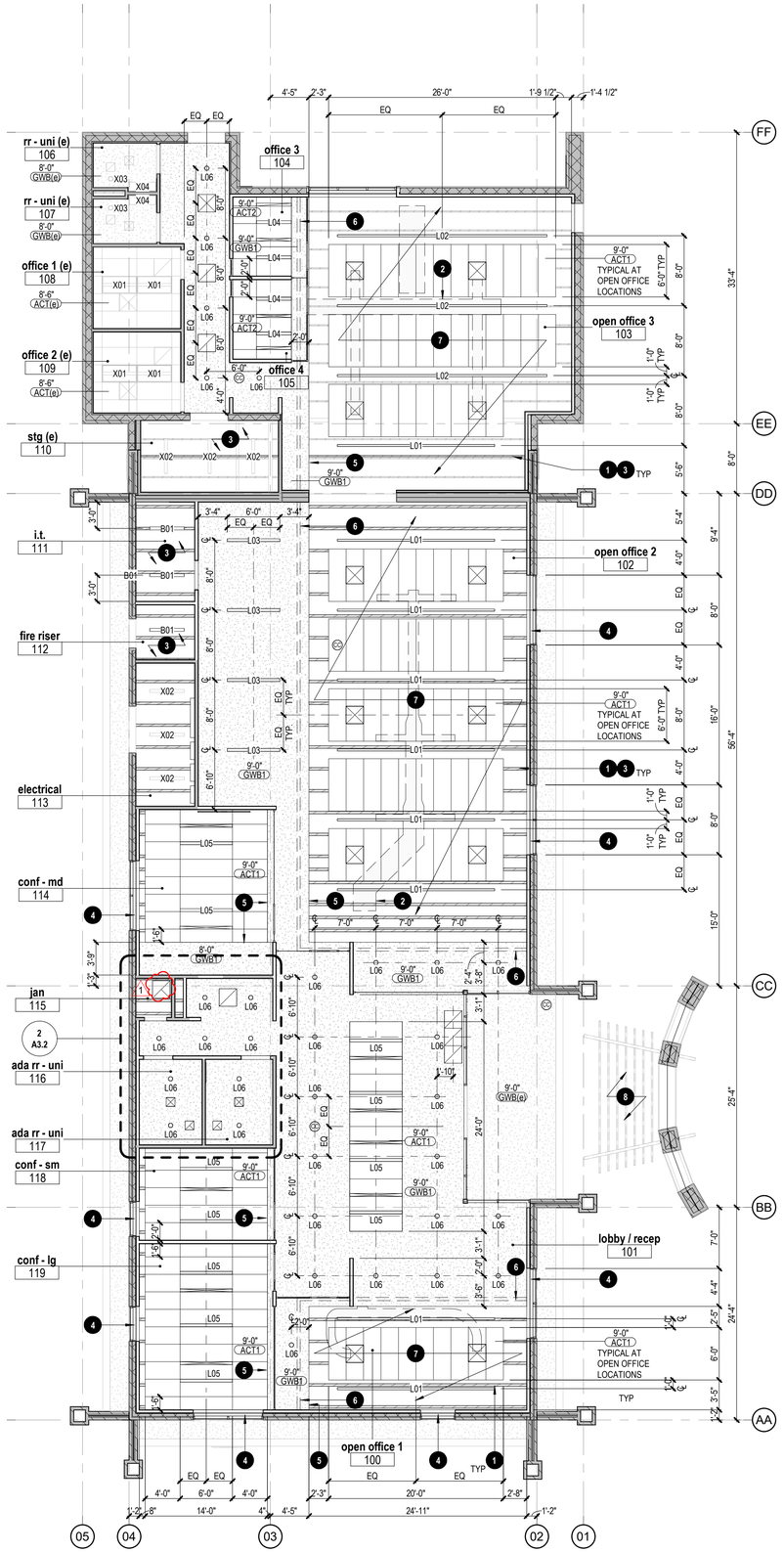
general notes - roof

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH EXISTING CONDITIONS FOR SIZES, QUANTITIES, AND LOCATIONS. CONFLICTS ARE TO BE BROUGHT TO THE ATTENTION OF ARCHITECT PRIOR TO START OF CONSTRUCTION.
2. ROOF SLOPES TO BE 1/4" PER FOOT MINIMUM INCLUDING VALLEYS AT ALL NEW CONSTRUCTION.
3. SEE MECHANICAL/PLUMBING DRAWINGS FOR EXACT EQUIPMENT PLACEMENT. EQUIPMENT SHOWN IS FOR COORDINATION ONLY.
4. MECHANICAL TO PROVIDE ALL THEIR OWN CURBS UNLESS OTHERWISE NOTED.

descriptive notes - roof

1 EXISTING SCREEN WALL
2 EXISTING ROOF ACCESS
3 NEW ROOF TOP UNIT, SEE MECHANICAL DWGS
4 NEW MINI-SPLIT CONDENSER, SEE MECHANICAL DWGS
5 NEW EXHAUST VENT, SEE MECHANICAL DWGS

2 **Bead - roof plan**
1/8" = 1'-0"



general notes

1. DIMENSIONS ARE TO FACE OF FINISH OR TO CENTERLINE OR EDGE OF FIXTURE.
2. ALL CEILING HEIGHT DIMENSIONS ARE TO BOTTOM OF SUSPENSION GRID OR FACE OF GYPSUM BOARD, UNLESS NOTED OTHERWISE.
3. METAL SUSPENSION SYSTEMS OR CEILING PANELS TO BE CENTERED IN ALL ROOMS IN BOTH DIRECTIONS UNLESS NOTED OTHERWISE. PARTIAL PANELS SHALL NOT BE LESS THAN 6" IN EITHER DIRECTION.
4. LOCATE SPRINKLER HEADS, SMOKE DETECTORS, SPEAKERS AND OTHER CEILING-MOUNTED MECHANICAL, ELECTRICAL, PLUMBING AND SECURITY DEVICES CENTERED IN ACOUSTICAL CEILING PANELS UNLESS NOTED OTHERWISE. IN GYPSUM BOARD CEILINGS, ALIGN FIXTURES AND DEVICES AND CENTER IN SPACES UNLESS NOTED OTHERWISE.
5. LIGHT FIXTURES TO BE CENTERED AND ORIENTED IN ROOMS AS SHOWN, UNLESS NOTED OTHERWISE. MULTIPLE IDENTICAL LIGHT FIXTURES IN A SPACE SHALL BE ALIGNED TO THE CENTERLINE OF THE GOVERNING DIMENSION. LIGHT FIXTURES IN CEILING PANELS ARE TO BE CENTERED ON THE PANEL OR ALIGNED WITH THE PANEL EDGE UNLESS NOTED OTHERWISE.
6. PROVIDE ACCESS PANELS IN GYPSUM BOARD CEILINGS AS REQUIRED TO ALLOW ACCESS TO ABOVE CEILING EQUIPMENT AND DEVICES.
7. ROOM OPEN TO STRUCTURE UNLESS OTHERWISE NOTED
8. ALL CEILINGS IN BATHROOM & WET AREAS SHALL BE MOISTURE & MILDEW RESISTANT GYPSUM BOARD.
9. LIGHT FIXTURES, ELECTRICAL FIXTURES, BOXES, ETC., LOCATED IN RATED ASSEMBLIES SHALL BE INSTALLED WITH RATED HOUSING -OR- BE INSTALLED WITH A FIVE SIDED ENCLOSURE OF TYPE C DRYWALL AS REQUIRED TO RETAIN RATING OF ASSEMBLY.
10. PROVIDE BLOCKING IN WALLS FOR ALL WALL MOUNTED ITEMS.
11. REFERENCE A0.03 FINISH LEGEND FOR CEILING FINISHES.
12. CONTRACTOR TO PROVIDE FIRE PROTECTION DOCUMENTS SEALED BY A REGISTERED DESIGN PROFESSIONAL.

descriptive notes - rcp

1 STRUCTURAL WOOD TRUSS, SEE STRUCTURAL DWGS
2 FRAMED SOFFIT
3 EXPOSED STRUCTURE
4 SURFACE MOUNTED WINDOW SHADE
5 FRAMED SOFFIT
6 LINE OF BULKHEAD ABOVE
7 WHITE SCRIM AT BOTTOM CHORD OF TRUSS AT EXPOSED CEILINGS. ALL EXPOSED UTILITIES TO BE PNT1 FINISH,
8 ALL EXTERIOR STEEL TO BE PAINTED WITH HIGH PERFORMANCE COATING. MATCH EXISTING COLOR.

rcp legend

SEE DISCIPLINE SHEETS FOR DISCIPLINE SPECIFIC SYMBOLS
SEE SECTOR RCPS FOR GENERAL NOTES

- 24" X 24" SQUARE RETURN REGISTER
- 24" X 24" SQUARE SUPPLY DIFFUSER
- RECESSED CAN LIGHT
- RECESSED 2X4 DOWNLIGHT
- RECESSED LINEAR DOWNLIGHT
- GYPSUM BOARD CEILING
- 2X2 ACOUSTICAL CEILING TILE
- 2X4 ACOUSTICAL CEILING TILE
- LINEAR RETURN DIFFUSER
- LINEAR SUPPLY DIFFUSER
- LINEAR PENDANT
- SECURITY CAMERA

LIGHT FIXTURE SCHEDULE

TYPE	SIZE	FIXTURE COLOR	DESCRIPTION
B01	4" X 4'-0"	ALUM	BOH LINEAR PENDANT
L01	18'-0"	WHITE	LINEAR PENDANT LIGHT
L02	24'-0"	WHITE	LINEAR PENDANT LIGHT
L03	4'-0"	WHITE	RECESSED LINEAR DOWNLIGHT (GYP)
L04	4'-0"	WHITE	RECESSED LINEAR DOWNLIGHT (ACT)
L05	6'-0"	WHITE	RECESSED LINEAR DOWNLIGHT
L06	6" DIA.	WHITE	RECESSED CAN DOWNLIGHT

1 **Bead - reflected ceiling plan**
1/8" = 1'-0"

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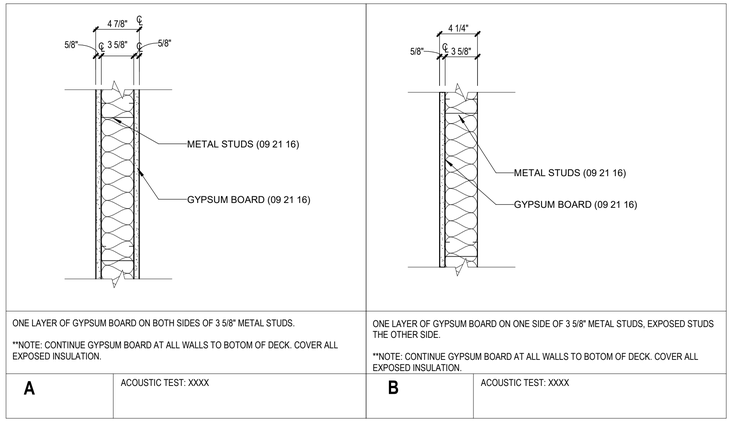
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ONE LAYER OF GYPSUM BOARD ON BOTH SIDES OF 3 5/8" METAL STUDS.

**NOTE: CONTINUE GYPSUM BOARD AT ALL WALLS TO BOTOM OF DECK. COVER ALL EXPOSED INSULATION.

A | ACOUSTIC TEST: XXXX

ONE LAYER OF GYPSUM BOARD ON ONE SIDE OF 3 5/8" METAL STUDS, EXPOSED STUDS THE OTHER SIDE.

**NOTE: CONTINUE GYPSUM BOARD AT ALL WALLS TO BOTOM OF DECK. COVER ALL EXPOSED INSULATION.

B | ACOUSTIC TEST: XXXX

general notes - partitions

UNLESS OTHERWISE INDICATED IN THE FOLLOWING "CLARIFICATION OF REFERENCE DESIGNATIONS FOR INTERIOR PARTITIONS" OR OTHERWISE INDICATED ELSEWHERE ON THE "DRAWINGS", ALL INTERIOR PARTITIONS ARE GYPSUM BOARD AND METAL STUDS AND ARE TO BE CONSTRUCTED AS LISTED BELOW.

1. ALL METAL STUDS SHALL BE 3 5/8" DEEP AND MINIMUM 25 GAUGE. (FOR PARTITIONS REQUIRING HEAVIER GAUGE STUDS, SEE SPECIFICATION SECTION 09 21 16 OR DESCRIPTION BELOW).
2. ALL METAL STUDS SHALL BE SPACED 16" O.C.
3. ALL METAL STUDS SHALL EXTEND FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF ABOVE.
4. ALL METAL STUDS SHALL HAVE ONE LAYER OF GYPSUM BOARD ON EACH SIDE OF STUD.
5. ALL GYPSUM BOARD SHALL BE MOLD-RESISTANT, TYPE X AND 5/8" THICK.
6. ALL GYPSUM BOARD, ON WALLS, SHALL TERMINATE AT THE UNDERSIDE OF GYPSUM BOARD CEILINGS AND MINIMUM OF 6" ABOVE OTHER TYPE CEILINGS. WHERE CEILINGS DO NOT OCCUR, GYPSUM BOARD SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF ABOVE.
7. ALL COMPONENTS OF FIRE RATED, SMOKE BARRIER, OR STC RATED PARTITION SYSTEMS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF ABOVE.
8. PARTITION SYSTEMS INDICATED TO HAVE STC-RATINGS SHALL INCORPORATE SOUND ATTENUATION BLANKETS AND ACOUSTIC SEALANT TO ACHIEVE THE REQUIRED RATING. REFERENCE SPECIFICATION SECTION 09 21 16
9. IF CONCRETE MASONRY UNITS ARE INDICATED, UNITS SHALL BE 7 5/8" THICK AND SHALL EXTEND FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF ABOVE.
   THE THICKNESS OF PARTITIONS SHOWN ARE FINISH SURFACE TO FINISH SURFACE EXCLUDING THIN-SET CERAMIC TILE.
10. REFER TO SPECIFICATION SECTION 09 21 16 FOR GLASS MAT-FACED GYPSUM BOARD REQUIREMENTS IN WET AREAS.
11. WET AREAS WILL BE DEFINED AS: WALLS SUPPORTING SINKS, TOILETS AND URINALS, AND SHOWER AND TUB SURROUNDS, INCLUDING SHOWER CEILING.
12. WHERE A REFERENCE DESIGNATION IS NOT INDICATED ON THE FLOOR PLANS, THE PARTITION TYPE SHALL BE TYPE 10.0.

finish legend

1. ALL INTERIOR FINISHES SHALL COMPLY WITH REQUIREMENTS DEFINED IN 2018 IBC, CHAPTER 8.
2. 2018 IBC 2018 803.13. INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE 803.13 FOR THE GROUP AND LOCATION DESIGNATED.
3. SEE FLOOR PLANS, RCP'S, ELEVATIONS FOR REFERENCE TO THESE FINISHES.

06 06 20 plastic laminate

(PLAM1) **PLASTIC LAMINATE VENEER**
(PANOLAM SURFACE SYSTEMS)
PRODUCT: NEVAMAR - STANDARD HPL
COLOR: STUDIO GRAY
TEXTURE: SUPER-MATTE

06 41 13 wood-veneer carpentry

(WD1) **WOOD-VENEEER-FACED ARCHITECTURAL CABINETS**
(APPLE PLY OR SIM)
FINISH: BIRCH OUTER VENEER, CLEAR SATIN FINISH
THICKNESS: VARIES. SEE DETAILS
BIO-BASED MATERIAL

08 80 00 glazing

(GLZ1) **STOREFRONT GLAZING**
COLOR: CLEAR
LOCATION: NORTH EXTERIOR WALL. SEE NORTH BUILDING ELEVATION

09 30 13 ceramic tiling

(TILE1) **CERAMIC FLOOR TILE**
PRODUCT: DALTILE, 12"x24", ELECTRIC MOSS RECTANGLE
FINISH: MATTE
COLOR: VL79, V2:MEDIUM

(TILE2) **CERAMIC WALL TILE (STACK BOND)**
PRODUCT: DALTILE, 3"x6", RITTENHOUSE SQUARE
FINISH: SEMI-GLOSS
COLOR: ARCTIC WHITE 0190

09 51 13 acoustical panel ceilings

(ACT1) **ACOUSTICAL CEILING TILE**
PRODUCT: 2'x6' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

(ACT2) **ACOUSTICAL CEILING TILE**
PRODUCT: 2'x4' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

09 65 13 resilient wall base

(RB1) **RUBBER WALL BASE**
PRODUCT: JOHNSONITE IRONSTONE, 4" HIGH
LOCATION: SEE ROOM FINISH SCHEDULE

09 68 13 tile carpeting

(CPT1) **CARPET TILE**
PRODUCT: 24"x24" MOHAWK DATUM, SHALE, BT284
LOCATION: SEE ROOM FINISH SCHEDULE

09 91 23 interior painting

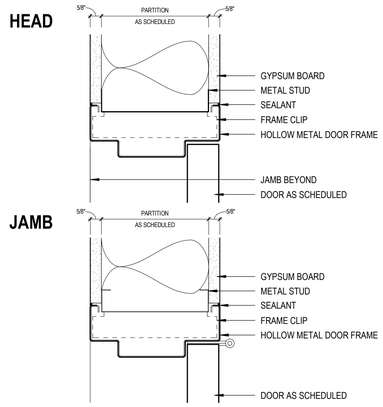
(PNT1) **WALL / CEILING PAINTING**
PRODUCT: BENJAMIN MOORE DECORATORS - WHITE, OC.149
FINISH: EGGSHELL
LOCATION: ALL EXPOSED DRYWALL LOCATIONS

09 96 00 high performance coating

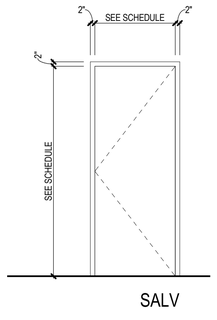
(PNT(E)) **EXTERIOR STEEL PAINTING**
PRODUCT: TNEMEC HI-BUILD TNEME-GLOSS SERIES 2H
COLOR: MATCH EXISTING EXTERIOR

12 36 61 solid surfaces

(SS1) **SOLID SURFACE COUNTERTOP**
(CORIAN)
COLOR: PEARL GRAY
LOCATION: CLASSROOMS TYP



2 Door Jamb + Header
3" = 1'-0"



1 FRAME AND DOOR TYPES
3/8" = 1'-0"

general notes - doors

1. GENERAL CONTRACTOR TO FIELD VERIFY ALL OPENINGS AND CORRECT ANY DEVIATIONS PRIOR TO START OF WORK.
2. ALL DOORS SHALL HAVE AN UNDERCUT OF 1/4" ABOVE FLOOR FINISH, U.N.O.
3. THERE SHALL BE A LEVEL AND CLEAR LANDING ON EACH SIDE OF A DOOR.
4. MAXIMUM PULL FORCE FOR ALL INTERIORS DOORS SHALL NOT EXCEED 5LB.
5. DOOR HANDLES SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST.
6. REFER TO FLOOR PLANS FOR SWING OR SLIDE DIRECTION.
7. FINISHED SHALL BE APPLIED TO ALL EXPOSED SIDES OF DOORS.
8. ALL HARDWARE SHALL BE INSTALLED AT 36" A.F.F. TO CENTERLINE OF HANDLE, U.N.O.
9. ALL DOORS SHALL BE 1-3/4" THICK WITH HOLLOW METAL FRAMES UNLESS OTHERWISE NOTED.
10. FIRE RATINGS ARE INDICATED IN MINUTES.

DOOR SCHEDULE

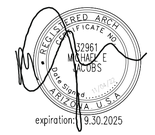
#	TYPE	DOOR PANEL					FRAME			HDWR	FIRE RATING	REMARKS
		WIDTH	HEIGHT	MAT.	THICK.	FIN.	MAT.	FIN.	DTL.			
001	SALV	3'-0"	7'-10"	HM		PNT2	HM	PNT2	--			PASSAGE LOCK FUNCTION
002	SALV	3'-0"	7'-10"	HM		PNT2	HM	PNT2	--			PRIVACY LOCK FUNCTION
003	SALV	3'-0"	7'-10"	HM		PNT2	HM	PNT2	--			PRIVACY LOCK FUNCTION
100	PIVOT	3'-0"	8'-9 1/2"	GL	1 3/4"	--	AL	--	PER MANUF			OFFICE LOCK FUNCTION
102	PIVOT	3'-0"	8'-9 1/2"	GL	1 3/4"	---	AL	--	PER MANUF			PASSAGE LOCK FUNCTION
104	SLIDER	3'-0"	8'-9 1/2"	GL	1 3/4"	--	AL	--	PER MANUF			OFFICE LOCK FUNCTION
105	SLIDER	3'-0"	8'-9 1/2"	GL	1 3/4"	--	AL	--	PER MANUF			OFFICE LOCK FUNCTION
118	PIVOT	3'-0"	8'-9 1/2"	GL	1 3/4"	--	AL	--	PER MANUF			OFFICE LOCK FUNCTION
119	PIVOT	3'-0"	8'-9 1/2"	GL	1 3/4"	--	AL	--	PER MANUF			OFFICE LOCK FUNCTION
120	SLIDER	3'-0"	8'-9 1/2"	GL	1 3/4"	--	AL	--	PER MANUF			OFFICE LOCK FUNCTION

ROOM FINISH SCHEDULE

#	NAME	AREA	FLOOR	BASE	WALL	CEILING	REMARKS
100	open office 1	430 SF	CPT1	RB1	PNT1	ACT1 / GWB1 - PNT1	
101	lobby / recep	910 SF	CPT1	RB1	PNT1	GWB - PNT1	
102	open office 2	1898 SF	CPT1	RB1	PNT1	ACT1 / GWB1 - PNT1	
103	open office 3	1234 SF	CPT1	RB1	PNT1	ACT1 / GWB1 - PNT1	
104	office 3	75 SF	CPT1	RB1	PNT1	ACT2 / GWB1 - PNT1	
105	office 4	76 SF	CPT1	RB1	PNT1	ACT2 / GWB1 - PNT1	
106	rr - uni (e)	38 SF	--	--	PNT1	GWB(e) / PNT1	
107	rr - uni (e)	38 SF	--	--	PNT1	GWB(e) / PNT1	
108	office 1 (e)	93 SF	CPT1	RB1	PNT1	ACT(e)	
109	office 2 (e)	93 SF	CPT1	RB1	PNT1	ACT(e)	
110	stg (e)	129 SF	--		PNT1	EXPOSED	
111	i.t.	76 SF	CNC(e)	RB1	PNT1	EXPOSED	
112	fire riser	42 SF	CNC(e)	RB1	PNT1	EXPOSED	
113	electrical	110 SF	--		PNT1	EXPOSED	
114	conf - md	294 SF	CPT1	RB1	PNT1	ACT1 / GWB1 - PNT1	
115	jan	18 SF	--	--	PNT1	EXPOSED	
116	ada rr - uni	70 SF	TILE1	TILE2	PNT1 / TILE2	GWB - PNT1	
117	ada rr - uni	75 SF	TILE1	TILE2	PNT1 / TILE2	GWB - PNT1	
118	conf - sm	164 SF	CPT1	RB1	PNT1	ACT1 / GWB1 - PNT1	
119	conf - lg	298 SF	CPT1	RB1	PNT1	ACT1 / GWB1 - PNT1	

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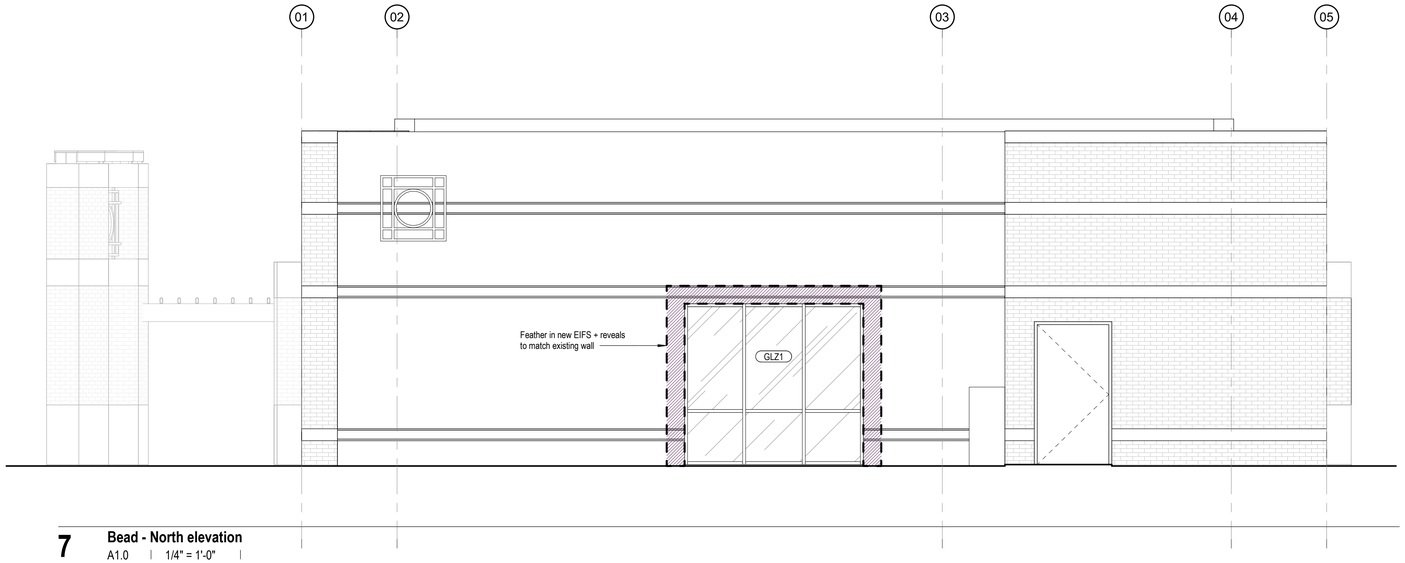
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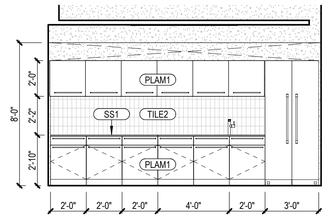
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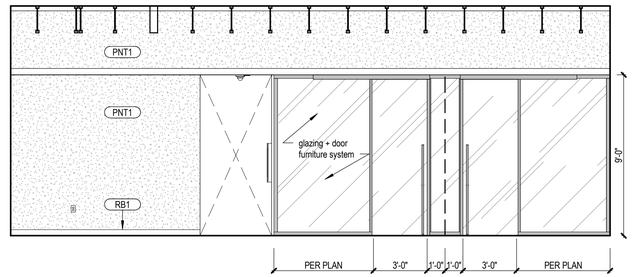
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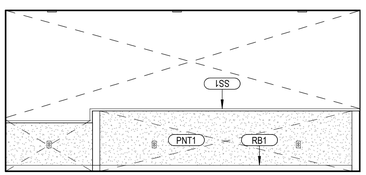
7 Bead - North elevation
A1.0 | 1/4" = 1'-0"



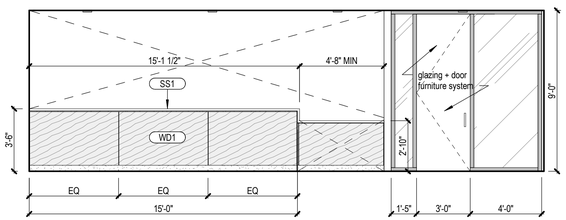
6 conf small - south
A1.0 | 1/4" = 1'-0"



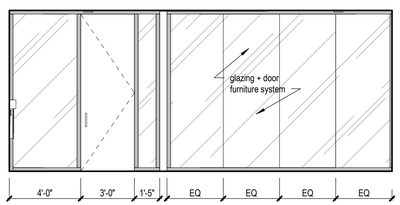
5 open office 3 - west
A1.0 | 1/4" = 1'-0"



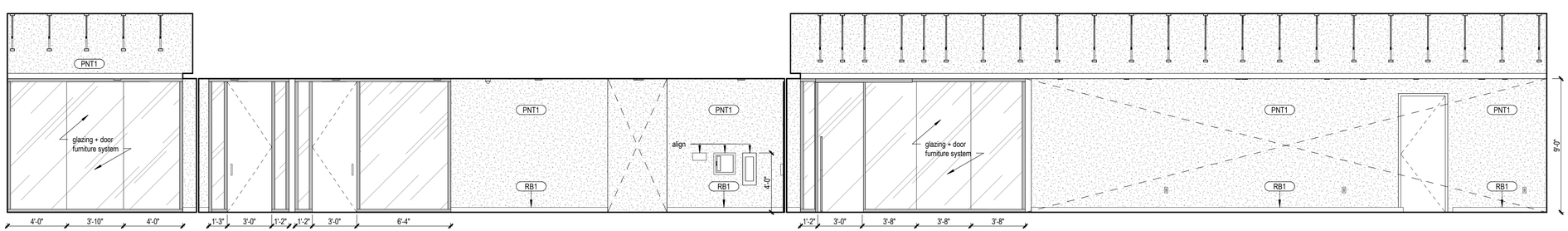
4 open office 1 - north
A1.0 | 1/4" = 1'-0"



3 lobby - south
A1.0 | 1/4" = 1'-0"



2a lobby - north
A1.0 | 1/4" = 1'-0"



1 lobby & open office west
A1.0 | 1/4" = 1'-0"

finish legend

1. ALL INTERIOR FINISHES SHALL COMPLY WITH REQUIREMENTS DEFINED IN 2018 IBC, CHAPTER 8.
2. 2018 IBC 2018 803.13. INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE 803.13 FOR THE GROUP AND LOCATION DESIGNATED.
3. SEE FLOOR PLANS, RCP'S, ELEVATIONS FOR REFERENCE TO THESE FINISHES.

06 06 20 plastic laminate

PLAM1 — **PLASTIC LAMINATE VENEER**
(PANOLAM SURFACE SYSTEMS)
PRODUCT: NEVAMAR - STANDARD HPL
COLOR: STUDIO GRAY
TEXTURE: SUPER-MATTE

06 41 13 wood-veneer carpentry

WD1 — **WOOD-VENEEER-FACED ARCHITECTURAL CABINETS**
(APPLE PLY OR SIM)
FINISH: BIRCH OUTER VENEER, CLEAR SATIN FINISH
THICKNESS: VARIES. SEE DETAILS
BIO-BASED MATERIAL

08 80 00 glazing

GLZ1 — **STOREFRONT GLAZING**
COLOR: CLEAR
LOCATION: NORTH EXTERIOR WALL. SEE NORTH BUILDING ELEVATION

09 30 13 ceramic tiling

TILE1 — **CERAMIC FLOOR TILE**
PRODUCT: DALTILE, 12"x24", ELECTRIC MOSS RECTANGLE
FINISH: MATTE
COLOR: VL79, V2:MEDIUM

TILE2 — **CERAMIC WALL TILE (STACK BOND)**
PRODUCT: DALTILE, 3"x6", RITTENHOUSE SQUARE
FINISH: SEMI-GLOSS
COLOR: ARCTIC WHITE 0190

09 51 13 acoustical panel ceilings

ACT1 — **ACOUSTICAL CEILING TILE**
PRODUCT: 2'x6' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

ACT2 — **ACOUSTICAL CEILING TILE**
PRODUCT: 2'x4' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

09 65 13 resilient wall base

RB1 — **RUBBER WALL BASE**
PRODUCT: JOHNSONITE IRONSTONE, 4" HIGH
LOCATION: SEE ROOM FINISH SCHEDULE

09 68 13 tile carpeting

CPT1 — **CARPET TILE**
PRODUCT: 24"x24" MOHAWK DATUM, SHALE, BT284
LOCATION: SEE ROOM FINISH SCHEDULE

09 91 23 interior painting

PNT1 — **WALL / CEILING PAINTING**
PRODUCT: BENJAMIN MOORE DECORATORS - WHITE, OC.149
FINISH: EGGSHELL
LOCATION: ALL EXPOSED DRYWALL LOCATIONS

09 96 00 high performance coating

PNT(E) — **EXTERIOR STEEL PAINTING**
PRODUCT: TNEMEC HI-BUILD TNEME-GLOSS SERIES 2H
COLOR: MATCH EXISTING EXTERIOR

12 36 61 solid surfaces

SS1 — **SOLID SURFACE COUNTERTOP**
(CORIAN)
COLOR: PEARL GRAY
LOCATION: CLASSROOMS TYP

Holly Street
Studio
1319 E VanBuren St.
Phoenix, AZ 85006
o: 602.258.8555
hollystreetstudio.com

LIGHTVOX



expiration: 9.30.2025

CITY OF GLENDALE
ENGINEERING DEPT.
5850 W. Glendale ave.
Glendale, AZ 85301
(623) 930 3630

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date
1	PERMIT COMMENTS	09 DIC 2022

title
ELEVATIONS

phase
CONSTRUCTION DOCUMENTS

date
4 NOVEMBER 2022

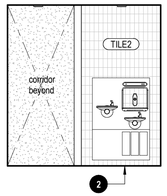
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sheet number
A3.1

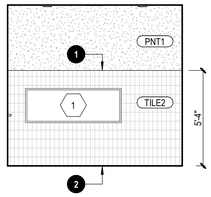
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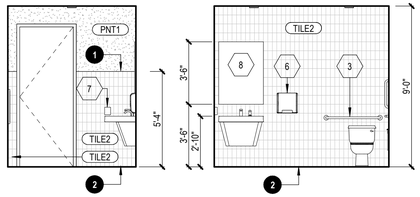
TOILET ROOM ACCESSORY SCHEDULE (10 28 00)			
NO.	ITEM DESCRIPTION	MANUFACTURER NAME	MANUFACTURER MODEL NUMBER
1	WALL-MOUNTED ADULT CHANGING STATION	FOUNDATIONS	100SSE-R
2	RECESSED MULTI-ROLL ANTI-THEFT TOILET PAPER DISPENSER	BOBRICK	B-35883
3	36" STAINLESS STEEL GRAB BAR	BOBRICK	B-5806x36
4	42" STAINLESS STEEL GRAB BAR	BOBRICK	B-5806x42
5	18" STAINLESS STEEL GRAB BAR	BOBRICK	B-5806x18
6	STAINLESS STEEL HAND DRYER	BOBRICK	B-7120 208-240V
7	STAINLESS STEEL SOAP DISPENSER	BOBRICK	B-2013
8	MIRROR	N/A	SEE INT. ELEV
9	RECESSED SANITARY NAPKIN DISPOSAL	BOBRICK	B-3513
P-01		BY OWNER	BY OWNER
TV-01		BY OWNER	BY OWNER



7 rr vestibule - w
1/4" = 1'-0"

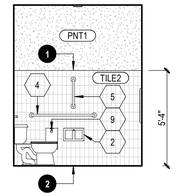


6 ADA unisex rr - west
1/4" = 1'-0"

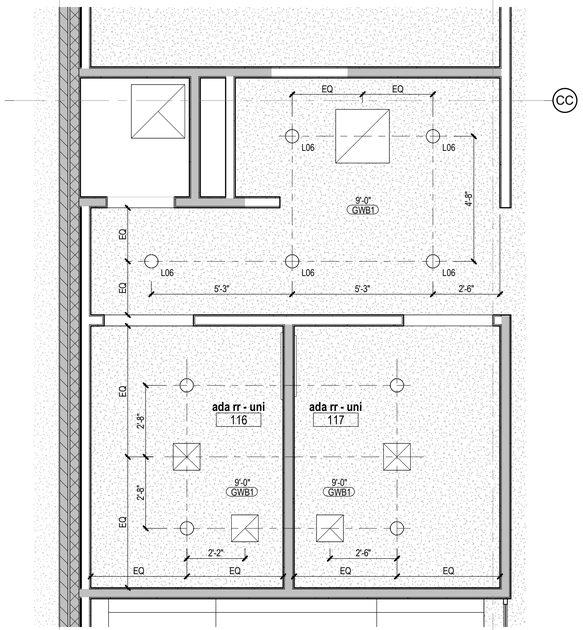


5 ADA unisex rr - north
1/4" = 1'-0"

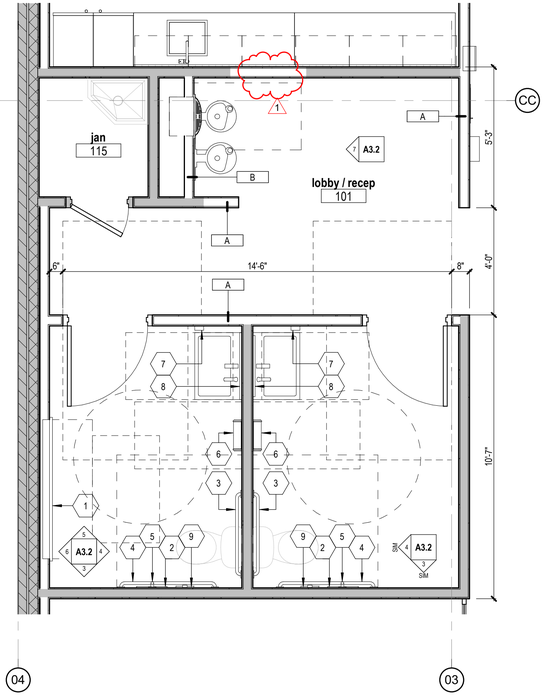
4 ADA unisex rr - east
1/4" = 1'-0"



3 ADA unisex rr - south
1/4" = 1'-0"



2 Bead - reflected ceiling plan - Callout 1
3/8" = 1'-0"



1 enlarged restrooms
3/8" = 1'-0"

general notes - interior elevations

1. SEE SHEET A0.1 FOR ADA MOUNTING HEIGHTS.
2. SLOPE FLOORS TO DRAINS - SLOPES NOT TO EXCEED ADA MAX.

descriptive notes - interior elevations

1 SCHLUTER JOLLY AT ALL EXPOSED EDGES.
2 SCHLUTER DILEX ALONG BOTTOM EDGE OF TILE EXTENTS.

finish legend

1. ALL INTERIOR FINISHES SHALL COMPLY WITH REQUIREMENTS DEFINED IN 2018 IBC, CHAPTER 8.
2. 2018 IBC 2018 803.13. INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE 803.13 FOR THE GROUP AND LOCATION DESIGNATED.
3. SEE FLOOR PLANS, RCP'S, ELEVATIONS FOR REFERENCE TO THESE FINISHES.

06 06 20 plastic laminate

PLAM1
PLASTIC LAMINATE VENEER
(PANOLAM SURFACE SYSTEMS)
PRODUCT: NEVAMAR - STANDARD HPL
COLOR: STUDIO GRAY
TEXTURE: SUPER-MATTE

06 41 13 wood-veneer carpentry

WD1
WOOD-VENEEER-FACED ARCHITECTURAL CABINETS
(APPLE PLY OR SIM)
FINISH: BIRCH OUTER VENEER, CLEAR SATIN FINISH
THICKNESS: VARIES. SEE DETAILS
BIO-BASED MATERIAL

08 80 00 glazing

GLZ1
STOREFRONT GLAZING
COLOR: CLEAR
LOCATION: NORTH EXTERIOR WALL. SEE NORTH BUILDING ELEVATION

09 30 13 ceramic tiling

TILE1
CERAMIC FLOOR TILE
PRODUCT: DALTILE, 12"x24", ELECTRIC MOSS RECTANGLE
FINISH: MATTE
COLOR: VL79, V2:MEDIUM

TILE2
CERAMIC WALL TILE (STACK BOND)
PRODUCT: DALTILE, 3"x6", RITTENHOUSE SQUARE
FINISH: SEMI-GLOSS
COLOR: ARCTIC WHITE 0190

09 51 13 acoustical panel ceilings

ACT1
ACOUSTICAL CEILING TILE
PRODUCT: 2'x6' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

ACT2
ACOUSTICAL CEILING TILE
PRODUCT: 2'x4' ARMSTRONG BEVELED TEGULAR 9/16, ULTIMA
LOCATION: SEE ROOM FINISH SCHEDULE

09 65 13 resilient wall base

RB1
RUBBER WALL BASE
PRODUCT: JOHNSONITE IRONSTONE, 4" HIGH
LOCATION: SEE ROOM FINISH SCHEDULE

09 68 13 tile carpeting

CPT1
CARPET TILE
PRODUCT: 24"x24" MOHAWK DATUM, SHALE, BT284
LOCATION: SEE ROOM FINISH SCHEDULE

09 91 23 interior painting

PNT1
WALL / CEILING PAINTING
PRODUCT: BENJAMIN MOORE DECORATORS - WHITE, OC.149
FINISH: EGGSHELL
LOCATION: ALL EXPOSED DRYWALL LOCATIONS

09 96 00 high performance coating

PNT(E)
EXTERIOR STEEL PAINTING
PRODUCT: TNEMEC HI-BUILD TNEME-GLOSS SERIES 2H
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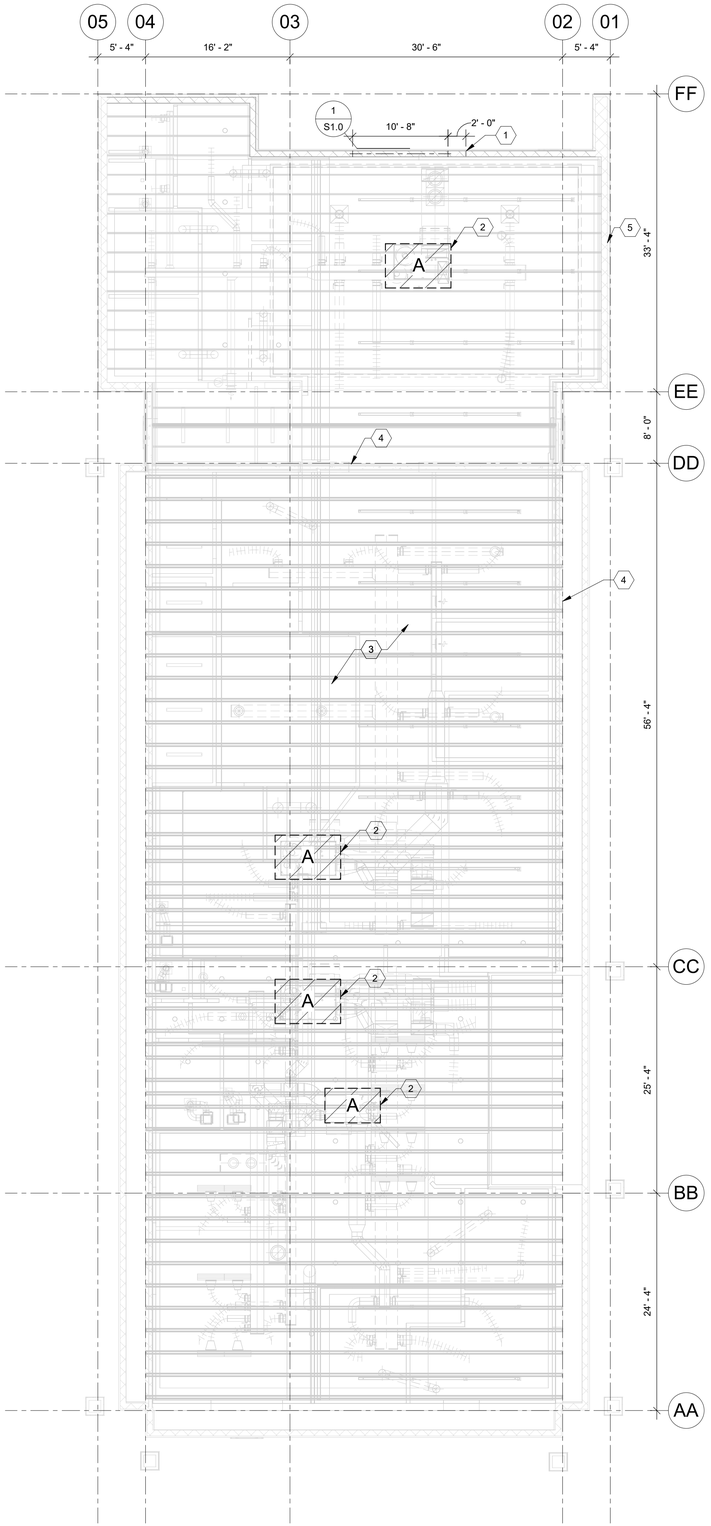
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project no.
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sheet number
A3.2

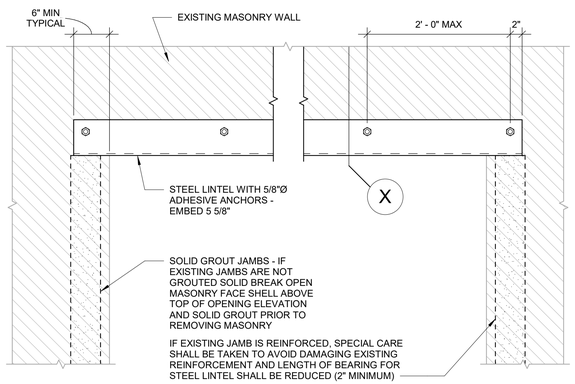
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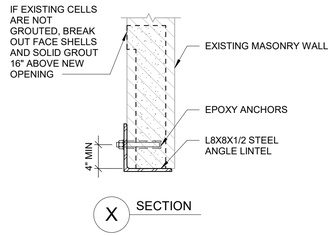
EXISTING ROOF FRAMING PLAN

1/8" = 1'-0"



1 / S1.0 / 2918115084 ELEVATION - STEEL ANGLE LINTEL AT EXISTING MASONRY WALL

NOT TO SCALE



SUGGESTED ERECTION SEQUENCE:

1. BREAK OPEN FACE SHELLS AND SOLID GROUT WALL ABOVE PROPOSED OPENING AND OPENING JAMBS
2. SAWCUT TOP OF OPENING AND INSTALL DOUBLE ANGLES
3. SAWCUT OPENING AT JAMBS AND ALONG BOTTOM OF OPENING, REMOVE MASONRY

NOTE:
ALL NEW GROUT SHALL HAVE 3 DAY MINIMUM CURE TIME PRIOR TO CUTTING EXISTING MASONRY

GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE SITE AND LOCAL CONDITIONS.

2. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL BUILDING CODES, CODES OF APPLICABLE REGULATORY AGENCIES, AND WITH PROJECT SPECIFICATIONS AND DRAWINGS.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL TRADES AND FOR CHECKING ALL DIMENSIONS. REPORT DISCREPANCIES TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK.

4. THE CONTRACTOR SHALL COMPLY WITH LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING UPON THE PERFORMANCE OF THE WORK.

5. DO NOT SCALE DRAWINGS TO DETERMINE DIMENSIONAL INFORMATION.

6. THE STRUCTURE WAS DESIGNED FOR THE IN-SERVICE CONDITIONS ONLY. THE METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.

7. DRAWINGS DO NOT INDICATE TEMPORARY REQUIREMENTS. NEED FOR TEMPORARY SHORING AND BRACING, TEMPORARY DEWATERING, TEMPORARY EARTH RETENTION, TEMPORARY WATER CUTOFF OR OTHER TEMPORARY MEASURES MAY BE INDICATED ON DRAWINGS AT SELECTED AREAS AS SUGGESTIONS FOR THE CONTRACTOR'S CONVENIENCE. THE DRAWINGS DO NOT IDENTIFY ALL AREAS OR CONDITIONS REQUIRING TEMPORARY MEASURES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM TEMPORARY MEASURES INDICATED ON THE DRAWINGS, IDENTIFY OTHER AREAS OR CONDITIONS REQUIRING TEMPORARY MEASURES, DETERMINE MOST EFFICIENT TEMPORARY SYSTEMS, AND DESIGN AND CONSTRUCT REQUIRED TEMPORARY SYSTEMS. ALL TEMPORARY SYSTEMS SHALL BE DESIGNED BY A LICENSED ENGINEER IN THE STATE IN WHICH THE PROJECT IS LOCATED.

8. INFORMATION RELATED TO EXISTING CONDITIONS REPRESENTS KNOWLEDGE BASED UPON INFORMATION PROVIDED BY THE OWNER BUT WITHOUT GUARANTEE OF ACCURACY. REPORT EXISTING CONDITIONS THAT VARY FROM THOSE SHOWN ON THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING CONSTRUCTION WHILE PERFORMING WORK. THE CONTRACTOR SHALL PROPERLY REINSTATE EXISTING FINISHES, FIREPROOFING OR ITEMS THAT ARE REMOVED OR DAMAGED WHILE PERFORMING WORK.

10. ALL CONSTRUCTION SHALL CONFORM TO THE MORE RESTRICTIVE OF THE FOLLOWING CODES, THE MOST RECENT EDITIONS OF THE STANDARDS ADOPTED BY THE AUTHORITY HAVING JURISDICTION AS REFERENCED THROUGHOUT THE STRUCTURAL GENERAL NOTES, AND THE FOLLOWING DESIGN CRITERIA:

11. BUILDING CODE: 2018 INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS

12. DESIGN DEAD LOADS: SELF-WEIGHT OF MATERIALS AND SYSTEMS

13. DESIGN LIVE LOADS (REDUCIBLE WHERE ALLOWED PER BUILDING CODE):
ROOF: 20 PSF (FROM ORIGINAL CONSTRUCTION DOCUMENTS)

14. THE EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS IS PROVIDED FOR REFERENCE ONLY. EXISTING CONSTRUCTION SHALL BE VERIFIED IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ALL NEW CONSTRUCTION.

15. ANY EXISTING FINISHES REMOVED OR DAMAGED TO ACCOMPLISH ANY STRUCTURAL MODIFICATIONS SHALL BE REINSTATED AT THE COMPLETION OF MODIFICATION WORK, TYPICAL UNLESS NOTED OTHERWISE.

16. ANY STRUCTURAL STEEL OR REINFORCING BARS THAT HAVE BEEN CUT AND GROUND FLUSH WITH A CONCRETE SURFACE SHALL BE FINISHED WITH EPOXY PAINT.

17. ALL STRUCTURAL STEEL SHALL BE FABRICATED BY A FABRICATOR WITH ONE OF THE FOLLOWING MINIMUM QUALIFICATIONS AND BE APPROVED BY AUTHORITY HAVING JURISDICTION (AHJ). QUALIFICATIONS SHALL BE IN EFFECT AT TIME OF BID.

INTERNATIONAL ACCREDITATION SERVICE, INC. (IAS) APPROVED FABRICATOR
AISC CERTIFIED BUILDING FABRICATOR (BU)
AHJ CERTIFIED FABRICATOR

18. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" USING LOAD AND RESISTANCE FACTOR DESIGN (LRFD).

19. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING DESIGNATED ASTM STANDARDS:
ANGLES: ASTM A 36

20. MASONRY ADHESIVE ANCHORS TO BE INSTALLED IN GROUT-FILLED CONCRETE BLOCK SHALL BE HILTI HIT-HY 270 ADHESIVE ANCHORAGE SYSTEMS (ICC-ES ESR-4143), SIMPSON SET-XP ADHESIVE ANCHORAGE SYSTEMS (IAPMO-UES ER-265), DEWALT AC100+GOLD ADHESIVE ANCHORAGE SYSTEMS (ICC-ES ESR-3200) OR APPROVED EQUAL. THREADED RODS USED IN ADHESIVE ANCHORAGE SYSTEMS SHALL MEET THE REQUIREMENTS OF ASTM A193, GRADE B7. REINFORCING BARS USED IN ADHESIVE ANCHORAGE SYSTEMS SHALL BE ASTM A615, GRADE 60 REINFORCING BARS. REMOVE GREASE, OIL, RUST, AND OTHER LAITANCE FROM RODS AND DOWELS PRIOR TO INSTALLATION.

21. ALL POST-INSTALLED ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE APPLICABLE ICC EVALUATION SERVICES REPORT.

22. ALL MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH TMS ACI 530 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" AND ACI 530.1 "SPECIFICATION FOR MASONRY STRUCTURES".

23. DESIGN MASONRY ASSEMBLAGE STRENGTH F'm = 2000 PSI. NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS SHALL BE A MINIMUM OF 2000 PSI.

24. GROUT SHALL CONFORM TO ASTM C476. THE ADDITIONS OF ADMIXTURES IN THE FIELD IS NOT PERMITTED. GROUT SHALL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2000 PSI. MORTAR SHALL BE TYPE S CONFORMING TO ASTM C270 AND WITH PROPORTIONS PER TABLE SC-1 OF ACI 530-11.

25. ALL GROUT SHALL BE MECHANICALLY VIBRATED. GROUT POURS SHALL BE STOPPED 1-1/2 INCHES BELOW THE TOP OF A COURSE TO FORM A KEY AT POURED JOINTS.

26. PROVIDE CLEANOUTS IF GROUT POUR EXCEEDS 5'-0" IN HEIGHT. IF CLEANOUTS ARE PROVIDED, GROUT POUR MAXIMUM HEIGHT EQUALS 10'-0", IN LIFTS NOT TO EXCEED 6'-0".

27. REINFORCEMENT SHALL BE DEFORMED BARS CONFORMING TO ASTM A615/A615M, GRADE 60 AND SHALL HAVE FABRICATION TOLERANCES IN ACCORDANCE WITH ACI 315. SHOP FABRICATE REINFORCING BARS WHICH ARE INDICATED TO BE BENT OR HOOKED.

28. VERTICAL REINFORCEMENT SIZE AND SPACING AS SHOWN ON PLAN AND IN MASONRY WALL SCHEDULE WITH ONE BAR MINIMUM AT ALL CORNERS, INTERSECTIONS, WALL ENDS, BEAM BEARING, JAMBS, AND EACH SIDE OF CONTROL JOINTS. TIE AT 8'-0" VERTICALLY WITH SINGLE WIRE LOOP TIE BY A.A. PRODUCTS COMPANY. UNLESS NOTED OTHERWISE, LAP SPLICES SHALL BE PER LAP SPLICE SCHEDULE.

29. THE OWNER SHALL EMPLOY SPECIAL INSPECTORS, QUALIFIED TO THE SATISFACTION OF THE BUILDING OFFICIAL, WHO SHALL PROVIDE SPECIAL INSPECTIONS DURING CONSTRUCTION FOR THE WORK INDICATED BY THE SPECIAL INSPECTIONS TABLES ON THE APPROVED DESIGN DRAWINGS.

30. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY. INSPECTORS FOR EACH SYSTEM AND MATERIAL SHALL BE INTERNATIONAL CODE COUNCIL (ICC) CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL.

31. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE TO THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

32. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, CONTRACTOR, OWNER, AND ENGINEER OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.

33. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF PREVIOUSLY NOTED DISCREPANCIES SHALL BE SUBMITTED.

KEYED NOTES

1 EXISTING MASONRY CONTROL JOINT.

2 MECHANICAL UNIT TO REPLACE EXISTING UNIT.

3 EXISTING PLYWOOD OVER OPEN WEB TRUSSES OR TJI JOISTS.

4 EXISTING WOOD STUD BEARING WALL.

5 EXISTING MASONRY WALL.

MECHANICAL EQUIPMENT WEIGHTS

VERIFY ALL WEIGHTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL ENGINEER AND ARCHITECT

MARK	EQUIPMENT WEIGHT	REMARKS
A	650 LBS	-

Kimley»Horn
NC LICENSE #F-0102 2018, C
SUITE 300
7740 NORTH 16TH STREET
PHOENIX, AZ 85020
PHONE: 602.944.5500

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SEALS



HOLLY STREET STUDIO

BEAD RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

CLIENT PROJECT INFO

NO:	DATE	DRAWING ISSUE DESCRIPTION

DESIGNED BY: MD
DRAWN BY: JM
CHECKED BY: CB
SCALE: As indicated
DATE: 11/04/2022
PROJECT NO: 202169
FILENAME:

FRAMING PLAN

CONSTRUCTION DOCUMENTS

S1.0

11/4/2022 10:33:10 AM BIM 360:1115_Glendale/20161094 Bead Annex_R21.rvt

ABBREVIATIONS

ABBR	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
BD	BALANCING DAMPER
BD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CD	CONDENSATE DRAIN LINE
CFM	CUBIC FEET PER MINUTE
CONT.	CONTINUATION, CONTINUOUS, CONTINUED
DB	DRY BULB
DIA	ROUND, DIAMETER
DN	RISER DOWN
EA	EXHAUST AIR
ENT	ENTERING
°F	DEGREES FAHRENHEIT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	COMBINATION FIRE AND SMOKE DAMPER
FT.	FEET
GA	GAUGE
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HP	HEAT PUMP
IN.	INCHES
INV. ELEV.	INVERT ELEVATION
KVA	KILOVOLT-AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LBS	POUNDS
MAX.	MAXIMUM
MIN.	MINIMUM
N/A	NON APPLICABLE
NC	NOISE CRITERIA
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OBD	OPPOSED BLADE DAMPER
OSA / O.A.	OUTSIDE AIR
P.O.C.	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
QTY.	QUANTITY
RA	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SOV	SHUT-OFF VALVE
STR.	STRAINER WITH HOSE END VALVE
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TYP.	TYPICAL
UP	RISER UP
U.N.O.	UNLESS NOTED OTHERWISE
VAV	VARIABLE AIR VOLUME
WB	WET BULB

MECHANICAL LEGEND

DUCTWORK SYMBOLS

SINGLE	DOUBLE	DESCRIPTION
		RECTANGULAR DUCT
		ROUND DUCT
		TAP FOR BRANCH (RECTANGULAR DUCT)
		TAP FOR BRANCH (ROUND DUCT)
		90 DEG. ELBOW W/ TURNING VANES
		CURVED ELBOW - MIN. RADIUS R=1.5xWIDTH
		FLEXIBLE DUCT CONNECTION
		SUPPLY DIFFUSER
		RETURN GRILLE
		EXHAUST GRILLE
T		THERMOSTAT / TEMPERATURE SENSOR
H		HUMIDISTAT / HUMIDITY SENSOR
S		SENSOR
		RECTANGULAR DUCT RISE
		RECTANGULAR DUCT DROP
		ROUND DUCT RISE
		ROUND DUCT DROP
		COMBINATION FIRE AND SMOKE DAMPER
FD		FIRE DAMPER
		BALANCING DAMPER
MCD		MOTORIZED DAMPER
		RISER UP
		RISER DOWN
		BREAK
CD		CONDENSATE DRAIN LINE
		FLOW ARROW
		POINT OF CONNECTION
Ø		ROUND, DIAMETER
X / XX		EQUIPMENT TAG

PIPING SYMBOLS

SYMBOL	DESCRIPTION
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
C	PUMP
	REDUCER, CONCENTRIC
	REDUCER, ECCENTRIC STRAIGHT INVERT
	REDUCER, ECCENTRIC STRAIGHT CROWN
	FLOW ARROW
	PIPE CAP
	VALVE
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	2-WAY CONTROL VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	STRAINER WITH HOSE END VALVE
	BALANCE VALVE & FLOW METER ORIFICE (I.E. CIRCUIT SETTER)
	MANUAL AIR VENT
	FLEXIBLE PIPE CONNECTOR
	PLUG VALVE
	UNION
	THERMOMETER WITH THERMOWELL
	PRESSURE GAUGE WITH COCK
	CIRCUIT SETTER
	CALIBRATED BALANCING / SHUTOFF VALVE
AV	AIR VENT, AUTOMATIC
MV	AIR VENT, MANUAL
	AIR SEPARATOR
PS	PRESSURE SWITCH
	PRESSURE RELIEF VALVE
	THROUGH WALL / GROUND
	SUCTION DIFFUSER
	MOTORIZED BUTTERFLY VALVE

DIFFUSER TAG LEGEND

GRILLE TAG → XX - #
DIMENSION → SIZE

DIFFUSER TAG → XX - #
AIRFLOW → CFM

DIFFUSER TAG → XX - #
AIRFLOW → CFM / #
QTY

REGISTER TAG → XX - #
AIRFLOW → CFM
DIMENSION → SIZE

DUCT ANNOTATION LEGEND

W x H	RECTANGULAR DUCT WIDTH x HEIGHT
D Ø	ROUND DUCT DIAMETER
W / H	FLAT OVAL DUCT WIDTH / HEIGHT

MECHANICAL GENERAL NOTES

1. THE CONTRACTOR SHALL DO ALL NECESSARY CUTTING OF WALLS AND CEILING.
2. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT/STRUCTURAL ENGINEER.
3. PATCH AROUND ALL OPENINGS TO MATCH EXISTING CONSTRUCTION.
4. DUCTWORK CONSTRUCTION AND INSTALLATION INCLUDING SHEET METAL GAUGES, REINFORCEMENT, JOINT SEALING, AIR LEAKAGE AND DETAILS NOT SPECIFICALLY SHOWN ON DRAWINGS SHALL BE IN ACCORDANCE WITH 2018 IMC DUCT CONSTRUCTION STANDARDS.
5. INSULATION CONTRACTOR SHALL TAPE ALL JOINTS AND SEAMS ON THE DUCT INSULATION WRAP (INCLUDING NEW AND EXISTING INSULATION) TO MAINTAIN A CONSTANT VAPOR BARRIER.
6. ALL MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL HAVE A FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH THE TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS PER 2018 IMC 602.2.
7. CONTRACTOR SHALL PROVIDE DAMPERS WHERE NOT SHOWN TO PROVIDE PROPER BALANCING OF SYSTEM.
8. TURNING VANES SHALL BE INSTALLED IN ALL MITERED ELBOWS.
9. ALL DUCT DIMENSIONS ARE "CLEAR" INSIDE DIMENSIONS.
10. LIGHTING & SPRINKLER HEADS TAKE PRECEDENCE OVER DIFFUSER LOCATION. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS TO DIFFUSERS TO AVOID ANY CONFLICT WITH LIGHTING LAYOUT & SPRINKLER HEADS. COORDINATE ALL LOCATIONS WITH ARCHITECT.
11. ALL ROUND RUNOUTS SERVING DIFFUSERS SHALL BE SAME SIZE AS NECK DIAMETER.
12. ALL THERMOSTATS/TEMPERATURE SENSORS ARE TO BE MOUNTED AT A HEIGHT OF 48" ABOVE THE FLOOR LEVEL FOR DISABLED ACCESS. CONTRACTOR TO COORDINATE ALL FINAL THERMOSTAT/TEMPERATURE SENSOR LOCATIONS WITH OWNER & ARCHITECT PRIOR TO ROUGH-IN.
13. THE MECHANICAL CONTRACTOR IS TO FIELD VERIFY EXACT LOCATION OF ALL EQUIPMENT PRIOR TO SUBMITTING BID. LOCATIONS OF EQUIPMENT SHOWN ON DRAWINGS ARE APPROXIMATE. UNITS SHALL BE RELOCATED TO PROVIDE NECESSARY CLEARANCES FOR STRUCTURAL MEMBERS, PLUMBING, FIRE PROTECTION, ELECTRICAL, DEMISING WALLS, HARD CEILINGS, ETC.
14. TEMPORARY FILTERS SHALL BE INSTALLED ON ALL RETURN AIR OPENINGS IN SPACE DURING CONSTRUCTION.
15. HANGERS FOR SHEET METAL DUCTWORK SHALL BE INSTALLED AS REQUIRED PER IMC 2018 SECTION 603.10. REFERENCE SMACNA HVAC DUCT STANDARDS.
16. SMOKE DETECTORS ASSOCIATED WITH SMOKE DAMPERS AND HVAC SHUTOFFS SHALL BE TESTED BY AN APPROVED TESTING AGENCY OR A QUALIFIED THIRD PARTY SPECIAL INSPECTOR. THE SPECIAL INSPECTOR / TESTING AGENCY SHALL BE AN INDEPENDENT THIRD PARTY INDIVIDUAL OR FIRM AND SHALL NOT BE THE INSTALLING CONTRACTOR. IF A SPECIAL INSPECTION IS REQUIRED, A PROFESSIONAL ENGINEER SHALL SUBMIT A FINAL SIGNED AND SEALED REPORT TO THE MECHANICAL INSPECTOR PRIOR TO CITY ISSUANCE OF FINAL INSPECTION APPROVAL OR OCCUPANCY APPROVAL, INCLUDING CONDITIONAL OCCUPANCY APPROVAL.
17. CONTRACTOR TO COORDINATE ALL MECHANICAL, PLUMBING AND ELECTRICAL WORK WITH CEILING HEIGHTS. CONTACT ENGINEER WITH ANY DISCREPANCIES PRIOR TO INSTALLATION OF ANY EQUIPMENT.
18. WHERE WALLS ABOVE THE CEILING ARE BEING EXTENDED TO THE DECK. CONTRACTOR SHALL PROVIDE MINIMUM OF ONE 18"x18" OPENING WITH SOUND BOOT IN THE WALL ABOVE THE CEILING FOR RETURN PURPOSES. ADDITIONAL OPENINGS TO BE ADDED AS REQUIRED TO MAINTAIN MAXIMUM OF 500 FPM RETURN AIR VELOCITY.
19. ALL WIRING AND DUCTWORK ABOVE CEILING TO BE PLENUM RATED PER 2018 IMC 602.2.1.
20. CONTRACTOR SHALL PROVIDE CONDENSATE PUMPS IF REQUIRED TO MEET SLOPE OF CONDENSATE DRAIN EQUAL TO LITTLE GIANT MODEL VCMA-20UL.
21. PROVIDE ACCESS PANELS OR DOORS IN HARD CEILINGS OR INACCESSIBLE CEILINGS/CHASES FOR ALL VALVES, TRAPS, DAMPERS, CONTROLS, EQUIPMENT ACCESS, ETC. CONTRACTOR SHALL GROUP EQUIPMENT ABOVE CEILING TOGETHER TO MINIMIZE ACCESS PANELS. ACCESS PANELS SHALL BE LARGE ENOUGH TO REMOVE EQUIPMENT FOR REPLACEMENT. COORDINATE ALL ACCESS PANELS WITH ARCHITECT PRIOR TO ANY INSTALLATION.
22. CONTRACTOR SHALL ENSURE THAT ALL EXISTING MECHANICAL EQUIPMENT IS IN SATISFACTORY WORKING CONDITION SO HE MAY MAKE PROVISION IN HIS BID TO ACCOMMODATE ANY REPLACEMENTS REQUIRED. INSTALL NEW FILTERS ON EXISTING EQUIPMENT TO MATCH EXISTING FOLLOWING COMPLETION OF CONSTRUCTION.
23. CONTRACTOR SHALL COMB FINS AND CLEAN COILS ON EXISTING A/C EQUIPMENT IN PROJECT AREA.
24. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES, TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. UNLISTED DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.

2018 IECC MANDATORY REQUIREMENTS

HEATING AND COOLING EFFICIENCIES (IECC C403.3):

-ALL EQUIPMENT AND SYSTEMS HAVE BEEN SIZED TO BE NO GREATER THAN NEEDED TO MEET CALCULATED LOADS. (IECC C403.3.1)

-EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C403.3.2(1) - C403.3.2(9). (IECC C403.3.2)

HEATING AND COOLING SYSTEM CONTROLS (IECC C403.4):

-THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, AT LEAST ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM. (IECC. C403.4.1).

-WHEN CONTROLLING BOTH HEATING AND COOLING, THERMOSTATIC CONTROLS SHALL PROVIDE A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM, WITH EXCEPTION TO THERMOSTATS WITH MANUAL CHANGEOVER (IECC C403.4.1.2).

-ZONES WITH SEPARATE HEATING AND COOLING CONTROLS SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN THE A DEADBAND (IECC C403.4.1.3)

-EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM, WITH EXCEPTION TO ZONES OPERATED CONTINUOUSLY AND ZONES WITH FULL LOADS NOT EXCEEDING 6,800 BTU/H WITH A READILY ACCESSIBLE MANUAL SHUTOFF SWITCH (IECC C403.4.2). SETBACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM DOWN TO 55°F OR UP TO 85°F (IECC C403.4.2.1). AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST 10 HOURS, ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS (IECC C403.4.2.2). AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY (IECC C403.4.2.3).

ECONOMIZERS (IECC C403.5):

-FAULT DETECTION AND DIAGNOSTICS INSTALLED WITH AIR-COOLED UNITARY DX UNITS HAVING ECONOMIZERS (IECC C403.5.5)

VENTILATION AND EXHAUST SYSTEMS (IECC C403.7):

-DEMAND CONTROL VENTILATION REQUIREMENTS FOR THIS PROJECT ARE EXEMPT. SYSTEMS DO NOT SERVE SPACES LARGER THAN 500 SQUARE FEET AND WITH AN AVERAGE OCCUPANT LOAD OF 25 PEOPLE PER 1000 SQUARE FEET OF FLOOR AREA, DO NOT INCLUDE AIR SIDE ECONOMIZERS, AUTO MODULATING AIR DAMPER CONTROL, OR DESIGN OUTDOOR AIRFLOW GREATER THAN 3,000 CFM. (IECC C403.7.1).

FANS AND FAN CONTROLS (IECC C403.8):

-HVAC FAN SYSTEMS WHERE TOTAL SYSTEM MOTOR NAMEPLATE HP EXCEEDING 5 HP AT DESIGN CONDITIONS DO NOT EXCEED THE ALLOWABLE FAN SYSTEM MOTOR NAMEPLATE HP (OPTION 1) OR FAN SYSTEM BHP (OPTION 2), INCLUDING SUPPLY FANS, EXHAUST FANS, RETURN/RELIEF FANS AND FAN-POWERED TERMINAL UNITS. (IECC. C403.8.1).

-FOR EACH FAN, THE SELECTED MOTOR SHALL NOT BE LARGER THAN THE FIRST AVAILABLE MOTOR SIZE GREATER THAN THE FOLLOWING: FOR FANS LESS THAN 6.0 BHP, 1.5 TIMES THE FAN BHP. FOR FANS 6.0 BHP AND LARGER, 1.3 TIMES THE FAN BHP. SYSTEMS COMPLYING WITH C403.8.1 OPTION 1 (IECC C403.8.2)

-FANS SHALL HAVE A FAN EFFICIENCY GRADE (FEG) >= 67.0 THE TOTAL EFFICIENCY OF THE FAN AT THE DESIGN POINT OF OPERATION <= 15% OF MAXIMUM TOTAL EFFICIENCY OF THE FAN (IECC C403.8.3)

-MOTORS FOR FANS THAT ARE NOT LESS THAN 1/12 HP AND LESS THAN 1.0 HP ARE ELECTRONICALLY COMMUNICATED MOTORS (ECM) OR HAVE A MINIMUM MOTOR EFFICIENCY OF 70%. THESE MOTORS HAVE THE MEANS TO ADJUST MOTOR SPEED (IECC C403.8.4)

CONSTRUCTION OF HVAC SYSTEM ELEMENTS (IECC C403.11):

-ALL SUPPLY AND RETURN DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION AND WITH A MINIMUM OF R-8 INSULATION FOR ANY DUCTWORK OUTSIDE THE BUILDING. **USE R-8 BETWEEN DUCTS AND BUILDING EXTERIOR WHEN DUCTS ARE PART OF THE BUILDING ASSEMBLY. (IECC C403.11.1).

-DUCTWORK SHALL BE CONSTRUCTED AND ERECTED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. (IECC C403.11.2)

-LOW PRESSURE DUCT SYSTEMS - ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS OPERATING AT A STATIC PRESSURE LESS THAN OR EQUAL TO 2 INCHES W.G. SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PRESSURE CLASSIFICATIONS SPECIFIC TO THE DUCT SYSTEM SHALL BE CLEARLY INDICATED ON THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. (IECC C403.11.2.1).

-MEDIUM PRESSURE DUCT SYSTEMS - ALL DUCTS AND PLENUMS DESIGNED TO OPERATE AT A STATIC PRESSURE GREATER THAN 2 INCHES W.G. BUT LESS THAN 3 INCHES W.G. SHALL BE INSULATED AND SEALED IN ACCORDANCE WITH SECTION C403.2.9. PRESSURE CLASSIFICATIONS SPECIFIC TO THE DUCT SYSTEM SHALL BE CLEARLY INDICATED ON THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. (IECC C403.11.2.2).

-ALL PIPING SERVING AS PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED. (IECC C403.11.3)

REFRIGERANT VAPOR (SUCTION) PIPES (40-60 DEGREES):
MIN. .5" INSULATION FOR PIPES LESS THAN 1.5"

-PIPING INSULATION EXPOSED TO THE WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. ADHESIVE TAPE SHALL NOT BE PERMITTED (IECC C403.11.4)

MAINTENANCE INFORMATION AND SYSTEM COMMISSIONING (IECC C408):

-BUILDING OPERATIONS AND MAINTENANCE DOCUMENTS SHALL BE PROVIDED TO THE BUILDING OWNER. DOCUMENTS SHALL COVER MANUFACTURERS' INFORMATION, SPECIFICATIONS, PROGRAMMING PROCEDURES AND MEANS OF ILLUSTRATING TO OWNER HOW BUILDING, EQUIPMENT AND SYSTEMS ARE INTENDED TO BE INSTALLED, MAINTAINED, AND OPERATED (IECC C408.1.1)

-COMMISSIONING REQUIREMENTS FOR THIS PROJECT IS EXEMPT. TOTAL MECHANICAL SYSTEM CAPACITY IS LESS 480,000 BTU/H COOLING CAPACITY AND 600,000 BTU/H HEATING CAPACITY. (IECC C408.2, EXCEPTION #1).

-HVAC SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS. AIR AND WATER FLOW RATES SHALL BE MEASURED AND ADJUSTED TO DELIVER FINAL FLOW RATES WITHIN THE TOLERANCES PROVIDED IN THE SPECIFICATIONS. TEST AND BALANCE ACTIVITIES SHALL INCLUDE AIR SYSTEM AND HYDRONIC SYSTEM BALANCING. (IECC C408.2.2). EACH SUPPLY AIR OUTLET AND ZONE TERMINAL DEVICE SHALL BE EQUIPPED WITH MEANS FOR AIR BALANCING IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 OF THE INTERNATIONAL MECHANICAL CODE. (IECC C408.2.2.1).

-THE FOLLOWING DOCUMENTS SHALL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY: SYSTEM BALANCING REPORT (IECC C408.2.5.1).

2018 IECC PRESCRIPTIVE REQUIREMENTS

ECONOMIZERS (IECC C403.5):

-ECONOMIZER SYSTEMS SHALL BE INTEGRATED WITH THE MECHANICAL COOLING SYSTEM AND BE CONFIGURED TO PROVIDE PARTIAL COOLING EVEN WHERE ADDITIONAL MECHANICAL COOLING IS REQUIRED TO PROVIDE THE REMAINDER OF THE COOLING LOAD (IECC C403.5.1)

-HVAC SYSTEM DESIGN AND ECONOMIZER CONTROL SHALL BE SUCH THAT ECONOMIZER OPERATION DOES NOT INCREASE THE BUILDING HEATING ENERGY USE DURING NORMAL OPERATION (IECC 403.5.2).

-AIR ECONOMIZER SYSTEMS SHALL BE CAPABLE OF MODULATING OUTDOOR AIR AND RETURN AIR DAMPERS TO PROVIDE UP TO 100 PERCENT OF THE DESIGN SUPPLY AIR QUANTITY AS OUTDOOR AIR FOR COOLING (IECC C403.5.3.1). ECONOMIZER DAMPERS SHALL BE CAPABLE OF BEING SEQUENCED WITH THE MECHANICAL COOLING EQUIPMENT AND SHALL NOT BE CONTROLLED BY ONLY MIXED AIR TEMPERATURE, WITH EXCEPTION TO SYSTEMS CONTROLLED FROM SPACE TEMPERATURE (IECC C403.5.3.2). AIR ECONOMIZERS SHALL BE CAPABLE OF AUTOMATICALLY REDUCING OUTDOOR AIR INTAKE TO THE DESIGN MINIMUM OUTDOOR AIR QUANTITY WHEN OUTDOOR AIR INTAKE WILL NO LONGER REDUCE COOLING ENERGY USAGE. REFER TO EQUIPMENT SCHEDULES FOR HIGH-LIMIT SHUTOFF CONTROL TYPES AND SETPOINTS (IECC C403.5.3.3). SYSTEMS SHALL BE CAPABLE OF RELIEVING EXCESS OUTDOOR AIR DURING AIR ECONOMIZER OPERATION TO PREVENT OVER-PRESSURIZING THE BUILDING. THE RELIEF AIR OUTLET SHALL BE LOCATED TO AVOID RE-CIRCULATION INTO THE BUILDING (IECC C403.5.3.4).

FANS AND FAN CONTROLS (IECC C403.8):

-EACH DX COOLING SYSTEM > 65 KBTU AND CHILLED WATER / EVAPORATIVE COOLING SYSTEMS WITH FANS > 1/4 HP ARE DESIGNED TO VARY THE INDOOR FAN AIRFLOW AS A FUNCTION OF LOAD AND COMPLY WITH DETAILED REQUIREMENTS OF THIS SECTION (IECC C403.8.5)

MECHANICAL SHEET INDEX

SHEET NUMBER	SHEET NAME
M0.0	MECHANICAL LEGEND AND GENERAL NOTES
M0.1	MECHANICAL SPECIFICATIONS + CODE COMPLIANCE
M1.0	MECHANICAL SCHEDULES
M2.0	MECHANICAL DEMO PLANS
M3.0	MECHANICAL FLOOR PLANS
M4.0	MECHANICAL DETAILS
M4.1	MECHANICAL DETAILS

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revisions

No.	Description	Date

title
MECHANICAL LEGEND AND GENERAL NOTES

phase
CONSTRUCTION DOCUMENTS

date
04 NOV 2022

project no.
202169.4

sheet number
M0.0

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MECHANICAL SPECIFICATIONS

GENERAL REQUIREMENTS
GENERAL PROVISIONS WHICH MAKE SPECIFIC REFERENCE TO ELECTRICAL DIVISION ONLY ARE INCLUDED HEREIN FOR CLARITY AND SIMPLIFICATION OF SPECIFICATIONS WRITING AND ARE NOT PART OF THE MECHANICAL WORK. THE WORK OF DIVISION 15, MECHANICAL, IS SUBJECT TO THE CONDITIONS OF THE CONTRACT, DIVISION 1, GENERAL REQUIREMENTS, AND APPLICABLE REQUIREMENTS OF OTHER PORTIONS OF THE CONTRACT DOCUMENTS. EXAMINE AND BECOME FAMILIAR WITH ALL CONTRACT DOCUMENTS AND COORDINATE THE MECHANICAL WORK ACCORDINGLY.

INTENT
IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THE SPECIFICATIONS OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE PROVIDED WITHOUT ADDITIONAL EXPENSE TO THE OWNER. SHALL THERE APPEAR TO BE DISCREPANCIES OR QUESTIONS OF INTENT IN THE CONTRACT DOCUMENTS, REFER THE MATTER TO THE ARCHITECT FOR THEIR DECISION BEFORE ORDERING ANY MATERIALS OR EQUIPMENT OR BEFORE THE START OF ANY RELATED WORK. THE DECISION OF THE ARCHITECT SHALL BE FINAL, CONCLUSIVE AND BINDING.

DRAWINGS AND DATA
DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE OF WORK AND TO INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS, CONDUITS, PIPING AND FIXTURES. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET OR FITTINGS OR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED DURING INSTALLATION OF THE WORK. LOCATION OF ALL ITEMS NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. EXACT LOCATIONS NECESSARY TO SECURE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE PROJECT SITE AND SHALL HAVE THE APPROVAL OF ARCHITECT BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS. IF SO DIRECTED BY ARCHITECT, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR PROPER EXECUTION OF WORK. INCLUDE MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER INSTALLATION AND OPERATION OF A SYSTEM OR PIECE OF EQUIPMENT IN BID PRICE.

CODES
INCLUDE IN WORK, WITHOUT EXTRA COST TO OWNER, LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS) REQUIRED TO COMPLY WITH APPLICABLE LAWS. ORDINANCES, RULES AND REGULATIONS. DRAWINGS AND SPECIFICATIONS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT THAN CODES, ORDINANCES, STANDARDS AND STATUTES. CODES, ORDINANCES, STANDARDS AND STATUES TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH DRAWINGS OR SPECIFICATIONS. FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS AND CODES ARE MINIMUM REQUIREMENTS:

A. APPLICABLE CITY, COUNTY, AND STATE MECHANICAL, ELECTRICAL, GAS, PLUMBING, HEALTH AND SANITARY CODES, LAWS AND ORDINANCES.
B. CITY OR OTHER APPLICABLE BUILDING CODES.
C. 2018 INTERNATIONAL MECHANICAL CODE WITH LOCAL AMENDMENTS.
D. 2018 INTERNATIONAL PLUMBING CODE WITH LOCAL AMENDMENTS.
E. 2018 INTERNATIONAL ENERGY CONSERVATION CODE.
F. 2017 NATIONAL ELECTRIC CODE / NFPA-70 WITH AMENDMENTS.
G. UNDERWRITER'S LABORATORIES, INC. STANDARDS.
H. AMERICAN NATIONAL STANDARDS INSTITUTE.
I. AMERICAN SOCIETY FOR TESTING MATERIALS STANDARDS.
J. STANDARDS AND REQUIREMENTS OF LOCAL UTILITY COMPANIES.
K. AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODES.

REGULATIONS, PERMITS & INSPECTIONS:
COMPLY WITH ALL APPLICABLE CODES, RULES AND REGULATIONS. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES. WHEN REQUIRED BY CODE, ALL WORK MUST BE INSPECTED AND APPROVED BY LOCAL AUTHORITIES.

GENERAL
MATERIALS AND EQUIPMENT STANDARD PRODUCTS OF A REPUTABLE MANUFACTURER REGULARLY ENGAGED IN MANUFACTURE OF THE SPECIFIED ITEMS. WHERE MORE THAN ONE UNIT IS REQUIRED OF ANY ITEM, FURNISH BY THE SAME MANUFACTURER, EXCEPT WHERE SPECIFIED OTHERWISE. INSTALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SHOULD VARIANCE BETWEEN PLANS AND SPECIFICATIONS OCCUR WITH THESE, CONTACT ARCHITECT IMMEDIATELY SO THAT VARIATIONS IN INSTALLATION CAN BE KNOWN BY ALL PARTIES CONCERNED. PROVIDE EQUIPMENT FROM MANUFACTURER WHOSE PRODUCTS HAVE LOCAL REPRESENTATION. SHOP DRAWINGS TO BE SUBMITTED ONE COMPLETE PACKAGE. INDIVIDUAL SHOP DRAWINGS WILL NOT BE ACCEPTED.

NOTE: COMPLY WITH BUILDING STANDARDS. NOTIFY THE ENGINEER IF STANDARDS ARE IN CONFLICT WITH WHAT APPEARS ON THESE CONSTRUCTION DOCUMENTS. (PRIOR TO BID)

MECHANICAL CONTRACTOR TO VERIFY AND COORDINATE AVAILABLE VOLTAGE WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT

EXECUTION
PROTECT EXISTING ACTIVE SERVICES (WATER, SEWER, GAS, ELECTRIC, ETC.), WHEN ENCOUNTERED, AGAINST DAMAGE FROM CONSTRUCTION WORK.
DO NOT PREVENT OR DISTURB OPERATION OF ACTIVE SERVICES WHICH ARE TO REMAIN. IF WORK MAKES TEMPORARY SHUTDOWNS OF SERVICES UNAVOIDABLE, CONSULT WITH OWNER AS TO DATES, PROCEDURES, AND ESTIMATED DURATION OF AT LEAST 10 WORKING DAYS IN ADVANCE OF DATE WHEN WORK IS TO BE PERFORMED. ARRANGE WORK FOR CONTINUOUS PERFORMANCE TO ASSURE THAT EXISTING OPERATING SERVICES WILL BE SHUT DOWN ONLY DURING THE TIME REQUIRED TO MAKE NECESSARY CONNECTIONS. IF A SYSTEM CANNOT SHUT DOWN, INSTALL TEMPORARY BYPASSES OR JUMPERS UNTIL CONNECTIONS ARE COMPLETE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCURRED BY ABOVE SHUTDOWNS, INCLUDING BYPASS OR JUMPER INSTALLATIONS, FOR WORK PERFORMED UNDER THIS SECTION.
IF EXISTING ACTIVE UTILITY SERVICES ARE ENCOUNTERED WHICH REQUIRE RELOCATION, MAKE REQUEST TO PROPER AUTHORITIES FOR DETERMINATION OF PROCEDURES. PROPERLY TERMINATE EXISTING SERVICES TO BE ABANDONED IN CONFORMANCE WITH REQUIREMENTS OF AUTHORITIES. WHERE CONNECTIONS OR DISRUPTIONS ARE MADE TO EXISTING SYSTEMS, REACTIVATE, REFILL, AND RECHARGE ALL COMPONENTS AND RESTORE SYSTEMS TO OPERATING CONDITIONS AT TIME OF DISRUPTION.

GUARANTEE
EACH COMPLETE SYSTEM GUARANTEED BY CONTRACTOR FOR A PERIOD OF ONE YEAR, FROM DATE OF ACCEPTANCE OF WORK BY OWNER IN WRITING, TO BE FREE OF DEFECTS OF MATERIALS AND WORKMANSHIP, AND TO PERFORM SATISFACTORILY UNDER ALL CONDITIONS OF LOAD OR SERVICE. THE GUARANTEES PROVIDE THAT ANY ADDITIONAL CONTROLS, PROTECTIVE DEVICES, OR EQUIPMENT BE PROVIDED AS NECESSARY TO MAKE THE SYSTEM OF EQUIPMENT OPERATE SATISFACTORILY, AND THAT ANY FAULTY MATERIALS OR WORKMANSHIP BE REPLACED OR REPAIRED. ON FAILURE OF GUARANTOR TO DO THE ABOVE AFTER WRITTEN NOTICE FROM OWNER, THE OWNER MAY HAVE THE WORK DONE AT THE COST OF GUARANTOR. LOSS OF REFRIGERANT IS CONSIDERED A DEFECT IN WORKMANSHIP AND/OR EQUIPMENT, TO BE CORRECTED AS REQUIRED AT NO EXTRA COST TO THE OWNER.

EXISTING CONDITIONS:
CONTRACTOR TO VISIT SITE PRIOR TO BID. CONTRACTOR SHALL RELOCATE AS NECESSARY ALL EXISTING ITEMS SUCH AS DUCTWORK, SPRINKLER PIPING, PLUMBING, CONDUITS, ETC AS REQUIRED TO MAINTAIN ALL EQUIPMENT CLEARANCES. CONTRACTOR TO PROVIDE A NEAT SKETCH TO ENGINEER SHOWING ANY DEVIATION TO THE CONSTRUCTION DOCUMENTS REQUIRED DUE TO FIELD CONDITIONS. NO ALLOWANCES WILL BE MADE AFTER THE PROJECT HAS BEEN AWARDED FOR FAILURE TO VERIFY EXISTING CONDITIONS.

ALL REFERENCES ON THESE DRAWINGS TO EXISTING EQUIPMENT, DUCTWORK, DIFFUSERS, PIPING, ARE FOR REFERENCE ONLY. CONTRACTOR HAS THE RESPONSIBILITY OF FIELD VERIFYING ALL ITEMS PRIOR TO BID AND INCLUDE IN BID ALL AMOUNT REQUIRED TO ACCOMMODATE EXISTING CONDITIONS.

SPRINKLER
SPRINKLER CONTRACTOR SHALL MODIFY EXISTING SPRINKLER SYSTEM TO ACCOMMODATE NEW CEILING LAYOUT SEE ARCH DRAWINGS FOR AREAS OF WORK. MODIFICATIONS SHALL BE PER NFPA 13. PROVIDE SYSTEMS WITH ALL NECESSARY SUPPORTS, ANCHORS, BRACING AND SUBMIT THE DESIGN TO ARCHITECT FOR REVIEW. COORDINATE NEW EQUIPMENT AND DEVICE LOCATIONS WITH EXISTING BUILDING CONDITIONS. PREPARE COMPLETE FIRE PROTECTION SHOP DRAWINGS AND CALC'S AND SUBMIT TO THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION AND RECEIVE APPROVAL PRIOR TO WORK. CONTRACTOR SHALL PROVIDE PIPING, VALVES, SPRINKLERS, HANGERS AND SUPPORTS FOR A COMPLETE INSTALLATION. VERIFY FINISHES WITH ARCHITECT. COORDINATE WORK WITH ALL TRADES AND REQUIRED POWER WITH ELECTRICAL CONTRACTOR. COORDINATE LOCATIONS OF FLOW AND TAMPER SWITCHES, AND SUPERVISORY CIRCUITS WITH THE FIRE ALARM CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING/PATCHING. ALL EQUIPMENT SHALL BE UL LISTED OR FM APPROVED. THE DESIGN, EQUIPMENT, INSTALLATION, TESTING AND MAINTENANCE OF THE FIRE SPRINKLER SYSTEM SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS IN THE LATEST EDITION OF THE FOLLOWING CODES/STANDARDS: NFPA NO. 13-FIRE SPRINKLER SYSTEMS, UL LISTINGS, AND LOCAL AUTHORITY HAVING JURISDICTION

AIR CONDITIONING, HEATING AND VENTILATING

SCOPE:
WORK UNDER THIS SECTION INCLUDES FURNISHING ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE REMODELING, INSTALLATION AND PLACING INTO OPERATION THE HEATING, VENTILATING AND AIR CONDITIONING WORK AS SPECIFIED HEREIN AND INDICATED ON THE DRAWINGS.

VERIFICATION OF DIMENSIONS:
SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE ONLY. BEFORE PROCEEDING WITH WORK, CAREFULLY CHECK AND VERIFY AT THE SITE EQUIPMENT AND MATERIALS TOGETHER TO ENSURE THEY WILL FIT, CAREFULLY STUDY DRAWINGS AND PREMISES IN ORDER TO DETERMINE BEST METHODS, EXACT LOCATIONS, ROUTES AND BUILDING OBSTRUCTIONS, PRESERVE HEADROOM, AND KEEP OPENINGS AND PASSAGEWAYS CLEAR.

CUTTING AND PATCHING:
CUT EXISTING WORK AND PATCH AS NECESSARY TO PROPERLY INSTALL THE NEW WORK. AS THE WORK PROGRESSES, LEAVE NECESSARY OPENINGS, HOLES, CHASES, ETC. IN THEIR CORRECT LOCATIONS. IF THE REQUIRED OPENINGS, HOLES, CHASES ETC. ARE NOT IN THEIR CORRECT LOCATIONS, MAKE THE NECESSARY CORRECTIONS AT NO COST TO THE OWNER. AVOID EXCESSIVE CUTTING AND DO NOT CUT STRUCTURAL MEMBERS WITHOUT CONSENT OF ARCHITECT/ENGINEER.

PATCH AROUND ALL OPENINGS TO MATCH EXISTING CONSTRUCTION.

DUCTWORK:
ALL DUCTWORK AND HANGER FABRICATION SHALL BE INSTALLED AS PER LATEST MECHANICAL CODE REQUIREMENTS AND SMACNA MANUAL. DUCTWORK SHALL BE CONSTRUCTED OF NEW HOT-DIPPED GALVANIZED SHEET METAL ASTM A-120 FOR EACH SIDE.

TURNING VANES SHALL BE INSTALLED IN ALL MITERED ELBOWS. TAPE ALL CROSS-JOINTS IN SHEET METAL DUCT WITH HARDCAST.

LOW PRESSURE TAKE-OFF FITTINGS SHALL BE STRAIGHT-SIDED HIGH EFFICIENCY WITH 2" ELEVATED LOCKING QUADRANT DAMPER. BRANCH DUCT SERVING DIFFUSERS SHALL BE SAME SIZE AS NECK DIAMETER. (MIN)

EXTENSION OF EXISTING DUCTWORK SHALL BE MADE WITH SAME MATERIAL.

FLEXIBLE DUCT:
FLEXIBLE FIBROUS GLASS DUCT SHALL BE FACTORY FABRICATED ASSEMBLY, UL 181 LISTED, COMPOSED OF CLASS I AIR DUCT MATERIAL COMPLYING WITH NFPA 90A AND 90B. FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, R-6 MINIMUM, LINER TO BE CPE LINER BONDED TO HELIX SPRING WIRE. ENCLOSED BY REINFORCED METALIZED FILM VAPOR BARRIER, RATED FOR MIN. 5000 FPM AND MIN. 10" POS (4-12 ID). ATTACHMENT SHALL BE WITH WORM DRIVE CLAMPS. LENGTH SHALL NOT EXCEED 6'-0".
MANUFACTURER: THERMAFLEX TYPE M-KE, FLEXMASTER 1M

DUCT INSULATION:(LINER AND WRAP)
ALL DUCT INSULATION INSIDE BUILDING SHALL BE R-6 MINIMUM AND MINIMUM R-8 FOR EXTERIOR DUCTWORK.

DUCT SIZES ON DRAWINGS ARE "CLEAR INSIDE." FOR LINED DUCTWORK.

ADHESIVE AND INSULATING MATERIALS SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS MAXIMUM 25 FOR FLAME SPREAD AND 50 FOR SMOKE DEVELOPED. ADHESIVES SHALL BE WATERPROOF.

ALL SUPPLY AND RETURN AIR DUCTS SHALL BE PROVIDED WITH THE MINIMUM REQUIRED INSULATION THICKNESS TO ACHIEVE THE INSTALLED R-VALUES LISTED ABOVE.

DUCT LINER:
LINE THE FIRST 12' OF LOW PRESSURE SUPPLY AND RETURN RECTANGULAR DUCTS AFTER PACKAGED ROOFTOP UNITS INTERNALLY WITH SEMI-RIGID GLASS FIBER INSULATION, 1 1/2 PCF DENSITY, R-6 MINIMUM, WITH EXPOSED INTERNAL SURFACE OF A THICK, BLACK, FIRE RETARDANT COATING TO BIND FIBERS TIGHTLY AND PROVIDE A SMOOTH AIRFLOW SURFACE. LINER TO BE RATED FOR 6000 FPM AIR VELOCITY. NRC MIN TO BE .85
MANUFACTURERS: JOHNS MANVILLE "LINACOUSTIC RC", CERTAINTEED "TOUGH GUARD R", KNAUF "ATMOSPHERE" OR OWENS CORNING "QUIET R".

DUCT WRAP:
PROVIDE DUCTWRAP WITH VAPOR BARRIER ON ALL ROUND DUCTS. DUCT WRAP SHALL BE GLASS FIBER BLANKET INSULATION, R-6 MINIMUM, WITH FACTORY APPLIED REINFORCED FLAME RETARDANT FOIL VAPOR BARRIER. PROVIDED THE MINIMUM REQUIRED INSULATION THICKNESS TO ACHIEVE THE INSTALLED R-VALUES LISTED ABOVE. PROVIDE 1.5 PCF DENSITY (TYPE 150). WRAP ALL FLEXIBLE CONNECTIONS AT MECHANICAL UNITS. WRAP INITIAL 12' OF EXHAUST DUCTS WITH 1.5 PCF DENSITY DUCT WRAP
MANUFACTURES: JOHNS MANVILLE "MICROLITE XG", CERTAINTEED "SOFT TOUCH", KNAUF "ATMOSPHERE" OR OWENS CORNING "SOFT R".

PACKAGED ROOFTOP AIR CONDITIONING / HEAT PUMP UNITS:
ACCEPTABLE MANUFACTURERS ARE CARRIER, TRANE, YORK OR DAIKIN. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

EXHAUST FANS:
ACCEPTABLE MANUFACTURERS ARE GREENHECK, COOK AND TWIN CITY. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

GRILLES AND DIFFUSERS:
ACCEPTABLE MANUFACTURERS ARE TITUS, PRICE, NAILOR OR KRUEGER. ALL UNITS MUST BE FACTORY FINISHED WITH BORDER TO MATCH CEILING STYLE. CONFIRM COLOR WITH ARCHITECT. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

SMOKE DETECTORS:
SMOKE DETECTORS AND HVAC SHUTOFFS SHALL BE TESTED BY AN APPROVED TESTING AGENCY OR QUALIFIED THIRD PARTY SPECIAL INSPECTOR. THE SPECIAL INSPECTOR/TESTING AGENCY SHALL BE AN INDEPENDENT THIRD PARTY INDIVIDUAL OR FIRM AND SHALL NOT BE THE INSTALLING CONTRACTOR. IF A SPECIAL INSPECTION IS REQUIRED, A PROFESSIONAL ENGINEER SHALL SUBMIT A FINAL SIGNED AND SEALED REPORT TO THE MECHANICAL INSPECTOR PRIOR TO CITY ISSUANCE OF FINAL INSPECTION APPROVAL OR OCCUPANCY APPROVAL, INCLUDING CONDITIONAL OCCUPANCY APPROVAL PER 2018 IMC (606.1).

REFRIGERANT PIPING:
REFRIGERANT PIPING SHALL BE SIZED AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS. CONTRACTOR SHALL COORDINATE LOCATIONS OF INDOOR AND OUTDOOR UNITS, AND REFRIGERANT PIPING ROUTING, SO AS NOT TO EXCEED THE MAXIMUM RECOMMENDED EQUIVALENT LENGTH OF REFRIGERANT PIPING. UPSIZE PIPE AS REQUIRED.

REFRIGERANT PIPING SHALL BE INSULATED WITH MINIMUM 1" THICK FLEXIBLE ELASTOMERIC INSULATION EQUAL TO ARMAFLEX. WHERE EXPOSED TO OUTDOORS, INSULATION SHALL BE PROTECTED BY HEAVY GAUGE ALUMINUM JACKET.

CONDENSATE PIPING:
CONDENSATE PIPING SHALL BE SLOPED TOWARD DRAIN AT A RATE OF 1/8" PER 12" OF RUN. CONTRACTOR SHALL COORDINATE EQUIPMENT INSTALLATION TO ACHIEVE REQUIRED SLOPE. CONDENSATE DRAIN PIPING SHALL BE HARD TEMPER COPPER PIPE, TYPE "DWV" FOR SIZES 2" AND LARGER, TYPE "M" FOR SIZES 1 1/2" AND SMALLER. FITTINGS SHALL BE CAST BRASS OR WROUGHT COPPER IN LONG SWEEP DRAINAGE PATTERN FOR "DWV" PIPING, LONG RADIUS AND 45 DEGREE WYE PATTERN FOR TYPE "M" PIPING.

ALL CONDENSATE PIPING SHALL BE INSULATED WITH 3/4" THICK FLEXIBLE ELASTOMERIC INSULATION. THERMAL CONDUCTIVITY AT 75°F. MAXIMUM 0.28 BTU/IN./SQ.FT./DEG. F/HR. AND MAXIMUM WATER VAPOR TRANSMISSION OF 0.1 PERMS.

IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT:
CONTRACTOR SHALL PROVIDE IDENTIFICATION FOR HVAC EQUIPMENT. IDENTIFICATIONS SHALL INCLUDE EQUIPMENT LABELS AND WARNING SIGNS. LOCATE EQUIPMENT LABELS WHERE ACCESSIBLE AND VISIBLE.

EQUIPMENT LABELS: SHALL BE PLASTIC, MULTILAYER, MULTICOLOR, FOR MECHANICAL ENGRAVING, 1/8 INCH THICK, AND HAVING PREDRILLED HOLES FOR ATTACHMENT HARDWARE. LETTER COLOR TO BE WHITE. BACKGROUND COLOR TO BE BLACK. ABLE TO WITHSTAND TEMPERATURES UP TO 160 DEG F. LENGTH AND WIDTH VARY FOR REQUIRED LABEL CONTENT, BUT NOT LESS THAN 2-1/2 BY 3/4 INCH. MINIMUM LETTER SIZE TO BE 1/4 INCH.
THE OBJECTIVE OF LABELING EQUIPMENT IS TO COORDINATE WITH DRAWINGS, INCLUDING PLANS, DETAILS, AND SCHEDULES. INCLUDE EQUIPMENT'S DRAWING DESIGNATION OR UNIQUE EQUIPMENT NUMBER AS INDICATED ON PLANS, DETAILS, AND SCHEDULES.

SYSTEM TESTING AND BALANCING:
THE CONTRACTOR SHALL INCLUDE IN HIS BID THE SERVICES OF AN TESTING AND BALANCING AGENCY. THE AGENCY SHALL BE APPROVED BY THE OWNER AND ARCHITECT. THE TESTING AGENCY SHALL BE ONE WHICH SPECIALIZES IN THE BALANCING AND TESTING OF HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS TO BALANCE, ADJUST AND TEST EQUIPMENT AND AIR DISTRIBUTING AND EXHAUSTING SYSTEMS, AND PIPING SYSTEMS AS HEREIN SPECIFIED. THE TESTING AND BALANCING CONTRACTOR IS RESPONSIBLE FOR ALL AIR AND HYDRONIC SYSTEMS AS WELL AS TESTING AND VERIFICATION OF OPERATION OF ALL THE DUCT SMOKE DETECTORS AND FIRE DAMPERS WITHIN THE SCOPE OF WORK. ALL WORK SHALL BE DONE UNDER DIRECT SUPERVISION OF A REGISTERED PROFESSIONAL HEATING AND VENTILATING ENGINEER OR AABC OR NEBB CERTIFIED COMPANY. A COPY OF THE AIR BALANCE REPORT SHALL BE PROVIDED TO THE ENGINEER OF RECORD, OWNERS REPRESENTATIVE AND THE MECHANICAL INSPECTOR FOR FINAL INSPECTION APPROVAL.

GENERAL PROCEDURES FOR TESTING AND BALANCING SHALL BE IN ACCORDANCE TO THE PROCEDURES CONTAINED IN ASHRAE 111, AND NEBB'S "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" AND COMPLY WITH REQUIREMENTS IN ASHRAE 62.1-2007, SECTION 7.2.2, "AIR BALANCING."
TOLERANCES OF HVAC SYSTEMS AIR FLOW RATES AND WATER FLOW RATES ARE AS FOLLOWS: SUPPLY, RETURN, AND EXHAUST AIR SYSTEMS - PLUS OR MINUS 10 PERCENT. COOLING/HEATING-WATER FLOW RATES - MINUS 5 PERCENT.

THE TESTING AND BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR, DOCUMENT, AND PROVIDE A REPORT ON THE FINAL OPERATION OF THE ENTIRE MECHANICAL SYSTEM. THIS INCLUDES THE TESTING AND BALANCING OF ALL AIR AND HYDRONIC SYSTEMS, NOTIFYING/DOCUMENTING ANY AND ALL DISCREPANCIES BETWEEN INSTALLED CONDITIONS AND CONTRACT DOCUMENTS/DRAWINGS, VERIFICATION OF CONTROLS AND OPERATION OF SEQUENCE OF OPERATIONS AS SET FORTH ON THE MECHANICAL PLANS.

ALL REQUIRED SPECIAL INSPECTIONS TO BE SIGNED BY PROFESSIONAL ENGINEER RETAINED BY TEST AND BALANCE COMPANY. IF ENERGY SYSTEMS DESIGN IS TO SIGN SPECIAL INSPECTION FORMS CONTACT FOR FEE.

APPROVED COMPANIES: TECHNICAL AIR BALANCE, ABLE BALANCE AZ, ARIZONA AIR BALANCE, PRECISION AIR, GTAB, SOUTHWEST TEST AND BALANCE, SYSTEMS COMMISSIONING AND TESTING AND COMMERCIAL SYSTEM ANALYSIS.

COMcheck Software Version 4.1.5.5

Mechanical Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	Glendale DCRP
Location:	Glendale, Arizona
Climate Zone:	2b
Project Type:	Alteration

Construction Site:
5750 W. Glenn Drive
Glendale, AZ 85301

Owner/Agent:

Designer/Contractor:
Jonathon Pfantz
Energy Systems Design
7135 E. Camelback Rd.
Suite 275
Scottsdale, AZ 85251
480.481.4900
jpfantz@esdengineers.com

Mechanical Systems List

Quantity System Type & Description

1 5.0 Ton Heat Pump (Single Zone):
Single Package Heat Pump
Heating Mode: Capacity = 44 kBtu/h,
Proposed Efficiency = 8.20 HSPF, Required Efficiency = 8.00 HSPF
Cooling Mode: Capacity = 51 kBtu/h,
Proposed Efficiency = 14.30 SEER, Required Efficiency: 14.00 SEER
Fan System: 5.0 Ton Fan -- Compliance (Brake HP method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 2000 CFM, 1.0 motor nameplate hp, 0.8 design brake hp (0.8 max. BHP), 0.0 fan efficiency grade

3 6.0 Ton Heat Pump (Single Zone):
Single Package Heat Pump
Heating Mode: Capacity = 49 kBtu/h,
Proposed Efficiency = 8.20 HSPF, Required Efficiency = 8.00 HSPF
Cooling Mode: Capacity = 64 kBtu/h, , Air Economizer
Proposed Efficiency = 15.00 SEER, Required Efficiency: 14.00 SEER
Fan System: 6.0 Ton Fan -- Compliance (Brake HP method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 2400 CFM, 1.5 motor nameplate hp, 1.1 design brake hp (1.1 max. BHP), 0.0 fan efficiency grade

1 3.0 Ton Split System (Single Zone):
Cooling: 1 each - Split System, Capacity = 30 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: None
Proposed Efficiency = 15.10 SEER, Required Efficiency: 13.00 SEER
Fan System: 3.0 Ton Split Fan -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 3 Supply, Constant Volume, 887 CFM, 1.0 motor nameplate hp, 0.0 fan efficiency grade

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Jonathon Pfantz P.E. - Mechanical Engineer — Name - Title
Signature
11/04/2022 — Date

CODE INFORMATION

A. 2018 IBC, 2018 IMC, 2018 IECC, AND AMENDMENTS.

B. PROJECT LOCATED IN CLIMATE ZONE 2B PER 2018 IECC SECTION C301.

C. ALL MATERIALS MUST BE PROVIDED AND INSTALLED PER THE REQUIREMENTS OF THE 2018 IECC AND REQUIREMENTS OF COMCHECK MECHANICAL COMPLIANCE CERTIFICATES.

D. DESIGN HEATING AND COOLING LOADS FOR THIS SPACE ARE CALCULATED USING CARRIER BLOCK LOAD BASED ON ASHRAE METHODS.

E. OUTDOOR AIR VENTILATION PROVIDED AND BASED ON 2018 IMC CHAPTER 4, SECTION 403.3.

F. ALL ROOFTOP EQUIPMENT SHALL BE PERMANENTLY IDENTIFIED AS TO THE AREA SERVED WITH A RUST PROOF METAL NAMEPLATE PER 2018 IMC.

G. DUCT SMOKE DETECTORS REQUIRED BY 2018 IMC SECTION 606 SHALL BE INSTALLED IN THE RETURN AIR DUCT OR PLENUM UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS, OUTDOOR AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT AND APPLIANCES. DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 606.3 AND NFPA 72.

ENERGY SYSTEMS DESIGN
7135 East Camelback Road
Suite 275
Scottsdale AZ 85251
P: 480.481.4900
www.esdengineers.com
Design Contact: JONATHON PFANTZ 221065.200

Holly Street
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1319 E VanBuren St.
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Registered Professional Engineer
CERTIFICATE NO.
52328
JONATHON K. PFANTZ
11/03/22
Date Signed
ARIZONA U.S.A.

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title
MECHANICAL SPECIFICATIONS + CODE COMPLIANCE

phase
CONSTRUCTION DOCUMENTS

date
04 NOV 2022

project no.
202169.4

sheet number
M0.1

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CEILING EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL NO.	CFM	E.S.P. (IN-WG)	SONES	MOTOR			DRIVE	CONTROL	WEIGHT	REMARKS
						WATTS	RPM	VOLTS/ PHASE				
CEF-1	GREENHECK	SP-A200	100	0.50	3.0	35	820	120/1	DIRECT	TIME CLOCK	35 lb	1,2,3,4
CEF-2	GREENHECK	SP-A200	100	0.50	3.0	35	820	120/1	DIRECT	TIME CLOCK	35 lb	1,2,3,4
CEF-3	GREENHECK	SP-A200	100	0.50	3.0	35	820	120/1	DIRECT	TIME CLOCK	35 lb	1,2,3,4

1. PROVIDE WITH BACKDRAFT DAMPER AND STARTER. DISCONNECT TO BE PROVIDED BY ELECTRICAL.
2. PROVIDE WITH SOLID STATE SPEED CONTROLLER WITH DIAL MOUNTED ON HOUSING FOR BALANCING.
3. PROVIDE WITH INTEGRAL GRILLE.
4. FAN SHALL BE CONTROLLED FROM TIME CLOCK AND OPERATE CONTINUOUSLY DURING OCCUPIED HOURS. COORDINATE SCHEDULE WITH OWNER.

REQUIRED OUTDOOR VENTILATION PER 2018 IMC 403.3 - SINGLE ZONE SYSTEMS

UNIT	ZONE OCCUPANCY CLASSIFICATION	ZONE AREA A_z (FT²)	OCCUPANCY DENSITY (#/1000 FT²)	ZONE POPULATION P_z	OCCUPANT OUTDOOR AIR RATE R_p (CFM/ PERSON)	AREA OUTDOOR AIR RATE R_a (CFM/FT²)	BREATHING ZONE OUTDOOR AIRFLOW V_{bz} (CFM)	ZONE AIR DISTRIBUTION EFF. E_z	ZONE OUTDOOR AIRFLOW V_{oz} (CFM)	OUTDOOR AIRFLOW PROVIDED (CFM)
HP-3	OFFICE	1380	5	7	5	0.06	117.8	0.80	147.3	150.0
	RECEPTION	550	30	17	5	0.06	118.0	0.80	147.5	150.0
								System Outdoor Airflow V_{ot} (CFM):		300.0
HP-4	OFFICE	688	5	4	5	0.06	61.3	0.80	76.6	80.0
	RECEPTION	532	30	16	5	0.06	111.9	0.80	139.9	140.0
								System Outdoor Airflow V_{ot} (CFM):		220.0
HP-5	CONFERENCE	749	50	38	5	0.06	234.9	0.80	293.7	295.0
	CORRIDOR	107	0	0	0	0.06	6.4	0.80	8.0	10.0
								System Outdoor Airflow V_{ot} (CFM):		305.0
HP-6	OFFICE	1594	5	8	5	0.06	135.6	0.80	169.6	170.0
	STORAGE	128	0	0	0	0.12	15.4	0.80	19.2	20.0
								System Outdoor Airflow V_{ot} (CFM):		190.0

*OUTSIDE AIR CALCULATION IS FOR BEAD BUILDING ONLY

*ANNEX BUILDING OCCUPANCY CLASSIFICATION UNCHANGED - NO RE-BALANCE OF OUTDOOR AIRFLOW RATES REQUIRED.

GRILLES/REGISTERS/DIFFUSERS SCHEDULE

MARK	IMAGE	DESCRIPTION	MODULE SIZE	TYPE	MAX. NC AT DESIGN CFM	OBD	FRAME	MATERIAL	FINISH	MANUFACTURER	MODEL NO.	REMARKS
CD-1		SUPPLY DIFFUSER	24"x24"	CONCENTRIC SQUARE CONE DIFFUSER	25	NO	LAY-IN	STEEL	WHITE	TITUS	TMS	1,2,3
CD-2		SUPPLY DIFFUSER	12"x12"	CONCENTRIC SQUARE CONE DIFFUSER	25	NO	LAY-IN	STEEL	WHITE	TITUS	TMS	1,2,3
LD-1		SUPPLY DIFFUSER	4'-0" LONG 4 SLOT (1")	LINEAR	25	NO	SURFACE	ALUMINUM	PER ARCH	TITUS	ML-39	1,2,3,5
RG-1		RETURN GRILLE	24"x24"	LOUVERED	25	NO	LAY-IN	STEEL	WHITE	TITUS	350RL	1,2,4

1. PROVIDE FRAME STYLE TO SUIT MOUNTING SURFACE. REFER TO ARCHITECTURAL DRAWINGS. HARD CEILING REQUIRE AUXILIARY MOUNTED FRAMES AND STANDARD LAY-IN DIFFUSERS.
2. CONFIRM FINISH WITH ARCHITECT PRIOR TO ORDERING.
3. RUNOUTS TO BE SAME SIZE OR LARGER THAN NECK SIZE, UNLESS NOTED OTHERWISE. WHERE RUNOUT SIZE IS LARGER THAN BRANCH DUCT HEIGHT, PROVIDE TAKEOFF FITTING OF EQUIVALENT RUNOUT AREA AND TRANSITION TO RUNOUT SIZE.
4. PROVIDE WITH ROUND DUCT COLLAR SIZED TO MATCH DUCT SIZE SHOWN ON DRAWINGS.
5. PROVIDE WITH MANUFACTURERS INSULATED PLENUM MPI-SP WITH 12" OVAL INLET.

SUPPLY DIFFUSER/REGISTER SCHEDULE:

250 CFM AND BELOW 8"Ø NECK
251 CFM - 400 CFM 10"Ø NECK
401 CFM - 600 CFM 12"Ø NECK
601 CFM - 800 CFM 14"Ø NECK
801 CFM - 1000 CFM 15"Ø NECK

USE SCHEDULE U.N.O ON DRAWINGS

ATTENTION:

ALL CEILING MOUNTED AIR TERMINALS OR SERVICES WEIGHING LESS THAN 20 POUNDS SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION MAIN RUNNERS OR TO CROSS RUNNERS WITH THE SAME CARRYING CAPACITY AS THE MAIN RUNNER.

TERMINALS OR SERVICES WEIGHING 20 POUNDS, BUT NOT MORE THAN 56 POUNDS, IN ADDITION TO THE ABOVE, SHALL HAVE TWO NUMBER 12 GAGE HANGERS CONNECTED FROM THE TERMINAL OR SERVICE TO THE CEILING SYSTEM HANGERS OR TO THE STRUCTURE ABOVE. THESE WIRES MAY BE SLACK.

TERMINALS OR SERVICES WEIGHING MORE THAN 56 POUNDS SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE BY APPROVED HANGERS.

DUCTLESS SPLIT INDOOR AIR CONDITIONING UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	NOMINAL TONS	CFM	E.S.P. (IN-WG)	ELECTRICAL			WEIGHT	REMARKS
						FLA	MCA	VOLTS/ PHASE		
FC-1	MITSUBISHI	MSY-D36NA	3.00	887	0.00	0.76	1.0	208/1	50 lb	1,2,3

1. SIZE AND INSTALL REFRIGERANT LINES AS RECOMMENDED BY MANUFACTURER'S WRITTEN INSTRUCTIONS. MAX. PIPE LENGTH INCLUDES EQUIVALENT LOSSES FOR PIPE FITTINGS. INSULATE PIPING WITH 1" ARMAFLEX INSULATION. PROVIDE HEAVY GAUGE ALUMINUM JACKET ON ALL PIPING EXPOSED OUTDOORS.
2. PROVIDE WITH SINGLE POINT POWER CONNECTION AT OUTDOOR UNIT AND INTEGRAL STARTER, INDOOR UNIT SHALL BE POWERED THROUGH OUTDOOR UNIT, PROVIDE 14 AWG 3 +GROUND WIRE BETWEEN INDOOR AND OUTDOOR UNIT. FUSED DISCONNECT PROVIDED BY ELECTRICAL, REFER TO ELECTRICAL PLANS. PROVIDE CONDENSATE PUMP SAME VOLTAGE AS UNIT WITH WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 WHICH SHALL SHUT DOWN UNIT UPON HIGH CONDENSATE LEVEL.
3. PROVIDE ELECTRONIC HARDWIRED THERMOSTAT.

DUCTLESS SPLIT OUTDOOR AIR CONDITIONING UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	NOMINAL TONS	COOLING CAPACITY					ELECTRICAL				SEER	WEIGHT	MAX. PIPE LENGTH	MAX. HEIGHT	REMARKS
				TOTAL MBH	SENS. MBH	ENT. DB	ENT. WB	AMBIENT TEMP.	FLA	MCA	MOCP	VOLTS/ PHASE					
CU-1	MITSUBISHI	MUY-D36NA	3.00	30.2	19.9	80 °F	67 °F	115 °F	16.9	21.0	25.0	208/1	15.1	130 lb	100	50	1,2,3,4

1. CONDENSING UNIT TO BE LOCATED ON THE ROOF. INSTALL CONDENSING UNIT ON C-PORT "AIR-PORT" UTILITY PAD AND SECURE TO ROOF.
2. SIZE AND INSTALL REFRIGERANT LINES AS RECOMMENDED BY MANUFACTURER'S WRITTEN INSTRUCTIONS. MAX. PIPE LENGTH INCLUDES EQUIVALENT LOSSES FOR PIPE FITTINGS. INSULATE PIPING WITH 1" ARMAFLEX INSULATION. PROVIDE HEAVY GAUGE ALUMINUM JACKET ON ALL PIPING EXPOSED OUTDOORS. UNIT SHALL BE CHARGED WITH R-410A REFRIGERANT (PURON).
3. PROVIDE WITH SINGLE POINT POWER CONNECTION AT OUTDOOR UNIT AND INTEGRAL STARTER, INDOOR UNIT SHALL BE POWERED THROUGH OUTDOOR UNIT, PROVIDE 14 AWG 3+GROUND WIRE BETWEEN INDOOR AND OUTDOOR UNIT. FUSED DISCONNECT PROVIDED BY ELECTRICAL, REFER TO ELECTRICAL PLANS. PROVIDE CONDENSATE PUMP SAME VOLTAGE AS UNIT WITH WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 WHICH SHALL SHUT DOWN UNIT UPON HIGH CONDENSATE LEVEL.
4. PROVIDE 5 YEAR WARRANTY ON COMPRESSOR.

POWER EXHAUSTER SCHEDULE

MARK	MANUFACTURER	MODEL NO.	SUPPLY FAN			ELECTRICAL				WEIGHT	REMARKS
			CFM	E.S.P. (IN-WG)	HP	FLA	MCA	MOCP	VOLTS/ PHASE		
PE-3	MICROMETL	PCE-SRT12CA-D-2L1	2,400	0.50	1.00	6.4	8.0	14.4	208/3	150 lb	1,2,3
PE-4	MICROMETL	PCE-SRT12CA-D-2L1	2,400	0.50	1.00	6.4	8.0	14.4	208/3	150 lb	1,2,3
PE-5	MICROMETL	PCE-SRT12CA-D-2LH	2,000	0.30	0.50	3.9	4.9	8.8	208/3	150 lb	1,2,3
PE-6	MICROMETL	PCD-SRT12CA-D-2L1	2,400	0.50	1.00	6.4	8.0	14.4	208/3	145 lb	1,2,3

1. POWER EXHAUSTER SHALL BE MODULATING TYPE TO MAINTAIN BUILDING STATIC PRESSURE OF +0.05".
2. UNIT SHALL BE PAINTED TO MATCH ROOFTOP UNIT COLOR.
3. PROVIDE HORIZONTAL OR VERTICAL ECONOMIZER & POWER EXHAUST CONFIGURATION DEPENDING ON ROOFTOP UNIT CONFIGURATION.

DUCT STATIC PRESSURE CONSTRUCTION

DUCT SYSTEM	LOCATION	PRESSURE CLASS (INCH. W.G.)	SEAL CLASS
SUPPLY	DOWNSTREAM ROOFTOP UNITS	1.0	A
RETURN	UPSTREAM ROOFTOP UNITS	-1.0	B
EXHAUST	CONNECTED TO EXHAUST FANS	-1.5	B

DUCTS DESIGNED TO OPERATE AT A STATIC PRESSURE GREATER THAN 3.0" SHALL BE INSULATED AND SEALED PER IECC. DUCTS SHALL BE LEAK-TESTED WITH A RATE OF AIR LEAKAGE (CL) NO GREATER THAN 4.0. NO LESS THAN 25% OF DUCTS SHALL BE TESTED TO ENSURE COMPLIANCE.

PACKAGED ROOFTOP HEAT PUMP UNIT SCHEDULE

MARK	MANUFACTURER	MODEL NO.	NOMINAL TONS	SUPPLY FAN			COOLING CAPACITY					HEATING CAPACITY			ELECTRICAL				AHRI EER/SEER/ IEER	AHRI HSPF/ COP	WEIGHT	REMARKS
				CFM	MIN. OSA CFM	E.S.P. (IN-WG)	TOTAL MBH	SENS. MBH	ENT. AIR		AMBIENT TEMP.	TOTAL MBH	ENT. AIR	AMBIENT TEMP.	FLA	MCA	MOCP	VOLTS/ PHASE				
									DB	WB												
HP-3	CARRIER	50FCQM07	6.00	2,400	300	0.75	63.9	63.5	83 °F	65 °F	115 °F	48.6	70 °F	32 °F	25.0	30.0	45.0	208/3	11.2/-/15.0	-/3.6	650 lb	1,2,3,4,5,6,7,8
HP-4	CARRIER	50FCQM07	6.00	2,400	220	0.75	63.9	63.5	83 °F	65 °F	115 °F	48.6	70 °F	32 °F	25.0	30.0	45.0	208/3	11.2/-/15.0	-/3.6	650 lb	1,2,3,4,5,6,7,8
HP-5	CARRIER	50FCQA06	5.00	2,000	305	0.75	50.2	50.2	83 °F	65 °F	115 °F	44.0	70 °F	32 °F	26.7	31.0	45.0	208/3	11.8/14.3/-	8.2/-	650 lb	1,2,3,4,5,6,7,8
HP-6	CARRIER	50FCQM07	6.00	2,400	190	0.75	63.9	63.5	83 °F	65 °F	115 °F	48.6	70 °F	32 °F	25.0	30.0	45.0	208/3	11.2/-/15.0	-/3.6	650 lb	1,2,3,4,5,6,7,8

1. FURNISH WITH ROOF ADAPTER CURB AND MOUNT ON EXISTING ROOF CURB (DOCUMENTED WEIGHT DOES NOT INCLUDE ROOF CURB OR ADAPTER CURB). PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION, DISCONNECT PROVIDED BY ELECTRICAL.
2. PROVIDE 5-YEAR COMPRESSOR WARRANTY ON ALL COMPRESSORS.
3. PROVIDE CONTROL TRANSFORMER IN UNIT CONTROL PANEL. PROVIDE UNIT COMPLETE WITH WEATHERPROOF CONTROL PANEL WITH ALL NECESSARY OVERLOADS AND CONTROL COMPONENTS, INCLUDING SAFETY FOR SINGLE PHASING OF ELECTRICAL POWER.
4. PROVIDE WALL MOUNTED PROGRAMMABLE BUILDING STANDARD THERMOSTAT.
5. PROVIDE 2" PLEATED MEDIA FILTER RACK AT UNIT WITH TWO (2) SETS FARR AP13 FILTERS (MERV 13).
6. PROVIDE DUCT DETECTOR IN RETURN AIR DUCT. FURNISHED BY FIRE ALARM CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR. DETECTOR SHALL BE INTERLOCKED WITH FAN TO SHUT DOWN FAN WHEN SMOKE IS DETECTED IN THE RETURN DUCT.
7. EVAPORATOR FAN BE SINGLE SPEED, STANDARD DRIVE MOTOR.
8. PROVIDE WITH 100% OUTDOOR AIR ECONOMIZER WITH A FIXED DRY BULB HIGH LIMIT SHUTOFF OF 75°F. PROVIDE WITH HONEYWELL JADE CONTROLLER MODEL W7220 FOR ECONOMIZER CONTROL AND ALL REQUIRED CONTROL DEVICES. PROVIDE WITH MICROMETL MODULATING POWER EXHAUST FAN TO OPERATE DURING UNIT ECONOMIZER MODE, REFER TO SCHEDULE.

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Date Signed 11/03/22
ARIZONA U.S.A.

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title

MECHANICAL SCHEDULES

phase

CONSTRUCTION DOCUMENTS

date

04 NOV 2022

project no.

202169.4

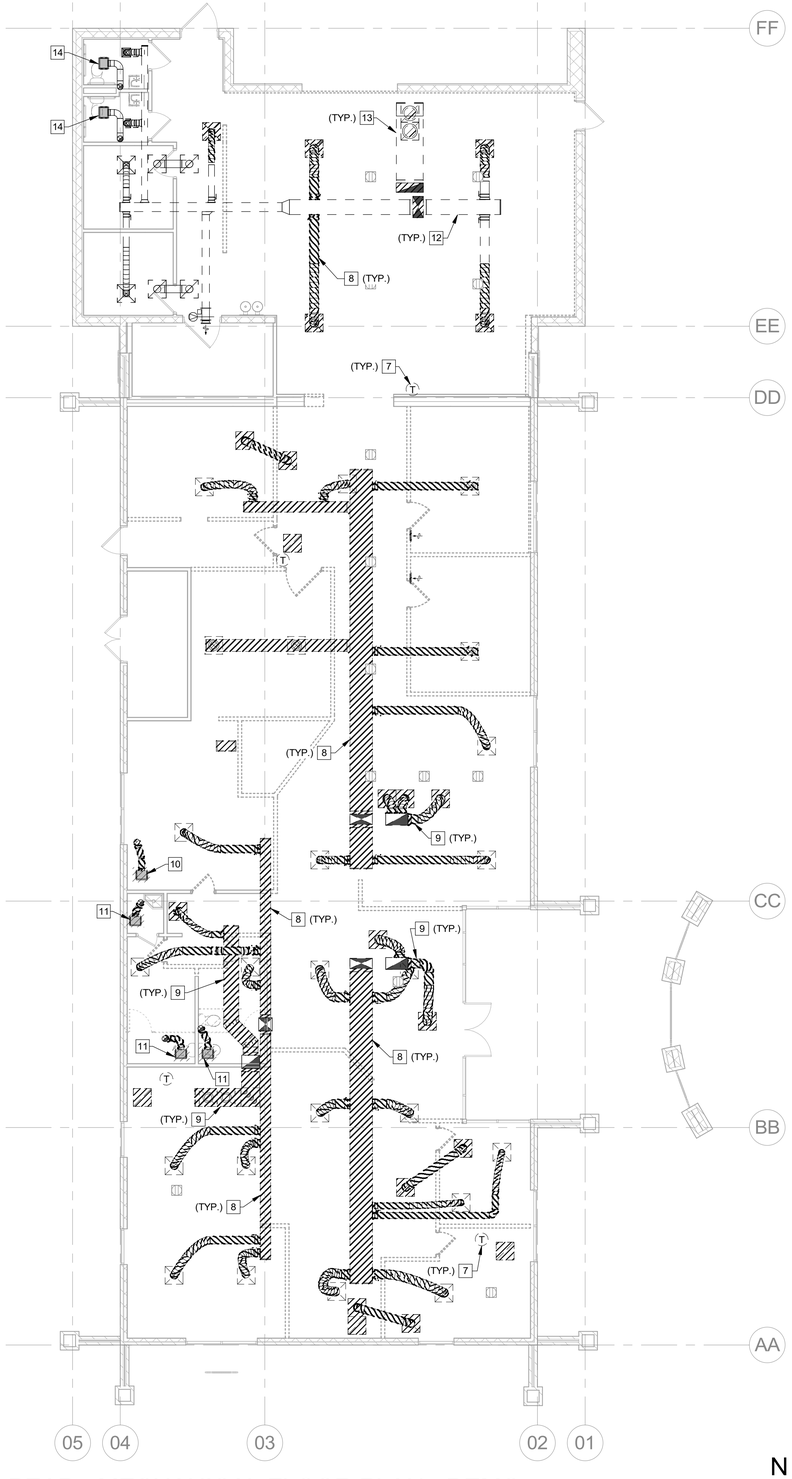
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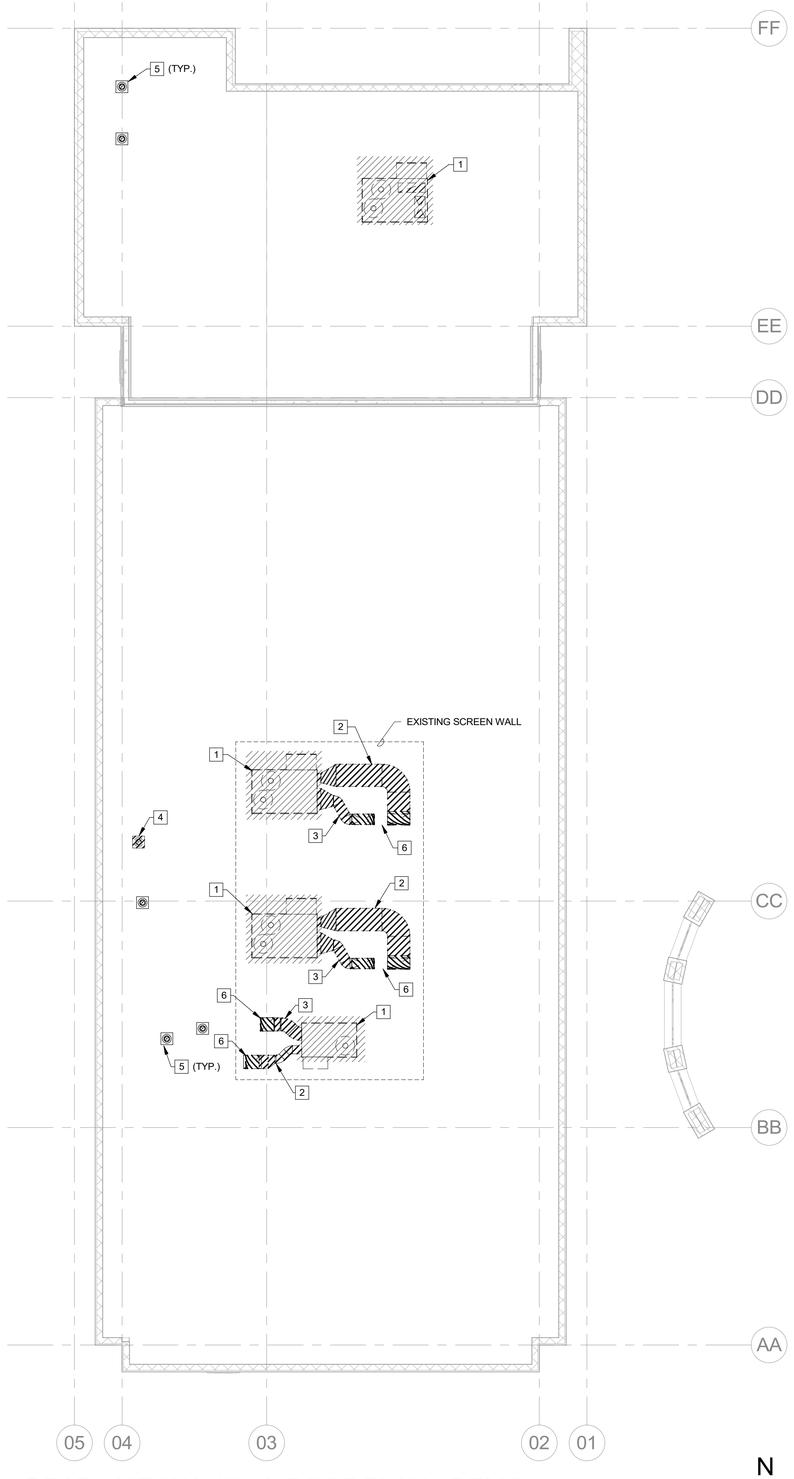
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BEAD - MECHANICAL FLOOR PLAN - DEMO

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



BEAD - MECHANICAL ROOF PLAN - DEMO

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

DEMO KEYED NOTES

1. EXISTING ROOFTOP PACKAGED HP UNIT SHOWN LIGHT AND HATCHED TO BE REMOVED, INCLUDING ASSOCIATED DUCTWORK, RUNOUTS, FLEX DUCT AND CONDENSATE DRAIN PIPING.
2. EXISTING RETURN AIR DUCTWORK SHOWN LIGHT AND HATCHED TO BE REMOVED (TYPICAL).
3. EXISTING SUPPLY AIR DUCTWORK SHOWN LIGHT AND HATCHED TO BE REMOVED (TYPICAL).
4. EXISTING EXHAUST AIR ROOF CAP SHOWN LIGHT AND HATCHED TO BE REMOVED. CONTRACTOR TO PATCH ROOF AS REQUIRED (TYPICAL).
5. EXISTING EXHAUST AIR ROOF CAP SHOWN LIGHT AND DASHED TO REMAIN AS IS (TYPICAL).
6. EXISTING VERTICAL SUPPLY AND RETURN DUCTWORK THRU ROOF TO REMAIN SUITABEL FOR RE-USE, REFER TO NEW PLAN.
7. REMOVE EXISTING THERMOSTAT SHOWN LIGHT AND HATCHED AND ASSOCIATED CONTROL WIRING BACK TO UNIT (TYPICAL).
8. EXISTING SUPPLY AIR DUCTWORK, RUNOUTS, FLEX DUCTS AND DIFFUSERS INCLUDING ALL HANGERS AND STRAPS SHOWN LIGHT AND HATCHED TO BE REMOVED (TYPICAL).
9. EXISTING RETURN AIR DUCTWORK, RUNOUTS, FLEX DUCTS AND GRILLES INCLUDING ALL HANGERS AND STRAPS SHOWN LIGHT AND HATCHED TO BE REMOVED (TYPICAL).
10. EXISTING CEILING EXHAUST FAN INCLUDING ALL ASSOCIATED EXHAUST DUCTWORK SHOWN LIGHT AND HATCHED TO BE REMOVED.
11. EXISTING CEILING EXHAUST FAN SHOWN LIGHT AND HATCHED TO BE REMOVED. REMOVE EXISTING EXHAUST AIR DUCTWORK SHOWN LIGHT AND DASHED UP TO LOCATION SHOWN.
12. EXISTING SUPPLY AIR DUCTWORK SHOWN LIGHT AND DASHED TO REMAIN AS IS (TYPICAL).
13. EXISTING RETURN AIR DUCTWORK SHOWN LIGHT AND DASHED TO REMAIN AS IS (TYPICAL).
14. EXISTING CEILING EXHAUST FAN SHOWN LIGHT AND DASHED TO REMAIN AS IS.

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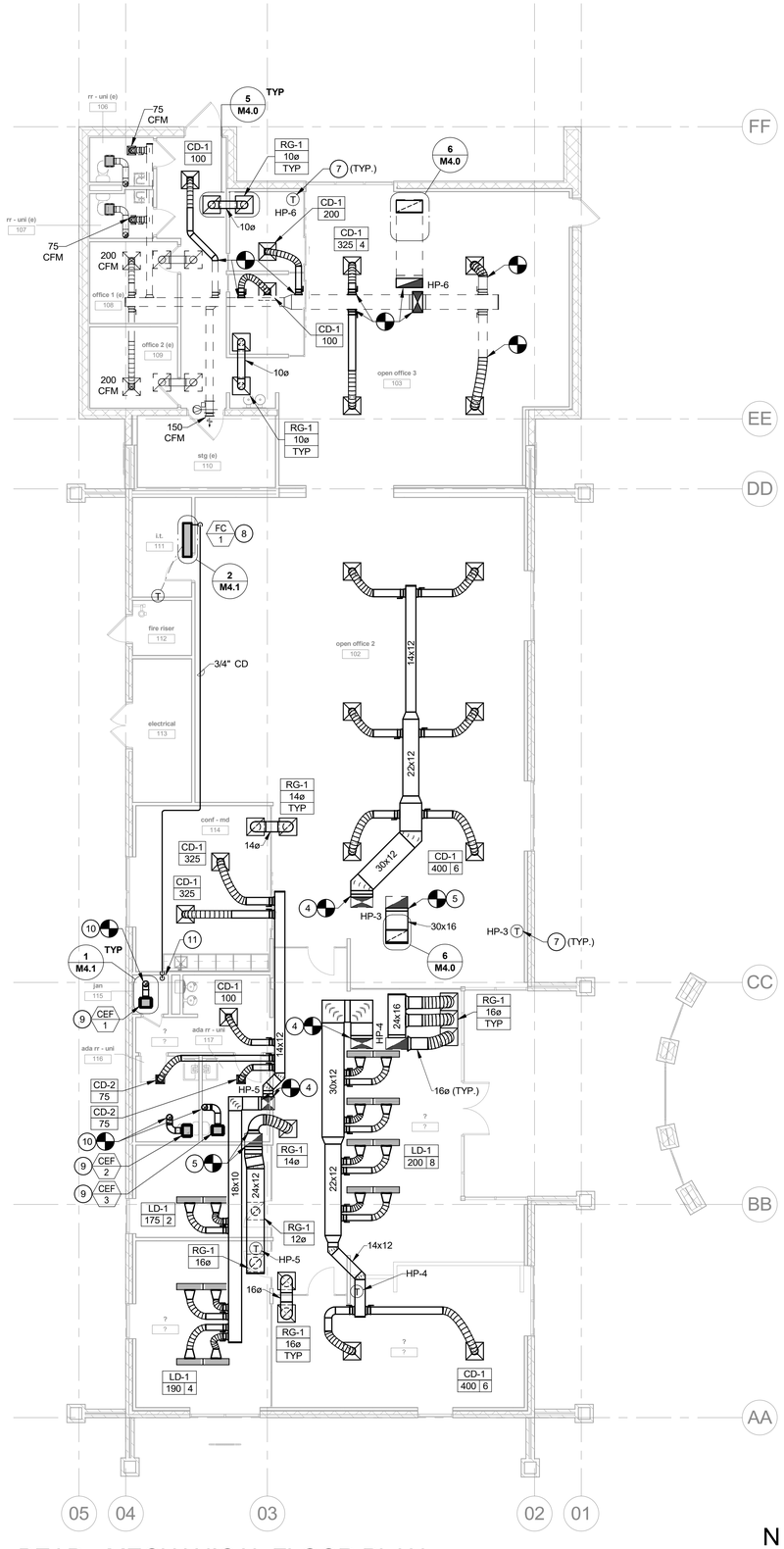
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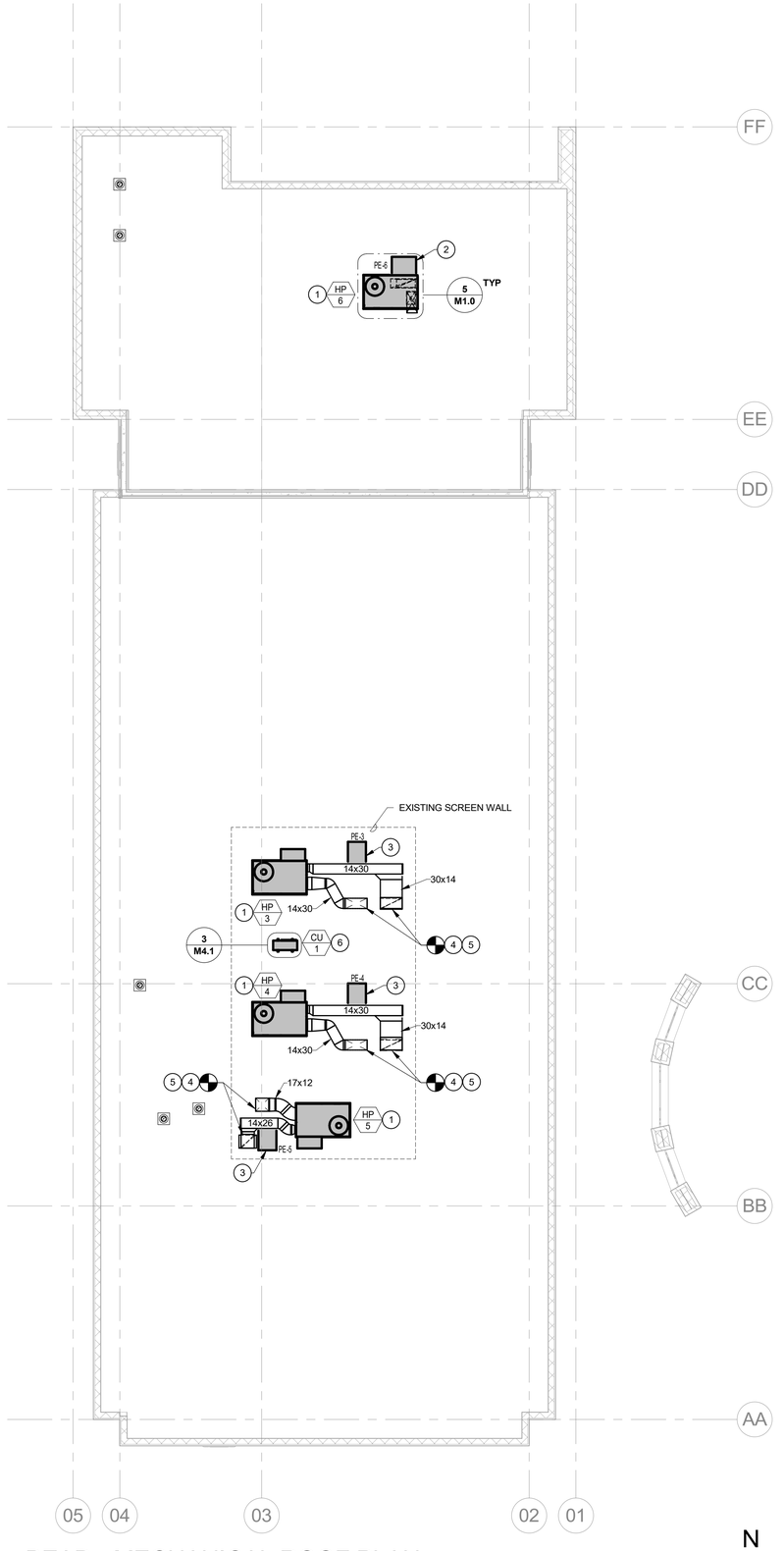
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BEAD - MECHANICAL FLOOR PLAN

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



BEAD - MECHANICAL ROOF PLAN

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

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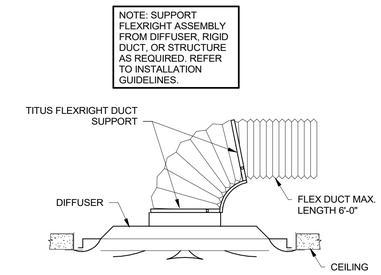
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KEYED NOTES

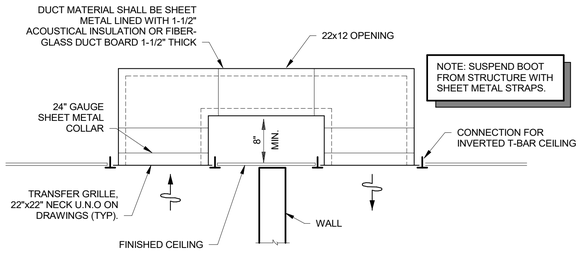
1. MOUNT NEW ROOFTOP PACKAGED HP UNIT ON ROOF CURB THIS LOCATION. REFER TO DETAIL. MAINTAIN REQUIRED CLEARANCES. (TYP.)
2. MOUNT MODULATING POWER EXHAUST UNIT TO ROOFTOP UNIT THIS LOCATION. MAINTAIN REQUIRED CLEARANCES. (TYP.)
3. MOUNT MODULATING POWER EXHAUST UNIT TO RETURN AIR DUCTWORK THIS LOCATION. MAINTAIN REQUIRED CLEARANCES. (TYP.)
4. CONNECT NEW SUPPLY AIR DUCT TO EXISTING THIS LOCATION AND ROUTE AS SHOWN.
5. CONNECT NEW RETURN AIR DUCT TO EXISTING THIS LOCATION AND ROUTE AS SHOWN.
6. CONDENSING UNIT MOUNTED ON ROOF, REFER TO DETAIL. MAINTAIN REQUIRED CLEARANCES. EXTEND REFRIGERANT PIPING TO INDOOR FAN COIL UNIT. SIZE PER MANUFACTURER'S WRITTEN DIRECTIONS. PROVIDE APPROVED PIPE CURB AT PIPING PENETRATION THROUGH ROOF AND SEAL WEATHER TIGHT, REFER TO DETAIL. INSULATE ALL REFRIGERANT PIPING WITH 1" ARMAFLEX INSULATION AND PROVIDE ALUMINUM JACKET ON ALL PIPING EXPOSED OUTDOORS.
7. PROVIDE NEW WALL MOUNTED PROGRAMMABLE THERMOSTAT AT LOCATION SHOWN. EXTEND NEW PLENUM RATED CONTROL WIRING BACK TO ASSOCIATED UNIT. PROVIDE CONDUIT FOR ALL HVAC CONTROL WIRE WHERE EXPOSED. PROVIDE INSULATED BACKING ON ALL THERMOSTATS MOUNTED ON EXTERIOR WALLS. COORDINATE FINAL LOCATION WITH ARCHITECT PRIOR TO INSTALLATION (TYP.).
8. MOUNT DUCTLESS SPLIT SYSTEM FAN COIL UNIT HIGH ON WALL THIS AREA. COORDINATE EXACT UNIT AND THERMOSTAT MOUNTING LOCATION WITH EQUIPMENT AND LIGHTING TO BE INSTALLED IN THIS AREA. EXTEND REFRIGERANT PIPING FROM FAN COIL UNIT TO ASSOCIATED CONDENSING UNIT. SIZE AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S WRITTEN DIRECTIONS, REFER TO DETAIL.
9. CEILING MOUNTED EXHAUST FAN WITH BACKDRAFT DAMPER. EXTEND SHEET METAL EXHAUST DUCT AS SHOWN AND CONNECT TO EXISTING.
10. CONNECT NEW EXHAUST AIR DUCT TO EXISTING THIS LOCATION AND ROUTE AS SHOWN.
11. DROP CONDENSATE DRAIN PIPING DOWN ALONG WALL AND SPILL INTO JANITOR'S SINK. SIZE AS SHOWN ON PLANS.

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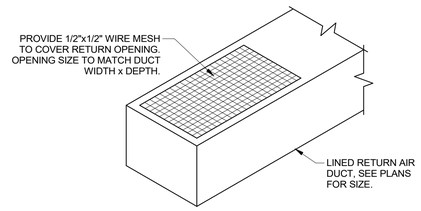
4 DUCT CONNECTION TO DIFFUSER DETAIL

NOT TO SCALE



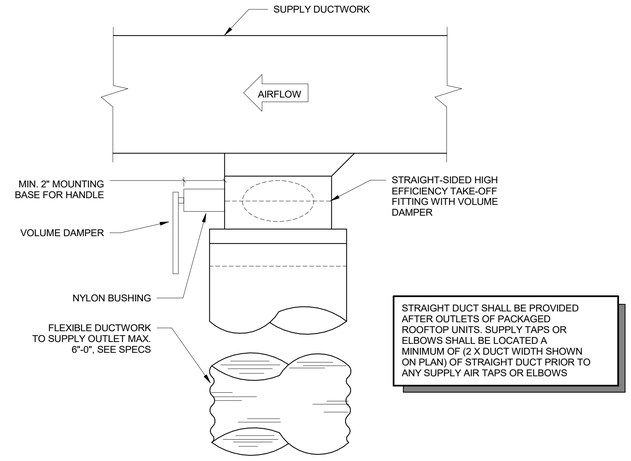
5 DUCTED TRANSFER GRILLE DETAIL

NOT TO SCALE



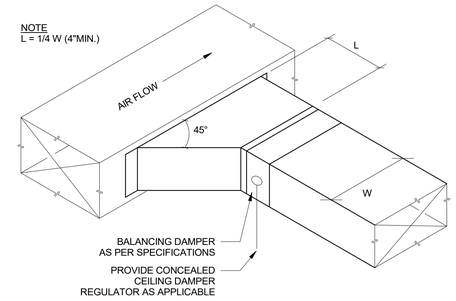
6 RETURN AIR DUCT WITH OPENING ON TOP DETAIL

NOT TO SCALE



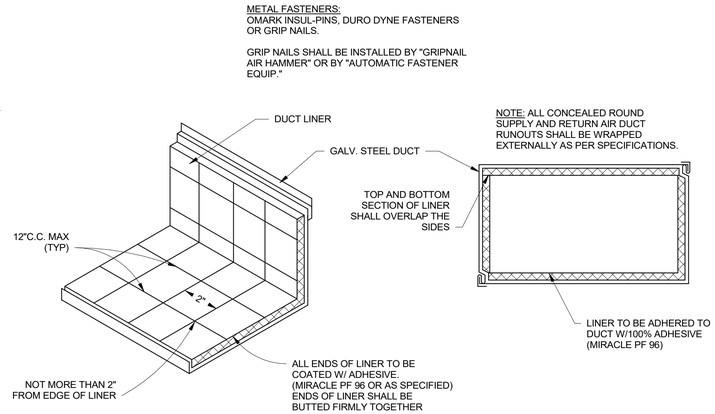
1 BRANCH DUCT HIGH EFFICIENCY TAKE-OFF DETAIL

NOT TO SCALE



2 SUPPLY AIR CONNECTION DETAIL

NOT TO SCALE



3 DUCT LINER DETAIL

NOT TO SCALE

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GLENDALE DCRP BEAD MUSEUM RENOVATION

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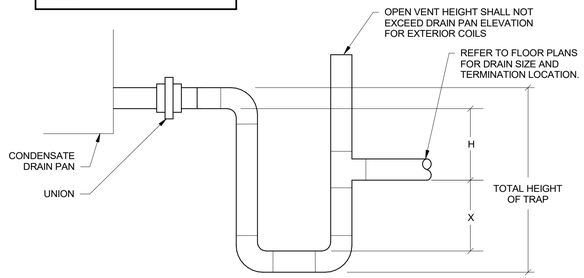
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WHERE LOCATED ABOVE HARD-LID CEILINGS, PROVIDE WATER LEVEL DETECTION DEVICE IN CONDENSATE DRAIN PAN TO SHUT DOWN UNIT UPON DETECTION OF WATER PER 2018 IMC 307.2.3.



CONDENSATE DRAIN TRAPS:
DRAW-THROUGH APPLICATION (NEGATIVE STATIC PRESSURE)
X = 1/2 * "H"
H = AT LEAST 1" PLUS CASING STATIC PRESSURE
TOTAL HEIGHT OF TRAP = X + H + (1/2 * PIPE DIA.)**

BLOW-THROUGH APPLICATION (POSITIVE STATIC PRESSURE)
X = AT LEAST 1" PLUS CASING STATIC PRESSURE
H = AT LEAST 1"
TOTAL HEIGHT OF TRAP = X + H + (1/2 * PIPE DIA.)**

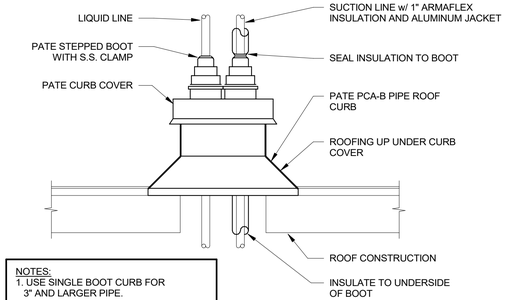
DRAIN PIPING SHALL BE THE SAME SIZE AS THE DRAIN PAN CONNECTION. SEE FLOOR PLANS FOR ROUTING AND LOCATION OF ALL CONDENSATE DRAIN PIPING.

** WITHOUT INSULATION

6 CONDENSATE DRAIN DETAIL

NOT TO SCALE

ALL ROOF WORK TO BE DONE BY BUILDING ROOFER. COORDINATE WITH BUILDING ENGINEER TO MAINTAIN WARRANTY



NOTES:
1. USE SINGLE BOOT CURB FOR 3" AND LARGER PIPE.

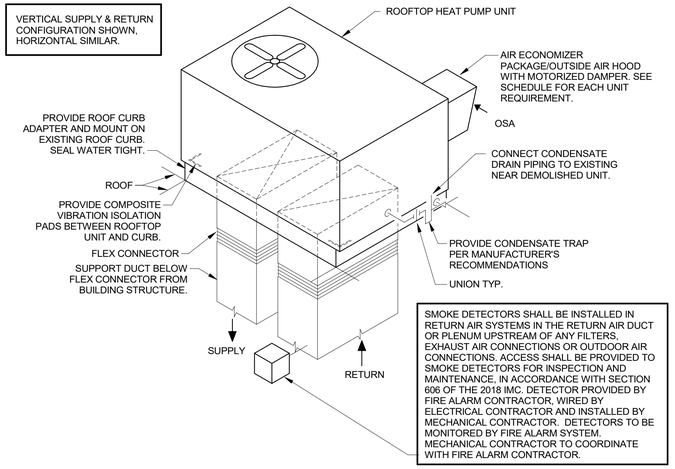
2. RUN BOTH SUCTION LINE AND LIQUID LINE THRU CURB.

4 REFRIGERANT PIPING THRU ROOF DETAIL

NOT TO SCALE

ALL UNITS OVER 2000 CFM, UNLESS OTHERWISE REQUIRED BY NOTES, MUST BE PROVIDED WITH DUCT MOUNTED SMOKE DETECTORS TO SHUT DOWN UNIT IN ACCORDANCE WITH 2018 IMC. DETECTORS TO BE PROVIDED BY FIRE ALARM CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR IN ACCORDANCE WITH NFPA 72.

VERTICAL SUPPLY & RETURN CONFIGURATION SHOWN, HORIZONTAL SIMILAR.

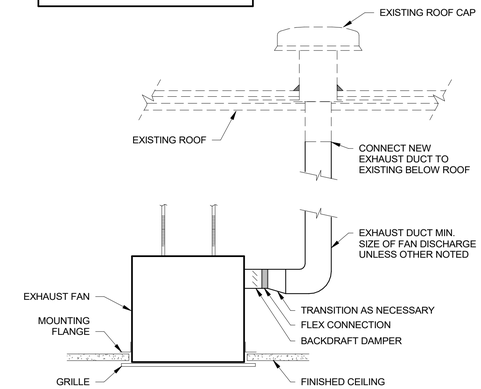


SMOKE DETECTORS SHALL BE INSTALLED IN RETURN AIR SYSTEMS IN THE RETURN AIR DUCT OR PLENUM UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS OR OUTDOOR AIR CONNECTIONS. ACCESS SHALL BE PROVIDED TO SMOKE DETECTORS FOR INSPECTION AND MAINTENANCE, IN ACCORDANCE WITH SECTION 606 OF THE 2018 IMC. DETECTOR PROVIDED BY FIRE ALARM CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR. DETECTORS TO BE MONITORED BY FIRE ALARM SYSTEM. MECHANICAL CONTRACTOR TO COORDINATE WITH FIRE ALARM CONTRACTOR.

5 ROOFTOP PACKAGED HEAT PUMP UNIT DETAIL

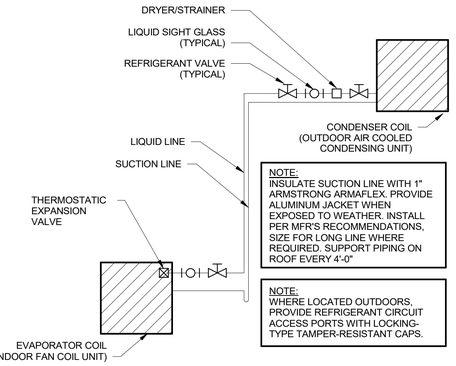
NOT TO SCALE

ALL ROOF WORK TO BE DONE BY BUILDING ROOFER. COORDINATE WITH BUILDING ENGINEER TO MAINTAIN WARRANTY



1 CEILING MOUNTED EXHAUST FAN DETAIL

NOT TO SCALE

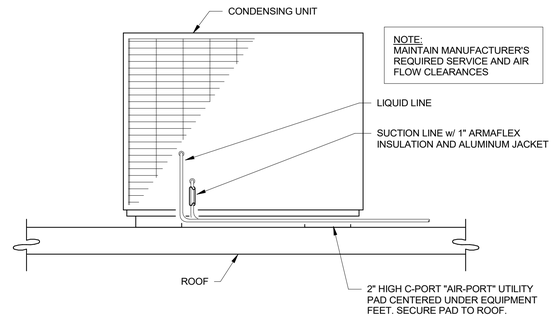


NOTE:
INSULATE SUCTION LINE WITH 1" ARMSTRONG ARMAFLEX. PROVIDE ALUMINUM JACKET WHEN EXPOSED TO WEATHER. INSTALL PER MFR'S RECOMMENDATIONS, SIZE FOR LONG LINE WHERE REQUIRED. SUPPORT PIPING ON ROOF EVERY 4'-0"

NOTE:
WHERE LOCATED OUTDOORS, PROVIDE REFRIGERANT CIRCUIT ACCESS PORTS WITH LOCKING-TYPE TAMPER-RESISTANT CAPS.

2 SPLIT SYSTEM REFRIGERANT PIPING DETAIL

NOT TO SCALE



NOTE:
MAINTAIN MANUFACTURER'S REQUIRED SERVICE AND AIR FLOW CLEARANCES

3 OUTDOOR CONDENSING UNIT DETAIL

NOT TO SCALE

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PLUMBING GENERAL NOTES

1. ALL MATERIALS AND SYSTEMS INSTALLED SHALL COMPLY WITH ALL CODES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION, INCLUDING THE 2018 IPC AS AMENDED BY THE CITY OF GLENDALE, AZ.

2. CONSTRUCTION NOTES:

A. THE PLUMBING CONTRACTOR SHALL COORDINATE HIS WORK WITH ADJACENT WORK AND COOPERATE WITH THE OTHER TRADES SO AS TO FACILITATE THE GENERAL PROGRESS OF THE WORK AND TO AVOID CONFLICT OF ALLOWABLE SPACE FOR OTHER TRADES (ELECTRICAL, ETC). REFER TO ARCHITECTURAL DRAWINGS FOR ALL FIXTURE LOCATIONS.
B. DO NOT LOCATE ANY CLEANOUTS UNDER OR BEHIND ANY CABINETS, FIXTURES, OR FIXED EQUIPMENT.
C. CLEANOUTS SHALL BE PROVIDED AT LOCATIONS AS SHOWN, AND SHALL BE AS SPECIFIED. NO PLASTIC CLEANOUT COVERS WILL BE ALLOWED. CLEANOUT PLUGS SHALL BE BRONZE. ALL CLEANOUTS TO BE EQUAL TO THE SIZE OF LINE IN WHICH INSTALLED, UNLESS NOTED OTHERWISE. (4" MAXIMUM).
D. THE PLUMBING CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO PATCH AND REPAIR ALL EXISTING WALLS, FLOORS, CEILINGS OR OTHER SURFACES IDENTIFIED TO REMAIN THAT MAY BECOME DAMAGED DURING THE COURSE OF WORK.
E. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL INTENT OR ARRANGEMENT OF SYSTEM(S). FURNISH AND INSTALL ALL COMPONENTS NEEDED WHETHER INDICATED OR NOT TO PROVIDE A COMPLETE AND OPERATING SYSTEM. OVERALL CASEWORK COMPONENT DIMENSIONING ON PLUMBING DETAILS ARE SHOWN FOR REFERENCE AND COORDINATION ONLY.
F. CONTRACTOR TO VERIFY ALL DIMENSIONS, INCLUDING CLEARANCES REQUIRED BY OTHER TRADES, AND NOTIFY THE LICENSEE'S ARCHITECT OF RECORD OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK. ALL DIMENSIONS.
G. THE PLUMBING CONTRACTOR SHALL COORDINATE PLUMBING WORK WITH OTHER TRADES. THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR FIXTURES IN CASEWORK AND ADDITIONAL PLUMBING DETAILS. SEE PROJECT MANUAL FOR PLUMBING SPECIFICATION SECTIONS.
H. ALL PIPING AND/OR PLUMBING DEVICES SHALL BE SUPPORTED FROM STRUCTURE (NOT FROM HVAC DUCTS OR OTHER PIPES/CONDUITS).
I. EXACT LOCATION OF PLUMBING FIXTURES SHALL BE DETERMINED FROM THE ARCHITECTURAL DRAWINGS.
J. PROVIDE ALL REQUIRED RISERS/DROPS TO INSTALL CONCEALED PIPING WITHIN BUILDING CONSTRUCTION. REFER TO THE REFLECTED CEILING PLANS, SECTIONS AND SCHEDULES ON THE ARCHITECTURAL DRAWINGS TO DETERMINE REQUIRED PLACEMENT OF PIPING. PIPING IN EXPOSED AREAS SHALL BE SUPPORTED AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE OVERHEAD STRUCTURE.
K. PROVIDE QUARTER TURN BALL TYPE STOP VALVES AT ALL FIXTURES.
L. REFER TO THE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL AREA SEPARATION, FIRE AND SMOKE WALLS. PROVIDE UL LISTED FIRE STOPPING PER THE DETAILS ON THE ARCHITECTURAL DRAWINGS AND AS SPECIFIED IN THE ARCHITECTURAL AND MECHANICAL SPECIFICATIONS.
M. THE CONTRACTOR HAS THE RESPONSIBILITY OF REVIEWING ALL OF THE CONTRACT DOCUMENTS CONCERNING THIS PROJECT AND SHALL INCLUDE ALL REQUIRED WORK IN HIS BID.
N. PLUMBING CONTRACTOR SHALL VERIFY THE INVERT ELEVATION OF THE EXISTING DRAINS TO WHICH NEW WASTE LINES ARE TO BE CONNECTED PRIOR TO INSTALLING THE NEW WASTE SYSTEM. VERIFY THAT THE SYSTEM CAN BE INSTALLED AS SHOWN. IF AFTER INVESTIGATION THE PLUMBING CONTRACTOR DETERMINES THAT REQUIRED INVERTS AND SLOPES CANNOT BE MET, HE SHALL ADVISE THE ENGINEER IMMEDIATELY.
O. CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING SEWER AND WATER LINES SHOWN ON PLANS, PRIOR TO INSTALLATION OF NEW WORK.
P. CORE DRILL OR SAWCUT FLOORS AND PATCH AS REQUIRED TO INSTALL NEW DRAIN LINES AS SHOWN.
Q. PATCH ALL SURFACES DAMAGED BY THIS CONSTRUCTION TO MATCH EXISTING OR REMODELED SURFACES.

3. DOMESTIC WATER PIPING:

A. ALL COMPONENTS OF THE POTABLE DOMESTIC WATER SYSTEM MUST MEET NSF 61 AND/OR NSF 372 TEST STANDARDS AND FEDERAL ACT S.3874 KNOWN AS "REDUCTION OF LEAD IN DRINKING WATER ACT".
B. ABOVE FLOOR: TYPE "L" HARD TEMPER SEAMLESS COPPER TUBING PER ASTM B-88. WROUGHT SOLDER JOINT FITTINGS PER ANSI B16.22, OR CAST BRONZE SOLDER JOINT FITTINGS PER ANSI B16.8. USE 95-5 TIN-ANTIMONY SOLDER W/ LESS THAN .2% LEAD CONTENT.
C. BELOW GRADE, OUTSIDE BUILDING: TYPE "K" HARD TEMPER SEAMLESS COPPER TUBING PER ASTM B-88. WROUGHT SOLDER JOINT FITTINGS PER ANSI B16.22, OR CAST BRONZE SOLDER JOINT FITTINGS PER ANSI B16.8. USE 1000 DEGREE F SILVER SOLDER.
D. INSIDE BUILDING, BELOW FLOOR SLAB ON GRADE (1-1/2" AND SMALLER): TYPE "K", ASTM B-88 SOFT TEMPER WITH NO JOINTS BELOW FLOOR.
E. USE OF FERROUS NIPPLE BUSHINGS, UNIONS, ETC. IS NOT PERMITTED WITH COPPER PIPING.
F. DIELECTRIC INSULATING FITTINGS SHALL BE INSTALLED AT ALL WATER CONNECTIONS BETWEEN FERROUS AND COPPER PIPING.
G. SHUT-OFF VALVES SHALL BE EQUAL TO NIBCO NO. S-585-80-LF, 150#, 600 PSI WOG, FULL-PORT, SOLDER END, BALL VALVE, 1/2" THRU 3", NIBCO NO. S/T 595-66-LF: 2-1/2". NIBCO NO. LD 2000, LUG TYPE BUTTERFLY VALVE, DUCTILE IRON BODY, 200 CWP, EPDM SEAT, STAINLESS STEEL STEM, LEAD-FREE ALUMINUM BRONZE DISC; 3" AND LARGER.
H. BALANCING VALVES: ARMSTRONG AMRFLO L.F. SERIES, SOLDER JOINT CONNECTION.
I. ALL HOT WATER LINES TO BE INSULATED WITH 1" PRE-MOLDED FIBERGLASS INSULATION WITH ALL PURPOSE JACKET, THICKNESS PER SPECS. ENTIRE ASSEMBLY TO BE U.L. LISTED WITH FLAME SPREAD OF 25 AND SMOKE DEVELOPED 50. THERMAL CONDUCTIVITY "K" VALUE NOT TO EXCEED 0.25 AT 100°F. MEAN TEMPERATURE.

4. SANITARY WASTE AND VENT PIPING:

A. ABOVE AND BELOW FLOOR - ALL SIZES:
CAST IRON SOIL PIPE AND FITTINGS, BEARING THE SEAL OF THE CAST IRON SOIL PIPE INSTITUTE, IN CONFORMANCE WITH CISPI 301-00 AND ASTM 888 STANDARDS FOR HUBLESS PIPE AND FITTINGS. COUPLINGS: STAINLESS STEEL COUPLINGS CONFORMING TO CISPI 310-97 WITH NEOPRENE SEALING GASKETS CONFORMING TO ASTM STANDARD C564.
B. SANITARY DRAIN PIPING 2" AND SMALLER SHALL SLOPE AT 1/4" PER FT. MINIMUM. SANITARY DRAIN PIPING 3" AND LARGER SHALL SLOPE AT 1/8" UNLESS NOTED OTHERWISE.
C. ALL DRAIN PIPING CONNECTED TO FLOOR SINKS AND/OR MOP SINKS SERVING ICE MACHINES OR CONDENSATE LINES SHALL BE INSULATED WITH MIN. 1/2" THICK ALL-PURPOSE PIPING INSULATION TO PREVENT CONDENSATION. FULLY INSULATE TAILPIECE, P-TRAP, TRAP ARM AND MIN. OF 10"-0" OF DRAIN PIPING DOWNSTREAM OR TO POINT OF VERTICAL DROP.
D. INSTALLATION SHALL CONFORM TO REQUIREMENTS OF THE 2018 IPC.
E. CLEANOUTS SHALL BE SAME SIZE AS PIPE INSTALLED IN, 4" MAXIMUM.

FIRE PROTECTION NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR ALL AREAS WHERE WORK IS REQUIRED.

2. MODIFY THE EXISTING WET PIPE FIRE SPRINKLER SYSTEM TO CONFORM TO THE NEW PARTITION LAYOUT AND REFLECTED CEILING PLAN.

3. PROVIDE SYSTEMS WITH ALL NECESSARY SUPPORTS, ANCHORS AND BRACING AND SUBMIT THE DESIGN TO THE ARCHITECT FOR REVIEW. COORDINATE NEW EQUIPMENT AND DEVICE LOCATIONS WITH THE EXISTING BUILDING CONDITIONS.

4. PREPARE COMPLETE FIRE PROTECTION SHOP DRAWINGS AND CALCULATIONS AND SUBMIT TO THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION AND RECEIVE APPROVAL PRIOR TO BEGINNING ANY WORK.

5. CONTRACTOR SHALL PROVIDE ALL PIPING, VALVES, SPRINKLERS, HANGERS AND SUPPORTS NECESSARY FOR A COMPLETE INSTALLATION.

6. COORDINATE WORK WITH ALL OTHER TRADES. COORDINATE POWER REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR. COORDINATE LOCATIONS OF FLOW AND TAMPER SWITCHES, AND SUPERVISORY CIRCUITS WITH THE FIRE ALARM CONTRACTOR.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING.

8. ALL EQUIPMENT SHALL BE UL LISTED OR FM APPROVED.

9. THE DESIGN, EQUIPMENT, INSTALLATION, TESTING AND MAINTENANCE OF THE FIRE SPRINKLER SYSTEM SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS SET FORTH IN THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS:

NFPA NO. 13-FIRE SPRINKLER SYSTEMS
UL LISTINGS
LOCAL AUTHORITY HAVING JURISDICTION

PLUMBING FIXTURE SPECIFICATIONS

USE POLISHED CHROME PLATED, ADJUSTABLE BRASS P-TRAPS AND WASTE ARMS WITH WALL ESCUTCHEONS AT ALL EXPOSED LOCATIONS. USE POLISHED CHROME PLATED FAUCETS WITH REMOVABLE TRIM, BRASS BODY AND BRASS HANDLES. FIXTURES AND SUPPLY FITTING SHALL BE AS SPECIFIED. PROVIDE DIAPHRAGM TYPE POLISHED CHROME PLATED FLUSH VALVES WITH INTEGRAL VACUUM BREAKERS AND SCREWDRIVER STOPS. PROVIDE FIXTURE STOPS AND VALVES AHEAD OF ALL EQUIPMENT OR FIXTURES. AFTER FIXTURES ARE SET IN PLACE AND SECURED, CAULK ALL AROUND AND BETWEEN FIXTURES AND WALL/FLOOR WITH EITHER "DOW CORNING NO. 780" OR "G.E. CONSTRUCTION SEALANT" WHITE SILICONE CAULKING COMPOUND. ALL FIXTURES THAT ARE WHEELCHAIR ACCESSIBLE SHALL BE MOUNTED PER A.D.A. (AMERICAN DISABILITIES ACT) STANDARDS. ALL PLUMBING FIXTURES SHALL COMPLY WITH THE WATER CONSERVATION REQUIREMENTS OF ARIZONA REVISED STATUTES, TITLE 45, ARTICLE 12.

CONTRACTOR TO PROVIDE SUBMITTAL DATA FOR ALL OF THE FOLLOWING ITEMS:

WC1 WATER CLOSET (ADA):
FIXTURE: TOTO #MS854114ELG "ECO ULTRAMAX" FLOOR MOUNTED, VITREOUS CHINA, ELONGATED BOWL, FLUSH TANK, ONE PIECE, 12" ROUGH-IN, 1.28 GPF, 17-11/16" RIM HEIGHT WITH TRIP LEVER ON APPROACH SIDE. ADA COMPLIANT.
SUPPLY: 3/4" ALL BRASS, 1/4 TURN ANGLE STOP WITH BRAIDED STAINLESS STEEL RISER.
WHITE OPEN FRONT SEAT WITH SELF-SUSTAINING CHECK HINGE AND WITHOUT COVER.

LV1 LAVATORY SINGLE-STATION:
FIXTURE: BRADLEY "VERGE" #L-VAD1-WB1-T WALL MOUNTED, QUARTZ MATERIAL, SINGLE-STATION WASH BASIN (30"x21") WITH STAINLESS STEEL ACCESS PANEL REFER TO ARCH PLANS FOR MOUNTING HEIGHT REQUIREMENTS
FAUCET: BRADLEY "VERGE-METRO" #S53-3300 BATTERY POWERED, DECK MOUNTED, SENSOR ACTIVATED SINK FAUCET FOR SINGLE HOLE INSTALLATION, FOR MIXED HW SUPPLY. 0.5 GPM MAX FLOW RATE. PROVIDE WITH "NAVIGATOR" ASSE 1070 LISTED THERMOSTATIC MIXING VALVE. ADA COMPLIANT.
SOAP DISPENSER: BRADLEY "VERGE-METRO" #6-3300 BATTERY POWERED, DECK MOUNTED, SENSOR ACTIVATED SOAP DISPENSER FOR SINGLE HOLE INSTALLATION.
SUPPLIES: 1/2" ALL BRASS, 1/4 TURN BALL TYPE ANGLE STOPS.
TRAP: 1 1/4" X 1 1/2" ADJUSTABLE CAST BRASS P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON, CHROME FINISH.
DRAIN: PERFORATED CHROME PLATED BRASS STRAINER WITH 1-1/4" OFFSET TAILPIECE.
INSULATION: ADA-CONFORMING, WHEELCHAIR ACCESSIBLE LAVATORY P-TRAP AND ANGLE VALVE ASSEMBLIES SHALL BE COVERED WITH PROTECTIVE PIPE COVERINGS THAT CONFORM TO THE REQUIREMENTS OF ASTM E-84 25/450. (COLOR SELECTED BY ARCHITECT).

SK1 SINK:
FIXTURE: ELKAY #LRAD252160 (25" X 21-1/4" X 6"), SINGLE BOWL, 18 GAUGE, TYPE 304 STAINLESS STEEL, TOP MOUNT SINK. ADA COMPLIANT
FAUCET: CHICAGO FAUCETS #786-E35369ABCP, DECK MOUNTED 8" FIXED CENTERS CONCEALED HOT AND COLD WATER SINK FAUCET.
SUPPLIES: 1/2" ANGLE STOPS WITH FLEXIBLE RISERS.
STRAINER: DEEP STAINLESS STEEL BASKET STRAINER WITH LOCK SHELL AND DIE CAST NUTS AND 1 1/2" OFFSET TAILPIECE.
TRAP: 1-1/2" X 1-1/2" ADJUSTABLE CAST BRASS P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON, CHROME FINISH.
DISPOSER: IN-SINK-ERATOR "BADGER 5" 1/2HP 115V SINGLE PHASE, PROVIDE WITH WALL SWITCH-COORDINATE WITH ELECTRICAL. PROVIDE WITH DISHWASHER DRAIN CONNECTION.

EWC1 ELECTRIC WATER COOLER:
FIXTURE: ELKAY #LZWS-LRPBM28K, 8 GPH, BARRIER FREE, BI-LEVEL, RECESSED IN WALL ELECTRIC WATER COOLER WITH BOTTLE FILLER, 18 GAUGE, TYPE 300 SERIES STAINLESS STEEL, STAINLESS STEEL FINISH, FLEXIGUARD BUBBLER AND FRONT PUSH BUTTONS (BOTTLE FILLER SENSOR ACTIVATED), FRONT PANEL GRILL, WALL MOUNTING FRAME AND WATER FILTER.
ELECTRICAL: 115 VOLT/60 HZ
SUPPLIES: 1/2" ALL BRASS 1/4 TURN BALL TYPE ANGLE STOP WITH BRAIDED STAINLESS STEEL RISER.
TRAP: 1-1/4" X 1-1/4" ADJUSTABLE CAST BRASS P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON.

WCO WALL CLEANOUT:
FIXTURE: ZURN NO. Z1446 CAST-IRON CLEANOUT TEE WITH ABS PLUG, ROUND STAINLESS STEEL ACCESS COVER. SAME SIZE AS PIPE IN WHICH INSTALLED, 4" MAXIMUM.

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION	SYMBOL	ABBREVIATION	DESCRIPTION
	DN	PIPE DOWN		–	HOT WATER BALANCING VALVE
	UP	PIPE UP		CP	CIRCULATING PUMP
	W	SANITARY WASTE	—G—	G	NATURAL GAS
	V	SANITARY VENT	—MPG—	MPG	MEDIUM PRESSURE NATURAL GAS
—RW—	RW	RAINWATER PIPING		TMV	THERMOSTATIC MIXING VALVE
—RW(OF)—	RW(OF)	RAINWATER PIPING (OVERFLOW)	—F—	F	FIRE SERVICE (BELOW GRADE)
	RD/OD	ROOF DRAIN / OVERFLOW DRAIN	—F—	FDC	FIRE DEPARTMENT CONNECTION
	FCO / SCO	FLOOR / SURFACE CLEAN-OUT		–	BOTTOM CONNECTION
	WCO	WALL CLEAN-OUT		–	TOP CONNECTION
	FD	FLOOR DRAIN		–	DROP / RISE
VTR	VTR	VENT THROUGH ROOF		U	UNION
—ESPD—	ESPD	ELEVATOR SUMP PUMP DISCHARGE		–	CHECK VALVE
	CW	COLD WATER		S.O.V.	SHUT-OFF VALVE
	HB / WH	HOSE BIBB / WALL HYDRANT		I.E. / IE:	INVERT ELEVATION
	HW	HOT WATER		IAW	IN ACCORDANCE WITH
	HWR	HOT WATER RETURN		A.F.F. / B.F.F.	ABOVE / BELOW FINISHED FLOOR
				P.O.C.	POINT OF CONNECTION

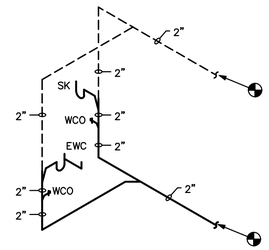
INSTANTANEOUS WATER HEATER SCHEDULE

MARK	MAKE	MODEL	ELEC. DATA KW	ELEC. DATA V/ø/Hz	TEMP. RISE	NOTES
IWH-1	EEMAX	AM005240T	3.6	208/1/60	25 F° @ 1.0 GPM	BASIS FOR SIZING: 65° F INLET TEMPERATURE WITH 25°F TEMP. RISE = 90°F TEMPERATURE OUTPUT AT FIXTURE. (1)

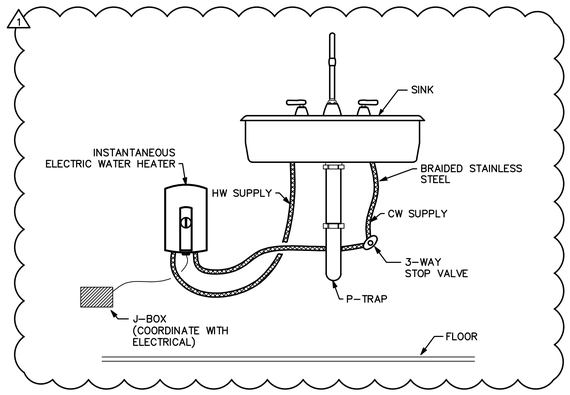
(1) UNIT SHALL INCLUDE INTEGRAL ASSE 1070 MIXING VALVE SET FOR 110° MAX

FIXTURE CONNECTION SCHEDULE

MARK	DESCRIPTION	TRAP SIZE	W	V	CW	HW
WC1	WATER CLOSET	–	4"	2"	3/4"	–
LV1	LAVATORY	1 1/4"	2"	2"	1/2"	1/2"
SK1	SINK	1 1/2"	2"	2"	1/2"	1/2"
EWC	ELECTRIC WATER COOLER W/ BOTTLE FILLER	1-1/4"	2"	2"	1/2"	–



WASTE AND VENT PIPING DIAGRAM (2)
NOT TO SCALE



INSTANTANEOUS WATER HEATER DETAIL (1)
NOT TO SCALE

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GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date
1	PERMIT COMMENTS	12/5/22

title
PLUMBING LEGEND AND NOTES

phase
CONSTRUCTION DOCUMENTS

date
04 NOV 2022

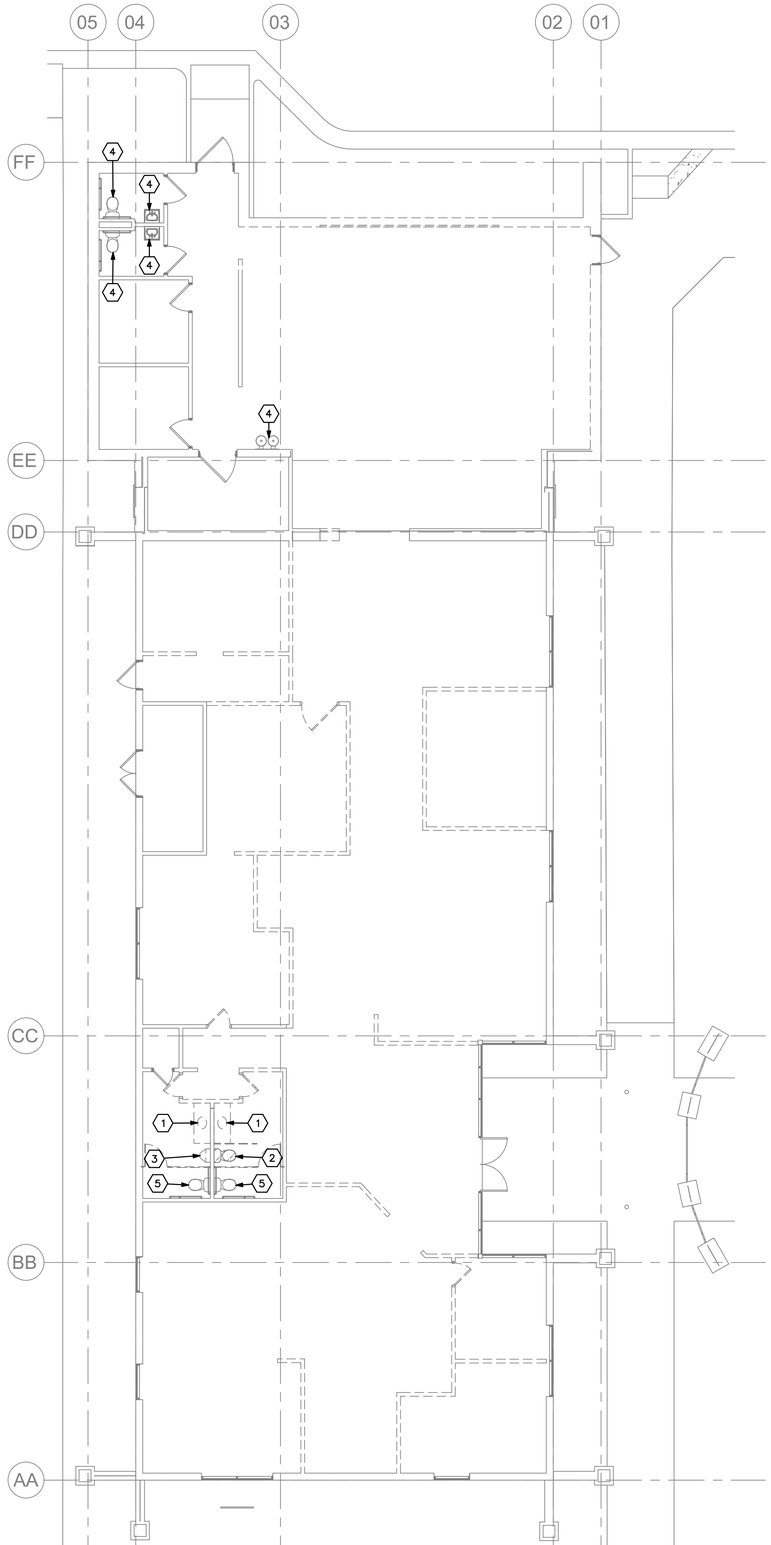
project no.
202169.4

sheet number
P1.0

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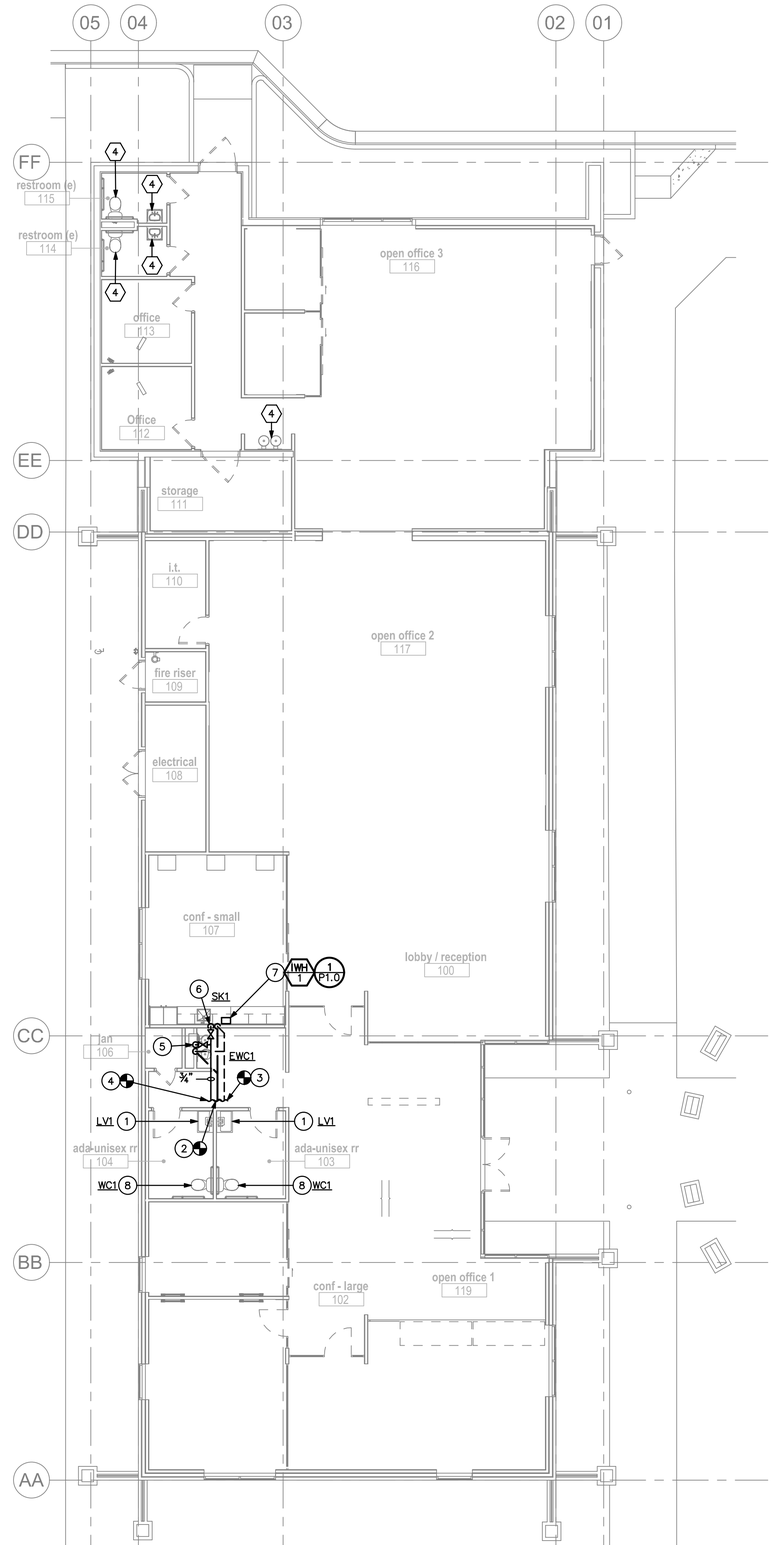
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PLUMBING DEMO PLAN

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



PLUMBING FLOOR PLAN

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

DEMO WORK KEYED NOTES

1. EXISTING LAVATORY AND FAUCET TO BE REMOVED AND REPLACED WITH NEW. REMOVE ALL STOPS AND SUPPLIES, P-TRAP AND TRAP ARM. DISCONNECT EXISTING CW, HW, AND DRAIN PIPING IN WALL. PREPARE PIPING IN WALL FOR NEW CONNECTIONS.
2. EXISTING WATER CLOSET AND FLUSH VALVE TO BE REMOVED. DISCONNECT AND CAP EXISTING CW, VENT, DRAIN PIPING IN WALL.
3. EXISTING URINAL AND FLUSH VALVE TO BE REMOVED. DISCONNECT AND CAP EXISTING CW, VENT, AND DRAIN PIPING IN WALL.
4. EXISTING FIXTURE TO REMAIN.
5. EXISTING WATER CLOSET TO BE REMOVED AND REPLACED WITH NEW. DISCONNECT EXISTING CW AND DRAIN PIPING IN WALL. PREPARE PIPING IN WALL FOR NEW CONNECTIONS.

NEW WORK KEYED NOTES

1. INSTALL NEW LAVATORY AND FAUCET TO REPLACE EXISTING THIS LOCATION. PROVIDE NEW STOPS AND SUPPLIES, P-TRAP AND TRAP ARM. PROVIDE NEW CONNECTIONS TO EXISTING PIPING IN WALL. MODIFY PIPING IN WALL AS REQUIRED.
2. CONNECT 2" DRAIN PIPING TO EXISTING BELOW FLOOR. FIELD VERIFY EXACT LOCATION. SAWCUT AND PATCH SLAB AS REQUIRED.
3. CONNECT 2" VENT PIPING TO EXISTING ABOVE CEILING. FIELD VERIFY EXACT LOCATION.
4. CONNECT ¾" CW PIPING TO EXISTING ABOVE CEILING. FIELD VERIFY EXACT LOCATION.
5. ¾" CW PIPING DOWN IN WALL TO SERVE FIXTURE THIS AREA.
6. ¾" CW PIPING DOWN IN WALL TO SERVE FIXTURE THIS AREA. EXTEND ½" CW PIPING IN WALL TO INSTANTANEOUS WATER HEATER BELOW COUNTER.
7. INSTANTANEOUS WATER HEATER BELOW COUNTER. EXTEND ½" HW UP TO SERVE SINK. (1)
8. INSTALL NEW WATER CLOSET TO REPLACE EXISTING THIS LOCATION. PROVIDE NEW CONNECTIONS TO EXISTING PIPING IN WALL. MODIFY PIPING IN WALL AS REQUIRED.

SHEET NOTES

1. MODIFY THE EXISTING WET PIPE FIRE SPRINKLER SYSTEM TO CONFORM TO THE NEW PARTITION LAYOUT AND REFLECTED CEILING PLAN.
2. THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID TO FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING WASTE SIZE, INVERT AND LOCATION, AND VENT SIZE AND LOCATION. CONTRACTOR SHALL INCLUDE THE USE OF UNDERGROUND LOCATING SERVICES IN HIS BID AS NECESSARY TO LOCATE EXISTING DRAIN PIPING BELOW FLOOR.
3. ALL REFERENCES ON THESE DRAWINGS TO EXISTING WASTE, WATER AND VENT PIPING IS FOR REFERENCE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL THESE ITEMS PRIOR TO BID AND INCLUDE IN HIS BID ANY AND ALL AMOUNTS REQUIRED TO ACCOMMODATE EXISTING CONDITIONS.
4. NO ALLOWANCE WILL BE MADE AFTER THE PROJECT HAS BEEN AWARDED FOR FAILURE TO VERIFY EXISTING CONDITIONS.
5. ANY DISCREPANCIES WHICH MAY AFFECT THE CONTRACTORS BID SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND ARCHITECT FOR DIRECTION.
6. COORDINATE ANY REQUIRED INTERRUPTIONS IN ADJACENT OCCUPIED TENANT SPACES WITH BUILDING ENGINEER.

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LUMINAIRE SYMBOLS

NOTE: NOT ALL SYMBOLS ARE USED.

ROUND RECESSED/SURFACE/WALL MOUNTED LUMINAIRE.

SQUARE RECESSED/SURFACE/WALL MOUNTED LUMINAIRE.

RECESSED/SURFACE WALL WASH LUMINAIRE.

RECESSED/SURFACE LUMINAIRE.

RECESSED/SURFACE STRIP LUMINAIRE.

TRACK LIGHTING SYSTEM. TRIANGLES DENOTE TRACK HEADS.

UPPER CASE LETTER WITH NUMBER INDICATES TYPE. SEE LUMINAIRE SCHEDULE FOR TYPE AND DESCRIPTION.

"b" INDICATES SWITCHING
"#" INDICATES BRANCH CIRCUIT(S)
"NL" INDICATES NIGHT LIGHT. LUMINAIRE SHALL BE CIRCUITED UPSTREAM OF ANY CONTROL DEVICE. EMERGENCY LUMINAIRE WITH FULL OUTPUT EMERGENCY DRIVER OR BATTERY PACK. SEE LUMINAIRE SCHEDULE FOR TYPE AND DESCRIPTION.

EXIT SIGN. SHADED PORTION INDICATES FACE OF SIGN. SEE LUMINAIRE SCHEDULE FOR TYPE AND DESCRIPTION.

EMERGENCY LIGHT BATTERY PACK WITH TWIN LAMP HEADS. SEE LUMINAIRE SCHEDULE FOR TYPE AND DESCRIPTION.

AX — PROVIDE (2) 20A BRANCH CIRCUITS FOR DUAL SOURCE POWER TO AUTOMATIC TRANSFER SWITCH (AX) FROM (2) DIFFERENT SOURCES FOR A/B SOURCE OR NORMAL/EMERGENCY SOURCE POWER TO LOAD. AX SHALL BE UL 924 LISTED AND/OR UL 1008 LISTED. REFER TO FLOOR PLANS, KEYED NOTES, AND/OR DETAILS FOR ADDITIONAL REQUIREMENTS.

GENERAL SYMBOLS

CIRCUITS IN CONDUIT CONCEALED IN FLOOR OR BELOW GRADE.

CIRCUITS IN CONDUIT CONCEALED IN WALLS OR ABOVE CEILING.

HOMERUN TO PANELBOARD OR AS NOTED.

ARROWS INDICATE NUMBER OF PHASE AND NEUTRAL CONDUCTORS LESS EQUIPMENT AND ISOLATED GROUNDS. WHERE NO HACHURES ARE SHOWN PROVIDE 2 #12 CU, 1 #12 CU BOND. WHERE WIRE IS NOTED ON HOMERUN TO BE LARGER THAN #12, PROVIDE SIZE WIRE AND CONDUIT INDICATE FOR ENTIRE LENGTH OF CIRCUIT. MINIMUM CONDUIT SIZE IS 3/4". PROVIDE A BOND WIRE SIZED PER NEC 250 IN ALL RACEWAYS. GROUND, BOND WIRES AND SOLATED GROUND WIRES ARE NOT NORMALLY SHOWN ON THE DRAWINGS.

CONDUIT STUB-UP.

E — CONDUIT STUB-OUT. CAP AND MARK FOR FUTURE USE.

FLEXIBLE CONDUIT CONNECTION TO EQUIPMENT. "WP" INDICATES LIQUID TIGHT AND WEATHERPROOF COVER.

PANELBOARD. SURFACE OR FLUSH AS SCHEDULED.

MOTOR. SIZE AND RATING AS SHOWN. "EF" INDICATES 150 WATT EXHAUST FAN.

COMBINATION POWER/DATA POLE. ALL POWER CONNECTIONS BY ELECTRICAL CONTRACTOR.

J J BF — PROVIDE SYSTEM FURNITURE POWER AND VOICE/DATA BASE FEEDS. PROVIDE SINGLE GANG MUDRING WITH PULL TAPE TO ACCESSIBLE CEILNG SPACE FOR VOICE/DATA CABLING TO SYSTEM FURNITURE, UNO. MAKE FINAL CONNECTIONS AS REQUIRED.

HEAVY DUTY DISCONNECT SWITCH. HORSEPOWER, VOLTAGE AND PHASE RATED. FUSED UNLESS NOTED "NF" (NON FUSED). SIZE FUSES PER EQUIPMENT MANUFACTURES NAMEPLATE RECOMMENDATIONS. PROVIDE NEMA 3R WHERE OUTSIDE.

AC MAGNETIC MOTOR STARTER. HORSEPOWER, VOLTAGE AND PHASE RATED. NUMBER OF POLES AS REQUIRED. FURNISH WITH (1) N.O./N.C. FIELD CONVERTIBLE AUXILIARY CONTACT AND 120V. CONTROL COIL. SINGLE SPEED NON-REVERSING U.N.O PROVIDE NEMA 3R WHERE OUTSIDE.

AC MOTOR STARTER. NEMA SIZE AS NOTED ON ONE-LINE DIAGRAM. PROVIDE NEMA 3R WHERE REQUIRED.

$T — MOTOR RATED, 1hp, TOGGLE SWITCH WITH RED PILOT LIGHT AND THERMAL OVERLOAD RELAY. REFER TO BRANCH CIRCUIT FOR VOLTAGE. EQUAL TO SQUARE D CLASS 2510 TYPE F MANUAL SWITCH. NEMA 3R WHERE OUTSIDE.

$V — MOTOR SPEED CONTROL SWITCH. FURNISHED BY MECHANICAL CONTRACTOR INSTALLED BY ELECTRICAL CONTRACTOR.

$TK — MOTOR RATED, 1hp, KEYED OPERATED SWITCH WITH RED PILOT LIGHT AND THERMAL OVERLOAD RELAY. REFER TO BRANCH CIRCUIT FOR VOLTAGE. EQUAL TO SQUARE D CLASS 2510 TYPE F MANUAL SWITCH. NEMA 3R WHERE OUTSIDE.

$ — SINGLE POLE SWITCH.

TELECOMMUNICATION SYMBOLS

	WALL	ABOVE COUNTER	FLOOR BOX
DATA OUTLET			
TELEPHONE OUTLET			
COMBINATION DATA AND COMMUNICATION JACK			

PROVIDE JUNCTION BOX (SINGLE GANG MUD RING) IN WALL AND 1" CONDUIT WITH PULL STRING UP INTO ACCESSIBLE CEILING SPACE U.N.O. PROVIDE CONDUIT BUSHING ABOVE CEILING.

"P" INDICATES PAYPHONE PROVIDE #6 CU GROUND

TMB — 4'x4'X3/4" THICK FIRE RATED TELEPHONE BOARD. PROVIDE GROUND BAR KIT WITH .25"X4"X24" COPPER GROUND BAR, STANDOFF INSULATORS, SST MOUNTING BRACKETS AND SST MOUNTING HARDWARE. FIELD COORDINATE MOUNTING LOCATION WITHIN ROOM.

TTC — TELEPHONE TERMINAL CABINET. NEMA 3R HINGED DOOR. COORDINATE SIZE WITH SERVING UTILITY. PROVIDE #6 SOLID CU GROUND.

TV — TELEVISION OUTLET. PROVIDE 3/4"C. WITH PULL STRING UP INTO ACCESSIBLE CEILING SPACE U.N.O. PROVIDE CONDUIT BUSHING ABOVE CEILING.

S — WALL MOUNTED SPEAKER. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

WALL MOUNTED CLOCK. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

RECEPTACLE SYMBOLS

	SIMPLEX	DUPLEX	ABOVE COUNTER	QUAD-RUPLEX	FLOOR BOX
SIMPLEX					
DUPLEX					
QUADREPLEX					
ISOLATED GROUND					
SWITCHED					
USB CHARGER PORT					

FLUSH FLOOR OUTLET WITH DEVICE SYMBOLIZED. PROVIDE ITS BRASS DEVICE PLATE AND CARPET FLANGE, IN CARPETED AREAS. TELEPHONE AND DATA OUTLETS SHALL HAVE MIN. 1"C. WITH PULL STRINGS STUBBED UP INTO ACCESSIBLE CEILING SPACE. PROVIDE CONDUIT BUSHINGS ABOVE CEILING.

SPECIAL PURPOSE RECEPTACLE WITH NEMA CONFIGURATION NOTED, i.e.; 6-50, 15-20, ETC.

J — JUNCTION BOX IN ACCESSIBLE LOCATION.

J — MULTI OUTLET ASSEMBLY. PROVIDE RECEPTACLES AS NOTED. PROVIDE ALL COMPONENTS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

NOTE: REFER TO ABBREVIATIONS FOR RECEPTACLE SUBSCRIPTS.

ABBREVIATIONS

AFC_____AVAILABLE FAULT CURRENT
AFF_____ABOVE FINISHED FLOOR
AFG_____ABOVE FINISHED GRADE
AIC_____AMPERE INTERRUPTING CAPACITY
ATS_____AUTOMATIC TRANSFER SWITCH
BF_____BASE FEED
C_____CEILING MOUNTED DEVICE
CAC/CRAC_____COMPUTER ROOM AIR CONDITIONING
CF_____COMPACT FLUORESCENT
DW_____DISHWASHER
DISP_____DISPOSAL
EC_____EVAPORATIVE COOLER
EDF_____ELECTRIC DRINKING FOUNTAIN
EF_____EXHAUST FAN
EMT_____ELECTRICAL METALLIC TUBING
EP_____EMERGENCY PHONE
EUH_____ELECTRIC UNIT HEATER
G/GRD_____COPPER GROUNDING/BONDING CONDUCTOR
GF/GFP_____GROUND FAULT PROTECTED
GFI/GFCI_____GROUND FAULT CIRCUIT INTERRUPTER
HID_____HIGH INTENSITY DISCHARGED
HPS_____HIGH PRESSURE SODIUM
IG_____ISOLATED GROUND CONDUCTOR/RECEPTACLE
IM_____ICE MACHINE/MAKER
LC_____LIGHTING CONTACTOR
LKH_____LOCKING HANDLE CIRCUIT BREAKER "LOCK-DOG"
LOTO_____LOCK OUT TAG OUT CIRCUIT BREAKER
MCC_____MOTOR CONTROL CENTER
MH_____METAL HALIDE
N_____NEUTRAL CONDUCTOR
NF_____NON-FUSED
NIC_____NOT IN CONTRACT
NL_____NIGHT LIGHT
PNL_____PANEL
PVC_____RIGID PVC CONDUIT, SCHEDULE 40 UNO
RA_____RETURN AIR FAN
RAF_____RAISED ACCESS FLOOR
RMC_____RIGID METAL CONDUIT
SES_____SERVICE ENTRANCE SWITCHBOARD
SF_____SUPPLY FAN
ST_____SHUNT TRIP
SWBD_____SWITCHBOARD
TC_____TIME CLOCK
TMB_____TELEPHONE MOUNTING BOARD
TS_____TIME SWITCH
UNO_____UNLESS NOTED OTHERWISE
VFD_____VARIABLE FREQUENCY DRIVE
WH_____WATER HEATER
WP_____WEATHERPROOF
XFMR_____TRANSFORMER

DEVICE MOUNTING HEIGHTS

NOTE! ALL HEIGHTS ARE ABOVE FINISHED FLOOR AND TO THE CENTERLINE OF THE INSTALLED DEVICE U.N.O. THE ELECTRICAL CONTRACTOR SHALL ADJUST THE J-BOX MOUNTING HEIGHT ACCORDINGLY.

SEE POWER AND LIGHTING PLANS FOR ADDITIONAL MOUNTING HEIGHTS SPECIFIED BY THE OWNER.

RECEPTACLES	+18"
TELEPHONE OUTLETS	+18"
DATA OUTLETS	+18"
ABOVE COUNTER RECEPTACLES, TELEPHONE, AND DATA OUTLETS VERIFY WITH ARCHITECT PRIOR TO ROUGH-IN.	
SWITCHES	+46"
DIMMERS	+46"
OTHER CONTROLS	+46"
TIME SWITCHES	+60"
RECEPTACLE(S) LOCATED AT TMB	+46"
FA MANUAL PULL STATION	+46"
FA VISUAL DEVICES *TO BOTTOM OF LENS*	+80"
FA AUDIO DEVICES *TO BOTTOM OF LENS*	+80"
TELEVISION OUTLETS	+96"
INTERCOM SPEAKERS	+96"
CLOCKS	+96"

ONE-LINE DIAGRAM SYMBOLS

CURRENT TRANSFORMER.

M — UTILITY METER.

CIRCUIT BREAKER. AMPERE RATING AND # OF POLES INDICATED.

FUSED SWITCH. AMPERE RATING AND # OF POLES INDICATED.

FUSED PULL-OUT. AMPERE RATING AND # OF POLES INDICATED.

INDICATES DRAW-OUT DEVICE.

FUSE. AMPERE RATING INDICATED. (BUSSMANN DESIGNATION UNO)

TRANSFORMER, DRY TYPE. PAD PAD MOUNT. WITH kVA, PRIMARY AND SECONDARY VOLTAGE, MINIMUM IMPEDANCE, AND "K" RATING AS NOTED. PROVIDE SEPERATELY DERIVED SOURCE GROUNDING PER NEC 250 SIZE AS NOTED. 150° C RISE UNO.

— MAGNETIC MOTOR STARTER. NEMA SIZE INDICATED. PROVIDE WITH OPTIONAL FEATURES SCHEDULED.

GROUND. SIZE GROUNDING PER THE LATEST ADOPTED NATIONAL ELECTRICAL CODE. UNO

CONDUCTOR TERMINATION POINT.

BOND TO STRUCTURAL STEEL. SIZE AS NOTED.

BOND TO GAS, WATER, FIRE SPRINKLER PIPING SYSTEMS. SIZE AS NOTED.

GENERAL NOTES

1. PRIOR TO ROUGH-IN AND FINAL CONNECTION, VERIFY ELECTRICAL CHARACTERISTICS AND EXACT LOCATION OF EQUIPMENT.
2. COORDINATE THE SCHEDULE OF CONSTRUCTION WITH THE OWNER AND OTHER TRADES (PRIOR TO STARTING ANY WORK).
3. GROUT AND SEAL ALL CONDUIT PENETRATIONS OF WALLS AND FLOOR SLABS TO PRESERVE FIRE RATING AND WATERTIGHT INTEGRITY.
4. DRAWINGS SHOW EXISTING CONDITIONS OF THE SITE. AN ATTEMPT HAS BEEN MADE TO SHOW EXISTING BUILDINGS, DETAILS, ETC., BUT ACCURACY CANNOT BE GUARANTEED. VERIFY EXACT LOCATIONS OF ALL CIRCUITS, CONDUIT, PIPING, EQUIPMENT, ETC. VERIFY ALL BUILDING DETAILS.
5. SEE SPECIFICATIONS, DRAWING Exx, FOR ADDITIONAL REQUIREMENTS.
6. THE OWNER WILL OCCUPY THE EXISTING BUILDING DURING THE LIFE OF THIS CONTRACT AND ALL WORK SHALL BE SCHEDULED AT SUCH TIME AND IN SUCH A MANNER TO MINIMIZE INTERFERENCE AND INCONVENIENCE TO THE OWNER. THE ELECTRICAL CONTRACTOR MUST OBTAIN THE APPROVAL OF THE CONSTRUCTION MANAGER OR OWNER BEFORE STARTING ANY WORK WITHIN THE EXISTING BUILDING.
7. EXISTING POWER OR LIGHTING CIRCUITS WHICH POWER DEVICES IN OTHER AREAS, AS WELL AS DEVICES IN THE DEMOLITION AREA (IF ANY), SHALL SHALL BE DISCONNECTED FOR AS SHORT A TIME AS NECESSARY. VERIFY WITH SITE PERSONNEL PRIOR TO THE DISCONNECTION OF ANY CIRCUITS.
8. IF ANY EXISTING CIRCUIT CANNOT BE IDENTIFIED, THE CONTRACTOR SHALL USE A CIRCUIT TRACER TO DETERMINE ITS SOURCE. ARCING TO GROUND IS NOT AN ACCEPTABLE PRACTICE AT THIS FACILITY.

ELECTRICAL SHEET INDEX

SHEET NUMBER	SHEET NAME
E0.0	SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES
E0.1	LIGHTING, COMCHECK, AND EQUIPMENT SCHEDULES
E0.2	FIRE ALARM SYMBOLS, NOTES, AND RISER
E0.3	ELECTRICAL SPECIFICATIONS
E1.0	BEAD BUILDING - ELECTRICAL DEMOLITION PLANS
E2.0	BEAD BUILDING POWER PLANS
E3.0	BEAD BUILDING LIGHTING PLAN
E5.0	BEAD ONE-LINE DIAGRAM
E5.1	BEAD BUILDING - PANEL SCHEDULES

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Registered Professional Engineer (Electrical) CERTIFICATE NO. 53328 NATHAN SHORT Date Signed 12/07/22 ARIZONA U.S.A.

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revisions

No.	Description	Date

title
SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES

phase
CONSTRUCTION DOCUMENTS

date
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project no.
202169.4

sheet number
E0.0

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LIGHTING CONTROL LEGEND

TYPE	DESCRIPTION AND CATALOG NUMBER
M ND	WALL SWITCH MOTION SENSOR WITH ON/OFF CONTROL BUTTONS AND PROGRAMMED TO VACANCY OPERATING MODE. STAND ALONE SENSOR AND/OR CONNECTION TO REMOTE POWER PACK PERMITTED. DUAL TECHNOLOGY. RATED FOR MINIMUM 800W @ 120V, 1000W @ 277V, 1/4hp. SMALL MOTION DETECTION TO MINIMUM 20 FEET.
M	WALL SWITCH MOTION SENSOR WITH ON/OFF AND RAISE/LOWER CONTROL BUTTONS AND AUTOMATIC LIGHTING CONTROL RESPONSE TO 50% POWER UNO. STAND ALONE SENSOR AND/OR CONNECTION TO REMOTE POWER PACK PERMITTED. DUAL TECHNOLOGY. RATED FOR MINIMUM 800W @ 120V, 1000W @ 277V, 1/4hp. SMALL MOTION DETECTION TO MINIMUM 20 FEET. PROVIDE DIMMING WIRING.
(M)	CEILING MOUNTED MOTION SENSOR. DUAL TECHNOLOGY, 360° COVERAGE. PROVIDE WITH COMPATIBLE POWER PACK(S) WITH SEPARATE RELAYS FOR QUANTITY OF ZONES INDICATED ON PLANS. MOTION SENSOR SHALL SWITCH ALL ZONES IN RANGE OF SENSOR OR AS NOTED ON PLANS BY LOWERCASE LETTER. SENSOR SHALL PROVIDE AUTOMATIC LIGHTING CONTROL RESPONSE TO 50% POWER (EXCEPT FOR IN RESTROOMS AND CORRIDORS WHICH SHALL COME TO FULL BRIGHTNESS, OR UNO). LOW VOLTAGE SWITCHES(S) IN SPACE SHALL BE CONNECTED TO POWER PACK(S). PROVIDE DIMMING WIRING.
(P)	INDOOR, CEILING MOUNTED PHOTOSENSOR FOR AUTOMATIC RESPONSIVE DAYLIGHT HARVESTING. LIGHTS IN CONTROLLED AREA (DAYLIGHT ZONE) SHALL DIM CONTINUOUSLY FROM 100% TO AT LEAST 10% AND ALSO ALLOW FOR COMPLETE SHUTOFF. PROVIDE WITH COMPATIBLE POWER PACK(S). PROVIDE DIMMING WIRING.
(PM)	INDOOR, CEILING MOUNTED COMBINATION MOTION AND PHOTOSENSOR FOR AUTOMATIC RESPONSIVE DAYLIGHT HARVESTING. LIGHTS IN CONTROLLED AREA (DAYLIGHT ZONE) SHALL DIM CONTINUOUSLY FROM 100% TO AT LEAST 10% AND ALSO ALLOW FOR COMPLETE SHUTOFF. DAYLIGHT RESPONSE SHALL ONLY ACTIVATE WHEN MOTION IN SAME AREA IS DETECTED. PROVIDE WITH COMPATIBLE POWER PACK(S). PROVIDE DIMMING WIRING.
LV ND	LOW VOLTAGE SWITCH FOR MANUAL ON/OFF CONTROL OF ZONE(S) AS INDICATED ON PLANS. SWITCH SHALL BE CONNECTED TO MOTION SENSORS AND/OR LIGHTING SYSTEM AND CONTROL ZONES SHOWN ON PLANS.
LV a,b,... OR [a,b,...]	LOW VOLTAGE SWITCH FOR MANUAL ON/OFF AND RAISE/LOWER CONTROL OF ZONE(S) AS INDICATED ON PLANS BY LOWERCASE LETTER. ZONES INDICATED WITHIN BRACKETS SHALL BE CONTROLLED TOGETHER BY COMMON SCENE CONTROLLER. SWITCH SHALL BE CONNECTED TO MOTION SENSORS AND/OR LIGHTING SYSTEM AND CONTROL ZONES SHOWN ON PLANS.
T a,b,... OR [a,b,...]	TOUCHSCREEN FOR ZONE AND SCENE CONTROL AND PROGRAMMING INTERFACE FOR ZONE(S) AS INDICATED ON PLANS BY LOWERCASE LETTER. ZONES INDICATED WITHIN BRACKETS SHALL BE CONTROLLED TOGETHER BY COMMON SCENE.
TS	DIGITAL TIMESWITCH WITH 7-DAY CLOCK AND SETTINGS, HOLIDAY SKIP FEATURE AND BACKUP BATTERY. PROVIDE COMPATIBLE OVERRIDE SWITCH.
$	LINE VOLTAGE SWITCH FOR MANUAL CONTROL OF LIGHTS FOR AN AREA EXEMPTED FROM ADDITIONAL AUTOMATIC OR LIGHT REDUCTION CONTROLS (CONTINUOUSLY LIT SECURITY/EMERGENCY AREA, INTERIOR EXIT STAIRWAY/RAMP/PASSAGEWAY, OR ELECTRICAL ROOMS)
AX	PROVIDE (2) 20A BRANCH CIRCUITS FOR DUAL SOURCE POWER TO AUTOMATIC TRANSFER SWITCH (AX) FROM (2) DIFFERENT SOURCES FOR A/B SOURCE OR NORMAL/EMERGENCY SOURCE POWER TO LOAD. AX SHALL BE UL 924 LISTED AND/OR UL 1008 LISTED. REFER TO FLOOR PLANS, KEYED NOTES, AND/OR DETAILS FOR ADDITIONAL REQUIREMENTS.

NOTES:

1. ACCEPTABLE MANUFACTURERS ARE NLIGHT, LUTRON, EATON, ENLIGHTED, ECHOFLEX, HUBBEL, OR WATTSTOPPER.
2. CONTRACTOR SHALL INCLUDE WORK IN BID TO HAVE THE MANUFACTURER MAKE INSTALLATION DRAWINGS FOR ALL CONFIGURATIONS, SYSTEM PROGRAMMING, FINAL ADJUSTMENTS OF SENSITIVITY AND AIMING OF ALL SENSORS.
3. ADJUST OCCUPANCY SENSOR TIME DELAY OFF PER OWNERS REQUIREMENTS UP TO 20min MAXIMUM.
4. CONNECT AND PROVIDE WIRING AS REQUIRED BY MANUFACTURER. ALL WIRING (INCLUDING LOW VOLTAGE) SHALL BE IN 3/4" MIN. CONDUIT OR RUN ON APPROVED CABLE TRAY OR HANGARS.
5. IN A WIRED SYSTEM, CONTRACTOR SHALL INCLUDE ALL REQUIRED LOW VOLTAGE DIMMER WIRE (VIOLET AND GRAY, CAT 5E, OR PER MANUFACTURER) FROM ALL CONTROL DEVICES THAT INCLUDE DIMMING RAISE/LOWER CONTROL AND TO THE RESPECTIVE LUMINAIRES IN THE ROOM/ZONE. THE SAME CONDUIT AS LINE VOLTAGE WIRE MAY BE USED IF THE LOW VOLTAGE WIREHAS THE SAME INSULATION CLASS, ALL COMPONENTS OF THE SYSTEM ARE RATED FOR CLASS 1, AND INSTALLATION IS MADE IN ACCORDANCE WITH NEC 725.48. IN A WIRELESS SYSTEM, CONTRACTOR SHALL CONNECT AND PROGRAM ALL LUMINARES AND CONTROL DEVICES AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
6. PROVIDE SUFFICIENT RELAYS/POWER PACKS FOR INSTALLATION SHOWN.
7. RELAY/POWER PACKS SHALL BE RATED FOR PERMANENT INSTALLATION AND FOR THE CONNECTED LOAD, 1HP AT 120V OR 277V.
8. ALL RELAY/POWER PACKS SHALL INCLUDE INTERNAL FUSE PROTECTION TO PROTECT DEVICE SCCR WHERE LOCATED WITHIN 15' OF THE SOURCE POWER PANEL, OR ANY SITUATION WHERE AVAILABLE FAULT CURRENT AT RELAY/POWER PACK EXCEEDS 5,000.
9. COORDINATE ALL TRIM AND DEVICE COLORS WITH ARCHITECT.
10. REFER TO MANUFACTURER INSTALLATION CONTROL WIRING DIAGRAMS FOR ADDITIONAL REQUIREMENTS.

INTERIOR LUMINAIRE SCHEDULE

MARK	MANF.	MODEL	CATALOG NUMBER	DESCRIPTION	LAMP	CCT	LUMENS	VOLTS	POWER	POWER DENSITY	MOUNTING	Keynote
D61E	LITHONIA LIGHTING	LDN6	LDN6-35/10-L06AR-LSS-MVOLT-GZ1-ELRSD	6" LED DOWNLIGHT, WITH EMERGENCY BATTERY PACK	LED	3500 K	987 lm	120 V	10 VA		RECESSED	
D62	LITHONIA LIGHTING	LDN6	LDN6-35/15-L06AR-LSS-MVOLT-GZ1	6" LED DOWNLIGHT	LED	3500 K	1573 lm	120 V	18 VA		RECESSED	
D62E	LITHONIA LIGHTING	LDN6	LDN6-35/15-L06AR-LSS-MVOLT-GZ1-ELRSD	6" LED DOWNLIGHT, WITH EMERGENCY BATTERY PACK	LED	3500 K	1573 lm	120 V	18 VA		RECESSED	
L01	FLUXWERX ILLUMINATION	Profile	PF1-S-D-B-35-[FINISH]-06-S-F2-M-06(CUSTOM)-G-SE1	6'-0" LINEAR PENDANT, 80% DOWNLIGHT / 20% UPLIGHT	LED	3500 K	3933 lm	120 V	35 VA	5.5 W / FT	SUSPENDED - AIRCRAFT CABLE	2,3
L01E	FLUXWERX ILLUMINATION	Profile	PF1-S-D-B-35-[FINISH]-06-S-F2-M-06(CUSTOM)-B#-G-SE1	6'-0" LINEAR PENDANT, 80% DOWNLIGHT / 20% UPLIGHT, WITH EMERGENCY BATTERY BACKUP	LED	3500 K	3933 lm	120 V	35 VA	5.5 W / FT	SUSPENDED - AIRCRAFT CABLE	2,3
L02	FLUXWERX ILLUMINATION	Notch1	NN1-L-G1-B-B-35-F2-M-6FT-VN1	6'-0" LINEAR SLOT, RECESSED IN GRID	LED	3500 K	3309 lm	120 V	35 VA	5.5 W / FT	GRID RECESSED	
L03	FLUXWERX ILLUMINATION	Notch1	NN1-L-G1-B-B-35-F2-M-4FT-VN1	4'-0" LINEAR SLOT, RECESSED IN GYP. BD. CLG.	LED	3500 K	2206 lm	120 V	23 VA	5.5 W / FT	GRID RECESSED	
L04	FLUXWERX ILLUMINATION	Notch1	NN1-L-D2-B-B-35-F2-M-6FT-VN1	6'-0" LINEAR SLOT, RECESSED IN GYP. BD. CLG.	LED	3500 K	3309 lm	120 V	35 VA	5.5 W / FT	FLANGE RECESSED (GYP. BD.)	
L05	LITHONIA LIGHTING	CPX 2X4	CPX 2X4 AL08 SWW7 M2	2X4 LED FLAT PANEL	LED	3500 K	4582 lm	120 V	39 VA		RECESSED	
L06	LITHONIA LIGHTING	CSS L48	CSS L48 ALO3 MVOLT SWW3 80CRI	4'-0" LED STRIP LIGHT	LED	3500 K	3247 lm	120 V	28 VA		SURFACE	
L06E	LITHONIA LIGHTING	CSS L48	CSS L48 ALO3 MVOLT SWW3 80CRI EMB	4'-0" LED STRIP LIGHT, WITH EMERGENCY BATTERY BACKUP	LED	3500 K	3247 lm	120 V	28 VA		SURFACE	
X1	LITHONIA LIGHTING	EXRG	EXRG-EL-M6	EXIT SIGN, RED LETTERS, WITH EMERGENCY BATTERY BACKUP	LED			120 V	1 VA		UNIVERSAL	1

LUMINAIRE SCHEDULE GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL VERIFY FINISHES AND COLORS OF ALL LIGHTING PRODUCTS WITH ARCHITECT.
2. 'NL' DENOTES NIGHT LIGHT IS CONNECTED TO AN UNSWITCHED CONDUCTOR.
3. PROVIDE 1400 LUMEN INTEGRAL BATTERIES WHERE REQUIRED.
4. ELECTRICAL CONTRACTOR SHALL VERIFY MOUNTING DETAILS OF ANY ATYPICAL LIGHT FIXTURES.
5. ELECTRICAL CONTRACTOR SHALL VERIFY FINAL LUMINAIRE SELECTION WITH ARCHITECT AND GENERAL CONTRACTOR. NOTIFY ELECTRICAL ENGINEER WITH ANY LAMP WATTAGE CHANGES.
6. ALL MOUNTING HEIGHTS NOTED IN SCHEDULE SHALL BE TO THE BOTTOM OF THE LUMINAIRE. PROVIDE PENDANT, CABLE, OR POLE LENGTHS TO ACHEIVE THE NOTED MOUNTING HEIGHT AND CENTER WALL MOUNTED LUMIANIRES AND ASSOCIATED JUNCTION BOX ACCORDINGLY.
7. REFER TO ARCHITECTURAL PLANS FOR EXACT MOUNTING HEIGHTS OF ALL WALL MOUNTED LUMINAIRES PRIOR TO FINAL ROUGH-IN.
8. REFER TO ARCHITECTURAL PLANS FOR LUMINAIRE LENGTHS FOR CONTINUOUS RUNS.
9. VERIFY MOUNTING TYPE AND DIRECTIONAL CHEVRONS OF EXIT SIGNS WITH DRAWINGS PRIOR TO ORDERING.
10. PROVIDE A DIMMABLE 0-10V, EMERGENCY POWER PACK WITH EMERGENCY SHUNT RELAY, UL924 RATED. REFER TO MANUFACTURER'S WIRING DIAGRAM FOR EMERGENCY LUMINAIRE. DEVICE SHALL ALLOW DIMMING OF EMERGENCY FIXTURE WITH FULL ILLUMINATION OF EMERGENCY LUMINAIRE IN THE EVENT OF NORMAL POWER LOSS. CONTROL SYSTEM MINIMUM SETPOINT (LOW END TRIM) SHALL BE COMMISSIONED AND SET TO ENSURE THAT THE ROOM'S EMERGENCY LUMINAIRES CANNOT BE DIMMED BELOW THE LEVEL REQUIRED TO PROVIDE A MINIMUM 1FC ALONG THE PATH OF EGRESS FOR NORMAL EGRESS LIGHTING. THIS SETPOINT SHALL NOT PERMIT THE PHOTOSENSOR OR MANUAL SWITCHES TO DIM THE LIGHTING IN THE ROOM BELOW THE IBC NORMAL EGRESS LIGHT LEVEL REQUIREMENTS.
11. CONTRACTOR SHALL GUARANTEE DIMMING PERFORMANCE OF ANY LAMPS OR FIXTURES THAT ARE SUBSTITUTED FROM ORIGINAL DESIGN.
12. CONTRACTOR SHALL PROVIDE COMPATIBLE DIMMER CONTROL FOR ALL DIMMING LAMPS AND LIGHTING FIXTURES.
13. ALTERNATE LIGHTS SHALL BE PROVIDED WITH PHOTOMETRIC EQUALS THAT INCLUDE TUNABLE WHITE FIXTURES AS NOTED, NO EXCEPTIONS.

LUMINAIRE SCHEDULE KEYED NOTES

1. VERIFY MOUNTING TYPE AND DIRECTIONAL CHEVRONS WITH DRAWINGS PRIOR TO ORDERING. EXIT SIGN WATTAGE SHALL NOT EXCEED 5 WATTS PER SIDE. COLOR SHALL MATCH BUILDING STANDARD.
2. BOTTOM OF FIXTURE SHALL BE MOUNTED LEVEL WITH ADJACENT CEILING. CONTRACTOR TO FIELD ADJUST AIRCRAFT CABLE SUSPENSION TO MATCH CEILING HEIGHT.
3. LINEAR PENDANT FIXTURE TYPE "L01" MOTION SENSOR SHALL BE INTEGRAL TO FIXTURE FOR OPEN OFFICE AREAS.

HVAC/PLUMBING EQUIPMENT CONNECTION SCHEDULE

Type Mark	DISCONNECT VOLTAGE	DISC. SIZE	ENCLOSURE	HP	kW	FLA	# POLES	VOLTAGE	PANEL NAME	BRANCH CIRCUIT	CONDUCTOR REQUIREMENTS								NOTES
											# OF SETS	H. #	H. SIZE	N. #	N. SIZE	GND. #	GND. SIZE	AI / CU	CONDUIT SIZE	
HP-3	240V	60A	NEMA 3R		9	25.0 A	3	208 V	'A'	1,3,5		3	8			1	10	CU	3/4"	1
HP-4	240V	60A	NEMA 3R		9	25.0 A	3	208 V	'A'	7,9,11		3	8			1	10	CU	3/4"	1
HP-5	240V	60A	NEMA 3R		9.612	26.7 A	3	208 V	'A'	2,4,6		3	8			1	10	CU	3/4"	1
HP-6	240V	60A	NEMA 3R		9	25.0 A	3	208 V	'A'	8,10,12		3	8			1	10	CU	3/4"	1
PE-6	240V	30A	NEMA 3R		2.304	6.4 A	3	208 V	'A'	20,22,24		3	12	--	--	1	12	CU	3/4"	
PE-5	240V	30A	NEMA 3R		1.404	3.9 A	3	208 V	'A'	14,16,18		3	12	--	--	1	12	CU	3/4"	
PE-4	240V	30A	NEMA 3R		2.304	6.4 A	3	208 V	'A'	19,21,23		3	12	--	--	1	12	CU	3/4"	
PE-3	240V	30A	NEMA 3R		2.304	6.4 A	3	208 V	'A'	13,15,17		3	12	--	--	1	12	CU	3/4"	
CU-1	240V	30A	NEMA 3R		3.515	16.9 A	2	208 V	'A'	25,27		2	10	--	--	1	10	CU	3/4"	
FC-1	240V	30A	NEMA1		0.158	0.8 A	2	208 V	'A'	29,31		2	12	--	--	1	12	CU	3/4"	

NOTES:
1. REUSE EXISTING CONDUIT TO FULLEST EXTENT POSSIBLE. CONDUIT SIZE INDICATES CONDUIT MINIMUM SIZE FOR NEW AND EXISTING (REPLACE EXISTING IF UNDERSIZED). CONTRACTOR TO COORDINATE WITH FIELD CONDITIONS.

COMcheck Software Version 4.1.5.5

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Glendale DCRP
Project Type: Alteration

Construction Site:
5750 W. Glenn Drive
Glendale, AZ 85301

Owner/Agent:

Designer/Contractor:
Jonathon Pfantz
Energy Systems Design
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Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Office (Common Space Types:Office - Open Plan)	6873	0.81	5567
		Total Allowed Watts =	5567

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Office (Common Space Types:Office - Open Plan 6873 sq.ft.)				
LED 1: D61: 6" LED DOWNLIGHT: Other:	1	2	10	20
LED 2: D62: 6" LED DOWNLIGHT: Other:	1	31	18	558
LED 3: L01: 6'-0" LINEAR PENDANT: Other:	1	39	35	1365
LED 4: L02: 6'-0" LINEAR SLOT: Other:	1	17	35	595
LED 5: L03: 4'-0" LINEAR SLOT: Other:	1	4	23	92
LED 6: L04: 6'-0" LINEAR SLOT: Other:	1	1	35	35
LED 7: L05: 2 X 4 LED: Other:	1	4	39	156
LED 8: L06: 4'-0" LED STRIP LIGHT: Other:	1	6	28	168
		Total Proposed Watts =		2989

Interior Lighting PASSES

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Registered Professional Engineer (Electrical)
CERTIFICATE NO.
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Date Signed 12/07/22
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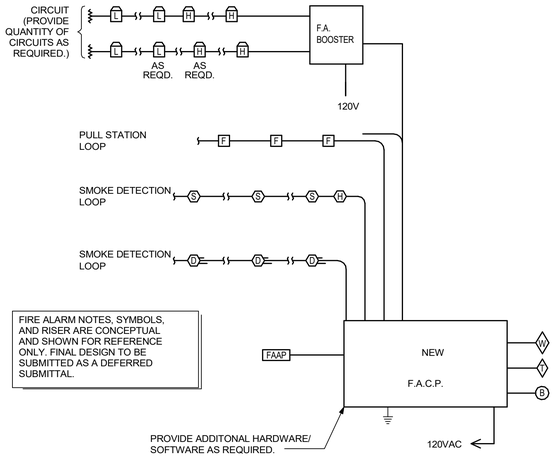
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FIRE ALARM SYSTEM AND PERFORMANCE NOTES

1. FIRE ALARM SYSTEM SHALL BE DESIGNED AND PROVIDED PER LATEST ADOPTED EDITION OF ALL APPLICABLE CODES (IFC, IBC, IMC, NEC) IN EFFECT FOR THE CODE ENFORCEMENT DEPARTMENT HAVING JURISDICTION. IN ADDITION THE FIRE ALARM SYSTEM SHALL MEET THE OWNER AND ENGINEERS REQUIREMENTS THAT MAY REQUIRE A SYSTEM EXCEEDING CODE REQUIREMENTS. FIRE ALARM SYSTEM DEVICES SHALL BE INSTALLED PER NFPA 72AND THEIR LISTING REQUIREMENTS. ALL SYSTEMS ARE TO BE ADA COMPLIANT. CONTRACT DOCUMENTS (INCLUDING MECHANICAL / ELECTRICAL / CONTROL FIRE ALARM DRAWINGS AND SPECIFICATIONS) PROVIDE ENGINEER'S INTENT OF THE FIRE ALARM SYSTEM; HOWEVER FINAL NUMBER AND TYPE OF DEVICES / INTERCONNECTIONS / CIRCUITRY / CONTROL RELAYS / ETC. SHALL BE DETERMINED BY THE SYSTEM DESIGNER AND INCLUDED IN BID PRICE.
2. BIDDER SHALL REVIEW MECHANICAL (INCLUDING CONTROL) AND OTHER DISCIPLINES CONTRACT DOCUMENTS AND PROVIDE DEVICES AND CONTROLS NECESSARY FOR A CODE COMPLIANT SYSTEM.
3. "CONTRACT DOCUMENTS" SHALL BE DEFINED FOR THESE NOTES TO INCLUDE ALL DISCIPLINES DRAWINGS, SPECIFICATIONS, ADDENDUMS, SUPPLEMENTAL INSTRUCTIONS, GENERAL CONDITIONS, AND CONTROL SHOP DRAWINGS (WHICH WILL NOT BE AVAILABLE UNTIL CONSTRUCTION IS ONGOING).
4. DEVICE LOCATIONS AND QUANTITIES SHOWN ON THE DRAWINGS SHOW MINIMUM REQUIRED. HOWEVER, BIDDING CONTRACTOR SHALL REVIEW AND ADD ADDITIONAL DEVICES TO MEET CODE (WITHOUT MOVING OR DELETING AUDIO/VISUAL DEVICES ALREADY SHOWN ON THE DRAWINGS). AUDIO/VISUAL DEVICES SHALL REMAIN WHERE SHOWN AND PREVIOUSLY COORDINATED WITH ARCHITECT. WHEN ADDING DEVICES THEY SHALL BE ADDED AND THEN THE LOCATIONS APPROVED BY THE ARCHITECT FOR APPEARANCE IN THE SPACE. SOME INEFFICIENCIES MAY OCCUR ADDING DEVICES INSTEAD OF RE-ARRANGING DEVICES SHOWN ON THE DRAWINGS. ALSO PROVIDING DEVICES SHOWN ON THE DRAWINGS IN ADDITION TO ANY OTHER DEVICES OR SYSTEM COMPONENTS REQUIRED FOR A CODE COMPLIANT SYSTEM MAY EXCEED STANDARD CODE REQUIREMENTS. BIDDING CONTRACTOR SHALL ANTICIPATE THIS IN THE BID.
5. WHERE THE SYSTEM DESIGNER BELIEVES THE CONTRACT DOCUMENTS ARE IN CONFLICT WITH ADOPTED CODE, THE SYSTEM DESIGNER SHALL CONTACT THE ENGINEER FOR REVIEW OF THE APPLICATION PRIOR TO BID. IF ISSUE IS NOT RESOLVED BEFORE THE BID THEN THE CONTRACTOR SHALL INCLUDE IN THE BID TO PROVIDE A CODE REQUIRED SYSTEM IN ADDITION TO THE ENGINEER INTENDED SYSTEM. CREDIT SHALL BE ISSUED BACK TO THE JOB FOR EXTRA SYSTEM COMPONENTS NOT USED ONCE THE ISSUE IS RESOLVED.
6. REFER TO THE ARCHITECTURAL FLOOR PLANS AND ELEVATIONS AND COORDINATE ALL DEVICE LOCATIONS WITH THEARCHITECT.
7. A COMPLETE, CODE COMPLIANT, FIRE ALARM SYSTEM ALONG WITH ALL FIRE ALARM DEVICES SHALL BE PROVIDED BY THE FIRE ALARM SYSTEM CONTRACTOR. DEVICES SUPPLIED SHALL ALSO INCLUDE SMOKE DETECTORS FOR SMOKE FIRE DAMPERS WITH REQUIRED CIRCUITRY, DUCT DETECTORS AND OTHER SIMILAR FIRE ALARM DEVICES THAT ON OTHER PROJECT MAY HAVE BEEN PROVIDED BY ANOTHER DIVISION.
8. SYSTEM DESIGN DRAWINGS SHALL BE STAMPED BY AN INDEPENDENT, REGISTERED ENGINEER NOT ASSOCIATED WITH THE VENDOR OR DESIGN TEAM. OR THE SYSTEM DESIGN DRAWINGS SHALL BE CERTIFIED BY A LEVEL 3 NICET DESIGNER.
9. IT SHALL BE THE GENERAL CONTRACTOR AND FIRE ALARM CONTRACTORS RESPONSIBILITY TO SUBMIT CODE COMPLIANT FIRE ALARM SYSTEM SHOP DRAWINGS, EQUIPMENT CUT SHEETS, AND ALL OTHER NECESSARY INFORMATION TO AUTHORITIES HAVING JURISDICTION (AHJ) FOR REVIEW AS MAY BE REQUESTED OR OTHERWISE REQUIRED TO SECURE APPROVAL AND TO ARRANGE PERTINENT FIELD OBSERVATIONS DURING CONSTRUCTION. ALL SUBMITTALS AND APPROVALSSHALL BE PROVIDED IN A TIMELY MANNER AND AS REQUIRED TO MEET ALL PROJECT SCHEDULES. ARCHITECT / ENGINEER SHALL BE COPIED FOR REVIEW OF DEVICE LOCATIONS AND GENERAL SYSTEM CONFORMANCE WITHSPECIFICATIONS. A/E WILL NOT REVIEW SUBMITTALS FOR CODE COMPLIANCY AS THE DOCUMENTS SHALL BE SEALED OR CERTIFIED BY OTHERS.
10. CONTRACTOR SHALL INCLUDE IN BID PRICE ALL FEES REQUIRED BY FIRE ALARM DESIGNER AND VENDOR FOR PROGRAMMING NEW HARDWARE FOR THE DEVICES SHOWN AND ANY OTHER WORK REQUIRED BY VENDOR. CONTACT AND COORDINATE FEES WITH VENDOR PRIOR TO BID.
11. NO WORK SHALL COMMENCE ON THE SYSTEM OR MODIFICATIONS MADE UNTIL A SET OF PLANS APPROVED BY THE AHJ ARE ON SITE. NO EXCEPTIONS.
12. CONTRACTOR SHALL MEET WITH THE VENDOR ON SITE PRIOR TO THE START OF ANY MODIFICATIONS TO VERIFY AND DOCUMENT SYSTEM FUNCTION AND STATUS. CONTRACTOR TO MAKE ARRANGEMENTS WITH FIRE ALARM CONTRACTOR FOR PROPER DISCONNECT OF SYSTEMS AFFECTED BY CONSTRUCTION. CONTRACTOR SHALL NOT DISCONNECT ANY SYSTEM WITHOUT THE FIRE ALARM CONTRACTOR PRESENT. ANY OFF NORMAL STATUS SHALL BE DOCUMENTED AND REPORTED TO THE BUILDING ENGINEER, ARCHITECT & ENGINEER.
13. PROVIDE ALL NECESSARY HARDWARE AND SOFTWARE FOR A CODE COMPLAINT SYSTEM, AS A MINIMUM PROVIDE 24 HOUR BATTERY BACKUP WITH 5 MINUTES OF ALARM TIME ON SYSTEM.
14. ALL NEW FIRE ALARM SYSTEM MODIFICATIONS AND INSTALLATIONS SHALL BE PROVIDED BY OR SUPERVISED BY THE FIRE ALARM VENDOR. THE ELECTRICAL CONTRACTORS BID PRICE SHALL INCLUDE ALL FEES, DEVICES, WIRE, CONDUIT, LABOR, MATERIAL AND EQUIPMENT TO PROVIDE THEINTENDED INSTALLATION AS INDICATED ON THE CONTRACT DRAWINGS AND THESE NOTES. ELECTRICAL CONTRACTOR SHALL BE LICENSED TO PERFORM THIS WORK.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND FIRE ALARM INSTALLER TO CONFIRM ALL EXISTING WIRINGCONDITIONS OF CIRCUITS THEY WILL MODIFY AS PART OF ANY TENANT IMPROVEMENT PROJECT.
16. THE FIRE ALARM SUPPLIER SHALL PROVIDE A COMPLETE SET OF INSTALLATION DRAWINGS TO THE CONTRACTOR. THESE DRAWINGS SHALL BE INCLUSIVE OF FLOOR PLANS, RISER DIAGRAMS, CIRCUIT AND BATTERY CALCULATIONS, DEVICE TERMINATIONS, ETC.
17. ALL FIRE ALARM DEVICES AND SYSTEM COMPONENTS SHALL BE NEW AND PROVIDED BY THE FIRE ALARM SYSTEM VENDOR.
18. ALL FIRE ALARM SYSTEM DEVICES (SMOKE, HEAT DETECTORS, ETC.), SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE UL LISTING REQUIREMENTS OF THE DEVICES. DEVICES SHALL COMPLY WITH NFPA, ADA AND UL STANDARDS / DEVICE LISTINGS AS APPLICABLE.
19. THE FIRE ALARM INSTALLER SHALL TEST ALL STROBES, HORNS, AND WIRING THAT WILL BE AFFECTED BY THIS PROJECT PRIOR TO BEGINNING ANY WORK. ANY PROBLEMS SHALL BE MADE KNOWN TO THE OWNER. AFTER THIS PROJECT IS COMPLETE, THE FIRE ALARM INSTALLER SHALL TEST ALL NEW DEVICES, WIRING AND PROGRAMMING AFFECTED BY HISPROJECT. AFTER ALL WIRING AND DEVICES HAVE BEEN VERIFIED TO BE CORRECT, THE INSTALLER SHALL COMPL ETE AN 'INSPECTION AND TESTING' FORM FOR THE PROJECT. FORM SHALL BE AS SHOWN IN THE NATIONAL FIRE ALARM CODE IN ADDITION TO ANY FORMS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE STATUS OF THE FACP EVERY DAY THAT WORK IS PERFORMED ON THE SYSTEM. ANY OFF NORMAL CONDITION SHALL BE REPORTED TO THE BUILDING ENGINEER / OWNER. ANY SYSTEM DISARRANGEMENT CAUSED BY WORK ON THIS PROJECT SHALL BE IMMEDIATELY CORRECTED.
21. WHERE DUCT SMOKE DETECTORS OR SMOKE DETECTION AT SMOKE/FIRE DAMPERS IS INDICATED, THE DETECTORS SHALL BE FURNISHED BY THE FIRE ALARM SUPPLIER, INSTALLED BY THE MECHANICAL CONTRACTOR, AND WIRED (FOR POWERAND UNIT SHUT DOWN) BY THE ELECTRICAL CONTRACTOR. REFER TO MECHANICAL/CONTROL CONTRACT DOCUMENTS FOR CONTROL SEQUENCES AND PROVIDE DEVICES AND CONTROL CIRCUITRY AS NOTED.
22. THE FIRE ALARM INSTALLER SHALL PROVIDE COMPLETE RECORD DRAWINGS OF THE NEW AND EXISTING FIRE ALARM INSTALLATION WITHIN THE AREA SHOWN AS THE SCOPE OF WORK. THE RECORD DRAWINGS SHALL REFLECT ALL DEVICE LOCATIONS, WIRE/CONDUIT RUNS AS WELL AS ANY MODIFICATIONS MADE TO THE FIRE ALARM PANEL OR ANNUNCIATOR. THESE PLANS SHALL BECOME A PART OF THE OWNERS 'AS-BUILT' PLAN SET. RECORD DRAWINGS AND CLOSE OUT PACKAGE SHALL MEET OR EXCEED AAFAA RECOMMENDATIONS.



NOTES:

1. CONTRACTOR SHALL PROVIDE NECESSARY HARDWARE, PROGRAMMING, WIRING, BATTERIES, ETC. AS REQUIRED FOR MODIFICATIONS REQUIRED BY THESE DRAWINGS.
2. LOCATE BOOSTERS IN ELECTRICAL ROOMS. PROVIDE 120V CIRCUIT FROM NEAREST PANEL FOR POWER.

FIRE ALARM RISER DIAGRAM

NOT TO SCALE

FIRE STOP/RESISTIVE NOTES

1. ALL PENETRATIONS OF FIRE RESISTIVE FLOORS, SHAFTS, ROOF STRUCTURES, WALLS AND PARTITIONS SHALL BE PROTECTED IN ACCORDANCE WITH UNIFORM BUILDING CODE REQUIREMENTS INCLUDING BUT NOT LIMITED TO THE FOLLOWING REQUIREMENTS.
2. THE CONTRACTORS SHALL BE RESPONSIBLE TO REVIEW EXISTING FACILITY DOCUMENTS AND DETERMINE THE LOCATIONS AS WELL AS THE FIRE RESISTIVE TIME AND TEMPERATURE RATINGS OF ALL FIRE RESISTIVE FLOORS, SHAFTS, WALLS, PARTITIONS, ETC. THE PROPER UL SYSTEM NUMBER FOR EACH TYPE OF PENETRATION FIRE STOP SHALL THEN BE DETERMINED AND PROVIDED. SHOP DRAWINGS SHALL BE PREPARED AND SUBMITTED TO INDICATE ALL NECESSARY FIRE STOP COMBINATIONS INCLUDING THE UL SYSTEM NUMBERS AND TYPICAL INSTALLATION DETAILS.
3. FIRE RESISTIVE AND FIRE STOP MATERIALS SHALL BE IN ACCORDANCE WITH UNDERWRITERS' LABORATORIES (UL) LISTINGS FOR THROUGH- PENETRATION FIRE PROTECTION SYSTEMS. THE INSTALLATION OF ALL FIRE RESISTIVE AND FIRE STOP MATERIALS SHALL BE IN ACCORDANCE WITH THE UL LISTING AND MANUFACTURERS' REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN SHOP DRAWING INSTALLATION DETAILS FROM THE MANUFACTURER WHICH INDICATE CONFORMANCE WITH THE UL REQUIREMENTS AND SPECIFY ALL INSTALLATION REQUIREMENTS WITH ALL VARIABLES DEFINED. THESE DRAWINGS SHALL BE AVAILABLE ON SITE FOR REVIEW BY THE LOCAL AUTHORITIES, THE OWNER AND ARCHITECT.
4. OUTLETS (OPENINGS) IN WALLS OR PARTITIONS REQUIRING PROTECTED OPENINGS SHALL NOT EXCEED 100 SQUARE INCHES FOR ANY 100 SQUARE FEET OF WALL OR PARTITION AREA.

FIRE ALARM SYMBOLS

F	MANUAL PULL STATION
S	SMOKE DETECTOR (ADD TYPE)
H	HEAT DETECTOR (SHOW TEMP RATING)
	MAGNETIC DOOR HOLDER
D	DUCT SMOKE DETECTOR
H	HORN STROBE (SHOW CANDELA)
S	SPEAKER STROBE (SHOW CANDELA)
C	CHIME STROBE (SHOW CANDELA)
L	STROBE ONLY (SHOW CANDELA)
FAAP	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
LRR	LONG RANGE RADIO COMMUNICATING TRANSMITTER
NACPS	NOTIFICATION APPLIANCE CIRCUIT POWER SUPPLY
D	SMOKE DETECTOR AND RELAY AT SMOKE FIRE DAMPER. RELAY SHALL BE CONTROLLED BY FIRE ALARM SYSTEM TO SHUT DOWN POWER TO SMOKE FIRE DAMPER (CLOSING DAMPER) UPON ALARM CONDITION OF ASSOCIATED SMOKE DETECTOR.
E	ELEVATOR RECALL DESIGNATION
K	INTERFACE TO KITCHEN HOOD
S	ELEVATOR SHUNT TRIP
V	FIRE SPRINKLER TAMPER / OSY / PIV VALVE SUPERVISORY SWITCH
W	WATERFLOW DEVICE
ESRP	ELEVATOR SUPERVISORY RECALL PANEL
RI	REMOTE INDICATOR
RTI	REMOTE TROUBLE INDICATOR

FIRE ALARM SYMBOL NOTES:
1. NOT ALL SYMBOLS ARE USED.
2. "C" DENOTES CEILING MOUNTED DEVICE.
3. "I" DENOTES IONIZATION TYPE DETECTOR.
4. "P" DENOTES PHOTOELECTRICTYPE DETECTOR.
5. MINIMUM CANDELA SHOWN NEXT TO DEVICE ON PLANS.
6. MINIMUM TEMPERATURE RATING SHOWN NEXT TO DEVICE ON PLANS.

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ELECTRICAL SPECIFICATIONS

1. SUMMARY & GENERAL REQUIREMENTS

1.1 THE WORK UNDER THIS DIVISION INCLUDES FURNISHING ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY FOR THE INSTALLATION AND PLACING INTO OPERATION OF THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS.

1.2 THE WORK SHALL ALSO INCLUDE THE COMPLETION OF SUCH MINOR DETAILS OF ELECTRICAL WORK NOT MENTIONED OR SHOWN WHICH ARE NECESSARY FOR THE SUCCESSFUL OPERATION OF ALL ELECTRICAL SYSTEMS DESCRIBED ON THE DRAWINGS OR REQUIRED BY THESE SPECIFICATIONS.

1.3 ALL BRANCH CIRCUITS SHALL BE MINIMUM: #12 THHN/THWN COPPER W/ #12 COPPER BOND IN 1/2" CONDUIT UNLESS NOTED OTHERWISE. ALL CONDUCTORS, REGARDLESS OF SIZE SHALL BE COPPER WITH 90 DEGREE C INSULATION (THHN/THWN OR XHHW). ALL WIRING SHALL BE IN CONDUIT WITH N.E.C. SIZED BONDING CONDUCTORS UNLESS NOTED OTHERWISE.

1.4 ELECTRICAL CONTRACTOR SHALL COORDINATE ALL DEVICE AND LIGHTING FIXTURE FINISHES AND DIMENSIONS WITH ARCHITECT PRIOR TO PURCHASING ANY EQUIPMENT. CEILING SPACE IS VERY LIMITED IN THIS PROJECT AREA. ALSO CONFIRM THE EXACT CEILING TYPE PRIOR TO ORDERING ANY FIXTURES.

1.5 PLAN AND INSTALL WORK IN SUCH A MANNER AS TO PREVENT OBSTRUCTIONS, AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. CONSULT GENERAL CONTRACT DRAWINGS FOR CONDITIONS AFFECTING THIS WORK AND VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. NOTIFY ENGINEER IMMEDIATELY OF POSSIBLE CONFLICTS. WHERE INTERFERENCE WITH STRUCTURAL, MECHANICAL OR OTHER FEATURES EXIST, OR WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN LOCATIONS AND ARRANGEMENT OF INDICATED EQUIPMENT, CONDUIT, OUTLETS OR WIRING, THE CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT EXTRA COST TO OWNER, ARCHITECT OR ENGINEER.

1.6 EXISTING CONDUIT RUNS (IF ANY) WHICH MUST BE MODIFIED AS PART OF THIS PROJECT SHALL NOT BE ATTACHED TO NOR SUSPENDED BY ANY WIRE OR CABLE WHICH IS USED TO SUSPEND THE CEILING GRID. NEW CONDUIT SUPPORTS OR CONDUIT SUPPORT WIRES AND APPROVED SUPPORTING DEVICES SHALL BE PROVIDED AS NECESSARY FOR ALL NEW OR EXISTING (TO BE MODIFIED) CONDUIT RUNS.

1.7 THE CONTRACTOR SHALL NOT INTERRUPT OR REMOVE ANY EXISTING CIRCUITS OR EQUIPMENT UNLESS NOTED OTHERWISE ON PLANS. ANY DAMAGED OR DISRUPTED CIRCUITS OR EQUIPMENT SHALL BE RESTORED TO LIKE-NEW CONDITION AT NO ADDITIONAL COST TO OWNER, ARCHITECT OR ENGINEER.

1.8 ALL PENETRATIONS OF FIRE-RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS LABORATORIES LISTINGS FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS". THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS, FURNISHED BY THE MANUFACTURER OF THE FIRE STOP MATERIAL, WHICH SHOW COMPLETE CONFORMANCE TO THE UL TO THE ARCHITECT. THE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION, WITH ALL VARIABLES DEFINED.

1.9 THE CONTRACTOR SHALL PROVIDE NEW, TYPED, PANELBOARD DIRECTORIES FOR ALL NEW AND/OR EXISTING PANELS WITHIN THE SCOPE OF THIS PROJECT. THE DIRECTORIES SHALL INDICATE THE LOAD TYPE AND AREA SERVED. PROVIDE ALL FIELD VERIFICATION WORK AS NECESSARY.

1.10 THE FINAL DETERMINATION OF EXIT LIGHTING LOCATIONS AND EGRESS PATHWAYS SHALL BE THE RESPONSIBILITY OF THE ARCHITECT. THE CONTRACTOR SHALL CONFIRM AND VERIFY THE LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTING WITH THE ARCHITECT PRIOR TO ANY INSTALLATION.

1.11 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE DRAWINGS AND EXISTING PREMISES PRIOR TO BIDDING. NO SUBSEQUENT ALLOWANCES WILL BE MADE FOR NOT BEING KNOWLEDGEABLE OF EXISTING CONDITIONS.

1.12 THE CONTRACTOR SHALL FIELD VERIFY THE SOURCE OF ALL EXISTING LIGHTING AND POWER CIRCUITS (IF ANY), BY PANEL AND POLE NUMBERS, WHETHER EXISTING OR NEW, FOR THE ENTIRE CONTRACT AREA. THE CONTRACTOR SHALL FIELD VERIFY THE SOURCE OF ALL ELECTRICAL EQUIPMENT, I.E. PANELBOARDS, TRANSFORMERS, ETC. AFFECTED FOR THE ENTIRE CONTRACT AREA.

1.13 TERMS USED THROUGHOUT THE PLAN DOCUMENTS ARE INTENDED TO BE INTERPRETED SPECIFICALLY AS HEREINAFTER DEFINED AND WHERE NOT SPECIFICALLY MENTIONED, PER INDUSTRY COMMON INTERPRETATIONS. DEFINITIONS ARE AS FOLLOWS:

1.13.1 CONCEALED: HIDDEN FROM SIGHT, AS IN TRENCHES, CHASES, HOLLOW CONSTRUCTION, ABOVE FURRED SPACES, SUSPENDED CEILINGS (ACOUSTICAL OR PLASTIC TYPE), OR EXPOSED TO VIEW ONLY IN TUNNELS, ATTICS, SHAFTS, CRAWL SPACES, UNFINISHED SPACES, OR OTHER AREAS SOLELY FOR MAINTENANCE AND REPAIR.

1.13.2 EXPOSED: NOT CONCEALED.

1.13.3 UNFINISHED SPACE: A ROOM OR SPACE THAT IS ORDINARILY ACCESSIBLE ONLY TO BUILDING MAINTENANCE PERSONNEL, A ROOM NOTED ON THE "FINISH SCHEDULE" WITH EXPOSED AND UNPAINTED CONSTRUCTION FOR WALLS, FLOOR OR CEILINGS, OR SPECIFICALLY MENTIONED AS "UNFINISHED".

1.13.4 FINISHED SPACES: ANY SPACE ORDINARILY VISIBLE TO THE VISITING PUBLIC, INCLUDING EXTERIOR AREAS.

1.13.5 "WIRING" OR "CIRCUITRY" INCLUDES, IN ADDITION TO CONDUCTORS, ALL RACEWAYS, CONDUIT, FITTINGS, BOXES, SWITCHES, HANGERS AND OTHER ACCESSORIES RELATED TO SUCH WIRING.

1.13.6 "REGULATING AUTHORITIES" MEANS ALL GOVERNMENT, UTILITY, AND FIRE PROTECTION AUTHORITIES HAVING JURISDICTION.

1.13.7 "PROVIDE" MEANS TO SUPPLY, ERECT, INSTALL, AND CONNECT UP COMPLETE, THE PARTICULAR WORK REFERRED TO, IN READINESS FOR REGULAR OPERATION.

1.13.8 "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE JOB.

1.13.9 "INSTALL" MEANS TO SET IN PLACE, ERECT, AND CONNECT UP COMPLETE, THE PARTICULAR WORK REFERRED TO, IN READINESS FOR REGULAR OPERATION.

1.13.10 "APPROVED EQUAL" MEANS EQUIPMENT OR MATERIALS WHICH, IN THE OPINION OF THE ARCHITECT AND ENGINEER, IS EQUAL IN QUALITY, DURABILITY, APPEARANCE, STRENGTH, DESIGN AND PERFORMANCE TO EQUIPMENT OR MATERIAL SPECIFIED AND WHICH WILL FUNCTION ADEQUATELY IN ACCORDANCE WITH THE GENERAL DESIGN.

1.13.11 "COMMON HANDLE TIE" REFERS TO A COMMON TRIP FOR A MULTIPLE POLE CIRCUIT BREAKER OR UL LISTED DEVICE TO CONNECT ALL OF THE SINGLE POLE CIRCUIT BREAKER HANDLES TOGETHER FOR A MULTIPLE WIRE BRANCH CIRCUIT OR FEEDER, REFER TO NEC 210.4.

2. CODES AND REQUIREMENTS

2.1 ALL ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE AHJ LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL BUILDING CODE, OR AS SPECIFIED HEREIN, WHICHEVER IS MORE STRINGENT.

2.2 THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE GENERAL SUPPLEMENTAL CONDITIONS OF THE PROJECT SPECIFICATIONS.

2.3 ALL ELECTRICAL CONDUIT, DEVICES AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY. DO NOT SCALE PRECISE DETAILS FROM THE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS WITH ARCHITECT / OWNER PRIOR TO ANY ROUGH IN.

2.4 THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR PERMITS, FEES, INSPECTIONS, AND THE LIKE.

3. EQUIPMENT

3.1 THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND ACCESSORIES NECESSARY, WHETHER SPECIFICALLY STATED OR NOT, TO MAKE THE REQUIRED ELECTRICAL SYSTEMS COMPLETE AND OPERATIONAL.

3.2 ALL EQUIPMENT PROVIDED SHALL BE NEW EXCEPT AS OTHERWISE STATED ON THE DRAWINGS. ALL EQUIPMENT PROVIDED SHALL BE UL LISTED WHEN SUCH STANDARDS EXIST FOR THE TYPE OF EQUIPMENT FURNISHED AND SHALL BE ACCEPTABLE FOR INSTALLATION BY THE LOCAL BUILDING SAFETY AND FIRE DEPARTMENT AUTHORITIES.

4. WARRANTY

4.1 THE ELECTRICAL CONTRACTOR SHALL PROVIDE FOR THE OWNER A ONE-YEAR (FROM THE DATE OF FINAL ACCEPTANCE) WARRANTY AND GUARANTEE OF ALL ELECTRICAL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT. ALL DEFECTIVE EQUIPMENT OR MATERIALS WITH THE EXCEPTION OF LIGHTING FIXTURE LAMPS SHALL BE REPLACED OR REPAIRED BY THE ELECTRICAL CONTRACTOR IN A TIMELY FASHION, WITH NO ADDITIONAL COST TO THE OWNER.

5. CONDUIT

5.1 ALL CONDUCTORS SHALL BE ENCLOSED BY CONDUIT SIZED IN ACCORDANCE WITH THE PROPER TABLES CONTAINED IN THE NATIONAL ELECTRICAL CODE FOR THE TYPE OF INSULATION USED. CONDUIT SHALL BE A MINIMUM OF 3/4" EXCEPT FOR FACTORY FURNISHED LIGHTING FIXTURE CONDUIT, WHICH MAY BE 3/8".

5.1.1 GALVANIZED RIGID CONDUIT (GRC) AND INTERMEDIATE METAL CONDUIT (IMC) SHALL BE UTILIZED FOR ABOVE GROUND APPLICATIONS IN ACCORDANCE THE NATIONAL ELECTRICAL CODE. FURTHER, RIGID CONDUIT AND INTERMEDIATE METAL CONDUIT SHALL BE INSTALLED IN ALL AREAS THAT ARE OR MAY BE SUBJECT TO PHYSICAL DAMAGE AND FOR ALL CONDUIT RISERS MOVING BETWEEN FLOOR LEVELS. ALL COUPLINGS SHALL BE THREADED.

5.1.2 RIGID PVC CONDUIT MINIMUM SCHEDULE 40 SHALL BE PERMITTED ONLY UNDERGROUND OR AS NOTED ON DRAWINGS. PROVIDE TAPE WRAPPED RIGID STEEL ELBOWS AND RISERS (NO MINIMUM SIZE). UNDERGROUND CHANGE IN DIRECTION SHALL BE MADE WITH MANUFACTURER ELBOWS. FIELD BENDING WITH HEAT IS NOT ALLOWED. SIZE AND PROVIDE EQUIPMENT GROUNDING CONDUCTOR PER 250-122 AND INCREASE CONDUIT SIZE IF REQUIRED.

5.1.3 ELECTRICAL METALLIC TUBING (EMT) SHALL BE UTILIZED FOR ALL DRY, ABOVE GRADE OR ABOVE FLOOR APPLICATIONS IN ACCORDANCE WITH ARTICLE 358 OF THE NATIONAL ELECTRICAL CODE. COUPLINGS AND CONNECTORS SHALL BE COMPRESSION-TYPE, STEEL, WATERTIGHT FITTINGS SHALL BE USED FOR EMT.PROVIDE GROUND CONDUCTOR FOR ALL RUNS OF EMT CONDUIT.

5.1.4 FLEXIBLE METAL CONDUIT SHALL BE UTILIZED FOR ALL CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS MOTORS AND TRANSFORMERS (MINIMUM OF 2'-0" - MAXIMUM OF 6'-0"), AND CONNECTIONS TO LAY-IN TYPE LIGHT FIXTURES OR IN REMODEL AREAS SPECIFICALLY NOTED FOR "FISHING" IN EXISTING WALLS OR NON-ACCESSIBLE CEILINGS.

5.1.5 SURFACE METALLIC RACEWAYS SHALL BE USED IN AREAS SPECIFICALLY NOTED AND OF SIZE AND TYPE SPECIFIED ON THE DRAWINGS. PAINT TO MATCH SURFACE INSTALLATION.

5.2 ALL EXPOSED CONDUIT (INCLUDING CONDUIT INSTALLED IN CEILING PLENUMS) SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.

5.3 CARE IN PLACEMENT OF CONCEALED CONDUIT SHALL BE USED TO PREVENT EXCESSIVE BUNCHING OF CONDUITS WHICH WILL AFFECT THE CONDUCTOR AMPACITY.

5.4 PROVIDE EXPANSION TYPE FITTINGS FOR ALL CONDUITS WHICH CROSS EXPANSION JOINTS.

6. CONDUCTORS

6.1 MINIMUM SIZE SHALL BE #12 AWG EXCEPT FOR CONTROL CIRCUITS WHICH MAY BE #14 AWG OR SIGNAL CIRCUITS WHICH SHALL BE AS INDICATED. ALL CONDUCTORS SHALL BE COPPER WITH THE 90 DEGREE C INSULATION TYPES AS INDICATED ON THE DRAWINGS OR AS SPECIFIED BELOW. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND INCREASE THE CONDUCTOR SIZE AS NECESSARY TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO A MAXIMUM OF 3% AND FEEDER VOLTAGE DROP TO A MAXIMUM OF 2%.

6.2 CONDUCTOR INSULATION SHALL BE OF A TYPE RECOGNIZED BY THE NATIONAL ELECTRICAL CODE AND AS APPROVED FOR ITS PARTICULAR APPLICATION OR AS REQUIRED BY THE LOCAL BUILDING SAFETY AUTHORITIES, WHICHEVER IS MORE STRINGENT. UNLESS NOTED OTHERWISE ON THE DRAWINGS. CONDUCTOR INSULATION TYPE SHALL BE THHN/THWN-2 OR XHHW-2, 90 DEGREE C RATED.

6.3 SPLICES AND MAKE-UP JOINTS FOR #8 AND SMALLER CONDUCTORS SHALL BE EQUAL PRESSURE TYPE SOLDER-LESS CONNECTORS (BUCHANAN, SCOTCHLOK, WING NUT OR AS APPROVED). SPLICES OR MAKE-UP JOINTS #6 AWG AND LARGER SHALL BE MADE USING APPROVED SOLDER-LESS TYPE PRESSURE CONNECTORS (BURNDY OR APPROVED) OR HYDRAULIC COMPRESSION TYPE BARREL SPLICES WHEN SPECIFIED ON THE DRAWINGS. ALL UNINSULATED TYPE SPLICES SHALL BE INSULATED USING APPROVED HEAT OR COLD SHRINK COVERS FOLLOWED BY A MINIMUM OF THREE ½ LAPPED LAYERS OF PLASTIC ELECTRICAL TAPE (SCOTCH #33+). IN ADDITION SPLICES OR JOINTS IN DAMP OR WET LOCATIONS SHALL FURTHER BE COVERED BY THREE ½ LAPPED LAYERS OF RUBBER TAPE. FEEDERS LARGER THAN #6 AWG SHALL NOT BE SPLICED (INSTALLED IN ONE CONTINUOUS RUN) UNLESS SPECIFICALLY NOTED OR IMPLIED ON THE DRAWINGS.

6.4 ALL WIRING THROUGHOUT SHALL BE COLOR CODED AS FOLLOWS:

	480V SYSTEM	208V SYSTEM
A PHASE	BROWN	BLACK
B PHASE	ORANGE	RED
C PHASE	YELLOW	BLUE
NEUTRAL	GREY	WHITE
GROUND	GREEN	GREEN
ISOLATED GROUND	---	GREEN W/YELLOW STRIPE

6.5 GROUNDING CONDUCTORS SHALL BE PROVIDED IN ALL CONDUIT RUNS. GROUNDING CONDUCTORS SHALL BE PROVIDED IN THE SIZES AS INDICATED ON THE DRAWINGS OR THE MINIMUM SIZE AS ALLOWED BY THE N.E.C. IF NO PARTICULAR SIZE IS NOTED.

7. SEPARATE CONDUIT SYSTEMS

7.1 EACH SYSTEM SHALL BE CONTAINED IN A SEPARATE CONDUIT SYSTEM. THIS INCLUDES EACH POWER SYSTEM, EACH LIGHTING SYSTEM, EACH SIGNAL SYSTEM OF WHATEVER NATURE, TELEPHONE / DATA, CONTROL SYSTEM, FIRE ALARM SYSTEM, FUTURE EMS, SECURITY SYSTEM, ETC.

8. FEEDER AND BRANCH CIRCUITS

8.1 RISER DIAGRAMS, ONE LINE DIAGRAMS AND CIRCUIT RUNS ARE INDICATIVE ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF FEEDERS AND BRANCH CIRCUITS SO AS TO BEST FIT THE LAYOUT OF THE JOB.

8.2 A LAYOUT OF BRANCH CIRCUIT WIRING AND ROUTING IS INDICATED. GENERALLY RECEPTACLES AND APPLIANCES ARE ON SEPARATE CIRCUITS FROM LIGHTING.

8.3 BRANCH PANEL CIRCUITS ARE NUMBERED TO MATCH NEMA POLE NUMBERING SYSTEM: POLES 1 AND 2 - PHASE A; POLES 3 AND 4 - PHASE B; POLES 5 AND 6 - PHASE C; ETC. ACTUAL FIELD NUMBERING OF CIRCUIT DIRECTORIES SHALL BE PHASED AND POLE CONNECTED AS SHOWN.

8.4 WHERE SPECIFIC CONDUCTOR SIZE IS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND IS LARGER THAN CODE MINIMUM, THE LARGER CONDUCTOR SIZE SHALL BE USED.

8.5 CIRCUITS MAY BE ARRANGED IN 4-WIRE FEEDS (3 CIRCUITS AND COMMON NEUTRAL) IN COLOR CODE AS NOTED IN SECTION 6.4 AND SUPPLIED FROM A COMMON HANDLE TIE CIRCUIT BREAKER. MORE THAN 3 CIRCUITS IN CONDUIT BY SPECIFIC APPROVAL ONLY OR WHERE SHOWN ON THE DRAWINGS.

8.6 CONDUCTORS FOR BRANCH CIRCUIT LIGHTING, RECEPTACLE, POWER AND MISCELLANEOUS SYSTEMS MUST BE A MINIMUM OF #12 AWG. WIRE INDICATED SPECIFICALLY TO BE LARGER THAN #12 AWG MUST BE INCREASED THE ENTIRE LENGTH OF THE CIRCUIT.

8.7 CONDUCTOR SIZES FOR LIGHTING, RECEPTACLES, AND SMALL MOTOR BRANCH CIRCUITS WITH LESS THAN 20A CONNECTED LOAD MAY NOT BE SHOWN. CONDUCTORS FOR SUCH CIRCUITS ARE SIZED AS FOLLOWS: FOR BRANCH CIRCUITS (120/208V) 65 FEET IN LENGTH FROM BRANCH CIRCUIT PANEL TO CENTER OF LOAD, NOT SMALLER THAN #12 AWG, UP TO 100 FEET NOT SMALLER THAN #10 AWG, UP TO 165 FEET NOT SMALLER THAN #8 AWG.

8.8 DRAWINGS, IN GENERAL, INDICATE LOCATION OF MOTOR STARTING EQUIPMENT. EXACT LOCATIONS OF MOTORS AND OTHER DEVICES ARE TO BE DETERMINED IN FIELD BY THE CONTRACTOR. PROVIDE AN ELECTRICAL FEED FOR ALL EQUIPMENT, NOT SMALLER THAN SHOWN OR NOTED HEREIN OR NEC SIZE WHERE SIZE IS NOT INDICATED, TOGETHER WITH A SUITABLE CIRCUIT PROTECTIVE DEVICE. VERIFY PANEL SCHEDULES AND LAYOUT, MAINTAINING NUMBER OF SPARE BRANCHES INDICATED.

8.9 PROVIDE PROPER SIZE AND TYPE OF FEEDS FOR ALL ACCEPTED EQUIPMENT AND PROPER SOURCES FOR ALL SUCH ITEMS INDICATED, CHECKING DRAWINGS OF ALL TRADES TO ENSURE INCLUSION OF ALL ITEMS.

8.10 WHERE MULTIPLE BRANCH CIRCUITS ARE RUN IN THE SAME CONDUIT, EACH SET OF (3) BRANCH CIRCUITS REPRESENTING PHASE A, B, C, SHALL HAVE A SEPARATE NEUTRAL CONDUCTOR. HANDLE TIES ARE NOT PERMITTED EXCEPT WHERE SPECIFICALLY NOTED ON DRAWINGS OR WHERE SUPPLYING FURNITURE SYSTEMS UTILIZING A SHARED NEUTRAL POWER CONFIGURATION PER 8.12.

8.11 WHERE ISOLATED GROUND BRANCH CIRCUITS ARE TO BE PROVIDED, EACH BRANCH CIRCUIT IS TO HAVE A SEPARATE NEUTRAL CONDUCTOR. ALL BRANCH CIRCUIT OR FEEDER CONDUIT RUNS SHALL BE ROUTED FROM THE SWITCHBOARD OR PANELBOARD (OR EXTENSION CABINET) TO THE LOAD OR OUTLET DEVICE. THE USE OF LARGE JUNCTION BOXES, PULL BOXES OR WIREWAYS AS A COLLECTION POINT FOR CONDUIT RUNS SHALL NOT BE PERMITTED EXCEPT WHERE SHOWN. MULTIPLE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME PULL OR JUNCTION BOX EXCEPT FOR THE MULTIPLE CIRCUIT CONDUIT RUNS NOTED ABOVE (MAXIMUM OF (3) CIRCUITS).

8.12 SYSTEM (ENERGIZED) FURNITURE REQUIRING MULTIPLE BRANCH CIRCUITS AND SHARED NEUTRAL SHALL BE FED FROM A COMMON HANDLE TIE CIRCUIT BREAKER.

9. BOXES

9.1 4" SQUARE OR OCTAGONAL, ZINC COATED SHEET STEEL BOXES.

9.2 PROVIDE 3/8" NO-BOLT FIXTURE STUDS.

9.3 PROVIDE PLASTER RINGS, COVERS AND/OR PLATES SET TO COME FLUSH WITH FINISH WALLS.

9.4 UTILITY OR SECTIONAL SWITCH BOXES ONLY WHERE PERMITTED.

9.5 ALL JUNCTION BOXES AND PULL BOXES SHALL BE CLEARLY LABELED WITH INDELIBLE, BLACK INK TO INDICATE THE PANEL IDENTIFICATION & CIRCUIT NUMBER OR BUS DUCT IDENTIFICATION & SWITCH NUMBER, ETC. IN ADDITION, ALL CONDUCTORS INSIDE THE PULL OR JUNCTION BOXES AND ALL CONDUCTORS BROUGHT TO DEVICE OUTLET BOXES SHALL BE WIRE TAGGED TO INDICATE THE CIRCUIT OR SWITCH NUMBER.

9.6 ALL AUXILIARY CONDUIT AND BOX SYSTEMS, INCLUDING COMMUNICATIONS OR DATA SHALL BE CLEARLY LABELED TO INDICATE FUNCTION AND USE. LABEL ALL CONDUIT SYSTEMS AS INDICATED ABOVE AND LABEL THE COVERS OF ALL JUNCTION OR PULL BOXES USING INDELIBLE, BLACK INK.

10. DEVICES

10.1 ALL WIRING DEVICES SHALL BE UL APPROVED AND OF THE TYPE AND NUMBER SHOWN ON THE DRAWINGS. ALL NEW DEVICES SHALL BE 20A SPECIFICATION GRADE RATED AT 277V OR 120V AS NECESSARY.

10.2 ALL DEVICES SHALL BE WHITE COLOR OR AS OTHERWISE REQUIRED BY THE ARCHITECT OR OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM ALL DEVICE AND PLATE COLORS WITH THE ARCHITECT OR OWNER PRIOR TO PURCHASE AND INSTALLATION.

10.2.1 SPECIFICATION GRADE RECEPTACLES, HUBBELL 5362-W OR EQUAL BY LEVITON.

10.2.2 A C. QUIET OPERATING TYPE SWITCHES, HUBBELL 1221OR EQUAL BY LEVITON.

10.2.3 RECEPTACLE WITH INTEGRAL USB CHARGER PORTS - DUPLEX POWER OUTLET WITH (2) VERTICAL USB PORTS WITH 3.0A MINIMUM CHARGING CAPACITY. LEVITON #T5832 OR HUBBELL #USB20X2xx OR EQUAL, UNO.

10.3 DEVICE PLATES SHALL BE NYLON OR SATIN STAINLESS STEEL, AS MANUFACTURED BY THE DEVICE MANUFACTURER. COORDINATE WITH ARCHITECT.

10.4 MOUNT DEVICES IN ACCORDANCE WITH THE FOLLOWING SCHEDULE EXCEPT WHERE OTHERWISE NOTED ON THE DRAWINGS, I.E. DEVICE MOUNTING HEIGHTS:

10.4.1 CONVENIENCE RECEPTACLES WITH LONG AXIS VERTICAL MEASURE TO CENTER OF OUTLET 18" A.F.F.*

10.4.2 LIGHT SWITCHES MEASURE TO CENTER OF OUTLET 46" A.F.F.*

10.4.3 TELEPHONE OUTLETS MEASURE TO CENTER OF OUTLET 18" A.F.F.*

*EXCEPT IN AREAS WITH COUNTERS, BASEBOARD HEATERS OR IN AREAS OF BLOCK OR BRICK CONSTRUCTION. IN NO CASE SHALL HEIGHT EXCEED 48" A.F.F. TO CENTER. COORDINATE AND VERIFY THE MOUNTING HEIGHTS OF ALL COUNTER MOUNTED DEVICES WITH THE ARCHITECT OR OWNER.

11. GROUNDING

11.1 FURNISH AND INSTALL GROUNDING AND GROUNDING CONDUCTORS AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS.

11.2 ALL PANELBOARD CABINETS, EQUIPMENT, ENCLOSURES, AND CONDUIT SYSTEMS SHALL BE GROUNDED SECURELY IN ACCORDANCE WITH PERTINENT SECTIONS OF ARTICLE 250 OF NEC, AS AMENDED BY ANY LOCAL CODES. CONDUCTORS SHALL BE COPPER. ALL ELECTRICALLY OPERATED EQUIPMENT SHALL BE BONDED TO THE GROUNDED CONDUIT SYSTEM. ALL NON-CURRENT CARRYING CONDUCTIVE SURFACES THAT ARE LIKELY TO BECOME ENERGIZED AND SUBJECT TO PERSONAL CONTACT SHALL BE GROUNDED BY ONE OR MORE OF THE METHODS DETAILED IN ARTICLE 250 NEC. ALL GROUND CONNECTIONS SHALL HAVE CLEAN CONTACT SURFACES. INSTALL ALL GROUNDING CONDUCTORS IN CONDUIT AND MAKE CONNECTIONS READILY ACCESSIBLE FOR INSPECTION. FURNISH AND INSTALL GROUNDING ELECTRODES AS DESCRIBED ON THE DRAWINGS.

11.3 GROUNDING OF METAL RACEWAYS SHALL BE ASSURED BY MEANS OF GROUNDING BUSHINGS ON FEEDER CONDUIT TERMINATIONS AT THE SERVICE ENTRANCE, DISTRIBUTION SWITCHBOARDS AND PANELBOARDS, AND BY MEANS OF A CONTINUOUS, STRANDED, COPPER GROUNDING WIRE EXTENDED FROM THE GROUND BUS IN THE ENCLOSURE TO THE CONDUIT GROUNDING BUSHINGS.

11.4 A SEPARATE INSULATED GROUNDING CONDUCTOR, SIZED PER NEC 250-122, SHALL BE INSTALLED IN ALL ELECTRICAL METALLIC TUBING (EMT).

11.5 PROVIDE SEPARATE, INSULATED, ISOLATED GROUNDING CONDUCTORS FOR ALL ISOLATED GROUND BRANCH CIRCUITS OR FEEDERS.

12. PANELBOARDS

12.1 FURNISH AND INSTALL BRANCH CIRCUIT PANELBOARDS AS SPECIFIED HEREIN AND AS INDICATED ON THE DRAWINGS.

12.2 ALL BUS BARS SHALL BE COPPER, LOCATED IN THE REAR OF THE PANELBOARD CABINET. CIRCUIT BREAKERS SHALL BE BOLTED INTO SUITABLE SUPPORTING MEMBERS AT THE FRONT OF THE CABINET WHICH ARE CONNECTED WITH SUITABLE LUGS TO THE BUS BARS IN THE REAR OF THE CABINET. INDIVIDUAL CIRCUIT BREAKERS SHALL BE REMOVABLE FROM THE CABINET WITHOUT DISTURBING ADJACENT UNITS OR SUPPORTING MEMBERS.

12.3 LOCKS SHALL BE PROVIDED ON ALL PANELBOARDS. ALL LOCKS SHALL BE KEYED ALIKE. LOCKING HASPS SHALL ALSO BE PROVIDED WITH ALL PANELBOARDS. HASPS SHALL BE INSTALLED USING POP RIVETS.

12.4 PANELBOARDS SHALL BE EQUIPPED WITH FULL NEUTRAL AND GROUND BUSSES. SEPARATE ISOLATED GROUND BUSES SHALL BE PROVIDED FOR ISOLATED GROUND PANELBOARDS, AS NOTED ON SCHEDULES.

12.5 ALL PANELBOARDS SHALL HAVE DOOR-IN-DOOR TRIM TO ALLOW ACCESS TO WIRE WAY AND LINE/LOAD LUGS WITHOUT REMOVING FRONT COVERS. THE HINGES SHALL BE CONTINUOUS PIANO HINGE TYPE.

12.6 ALL PANELBOARD ENCLOSURES SHALL HAVE BLANK END-WALLS. THE USE OF KNOCK-OUT TYPE END-WALLS IS PROHIBITED. PROVIDE NEMA TYPE ENCLOSURES NOTED AN SCHEDULES.

12.7 MINIMUM INTERRUPTING RATING OF CIRCUIT BREAKERS SHALL BE 10,000 AMPS FOR 120/208V PANELBOARDS AND 14,000 AIC FOR 277/480V PANELBOARDS. REFER TO THE DRAWINGS FOR HIGHER INTERRUPTING RATING REQUIREMENTS.

12.8 ACCEPTABLE MANUFACTURERS ARE GENERAL ELECTRIC, WESTINGHOUSE/CUTLER HAMMER, SIEMENS, OR SQUARE D. ELECTRICAL CONTRACTOR SHALL PROVIDE MATCHING MANUFACTURERS OF EXISTING EQUIPEMENT WHEN APPLICABLE.

12.9 APPROVED PANELBOARD TYPES FOR EACH OF THE ABOVE MANUFACTURERS SHALL BE AS FOLLOWS OR OF A TYPE MATCHING THOSE INDICATED BELOW: (PHYSICAL SIZES INDICATED ON DRAWINGS ARE BASED ON SQUARE D, OR CUTLER HAMMER - VERIFY MOUNTING SPACE PRIOR TO SUBMITTING CUT SHEETS AND VERIFY PRIOR TO ORDERING). 200% RATED NEUTRAL BUSSES SHALL BE PROVIDED AS NOTED ON SCHEDULES.

120/240 VAC:

SQUARE D TYPE NQOD USING PLUG-ON BRANCH CIRCUIT BREAKERS.
GENERAL ELECTRIC TYPE AQ USING PLUG-ON BRANCH CIRCUIT BREAKERS.
SIEMENS/ITE TYPE S1 USING PLUG-ON BRANCH CIRCUIT BREAKERS.
CUTLER-HAMMER TYPE PRL1 USING PLUG-ON BRANCH CIRCUIT BREAKERS.

277/480 VAC:

SQUARE D TYPE NF USING PLUG-ON BRANCH CIRCUIT BREAKERS.
GENERAL ELECTRIC TYPE AE USING PLUG-ON BRANCH \CIRCUIT BREAKERS.
SIEMENS/ITE TYPE S2 OR S3 , AS APPLICABLE, USING PLUG-ON BRANCH CIRCUIT BREAKERS.
CUTLER-HAMMER/WESTINGHOUSE TYPE PRL3A USING PLUG-ON BRANCH CIRCUIT BREAKERS.

13. NOT USED.

14. NOT USED.

15. LIGHTING, CONTROLS AND ACCESSORIES

15.1 FURNISH AND INSTALL ALL LIGHTING FIXTURES WITH LAMPS AS SPECIFIED AND AS SHOWN ON THE DRAWINGS. FIXTURES SHALL BE COMPLETE INCLUDING CANOPIES, HANGERS, DIFFUSERS, BALLASTS, ETC.

15.1.1 FURNISH AND INSTALL ALL LIGHTING CONTROLS AS SPECIFIED AND AS SHOWN ON THE DRAWINGS. CONTROLS SHALL BE COMPLETE INCLUDING CONTACTORS, ENCLOSURES, CONTROL WIRING, ETC.

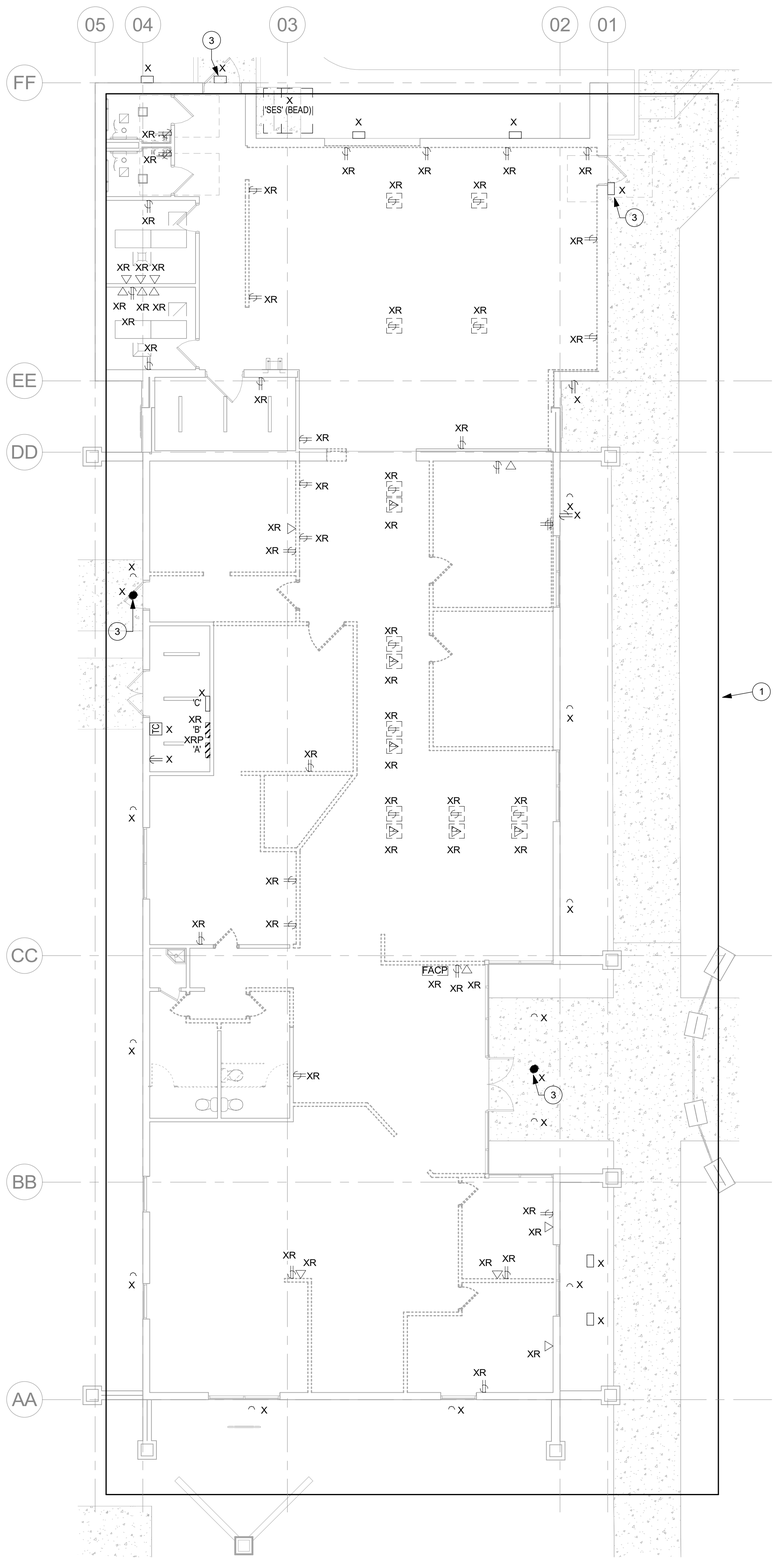
15.2 SUBMIT SHOP DRAWINGS FOR ALL LIGHTING FIXTURES, LAMPS, BALLASTS, CONTACTORS, CONTROLLERS AND DIMMING SYSTEM. SUBMITTALS SHALL INCLUDE CATALOG CUTS ILLUSTRATING CONFORMANCE WITH THE SPECIFICATIONS AS WELL AS DRAWINGS AND INFORMATION REFLECTING THE MATERIALS, ASSEMBLY, FINISH AND DIMENSIONS.

15.3 ALL CATALOG NUMBERS ARE GIVEN FOR MANUFACTURER'S IDENTIFICATION AND DO NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF FULL CONFORMANCE TO ALL APPLICABLE WRITTEN DESCRIPTION REQUIREMENTS GOVERNING MATERIAL AND FABRICATION, EITHER IN THE GENERAL OR SPECIFIC SECTIONS. WHERE CATALOG NUMBERS ARE INDICATED AS MODIFIED, NO MODIFICATION WILL BE REQUIRED IF THE STANDARD UNIT FULLY CONFORMS TO DESCRIPTIVE REQUIREMENTS IN THE SPECIFICATIONS AND MATCHES SPECIFIED CEILING.

15.3.1 ALL FIXTURES OF THE SAME TYPE SHALL BE OF ONE MANUFACTURER AND OF IDENTICAL FINISH AND APPEARANCE. TYPE AS SHOWN IN THE LIGHT FIXTURE SCHEDULE.

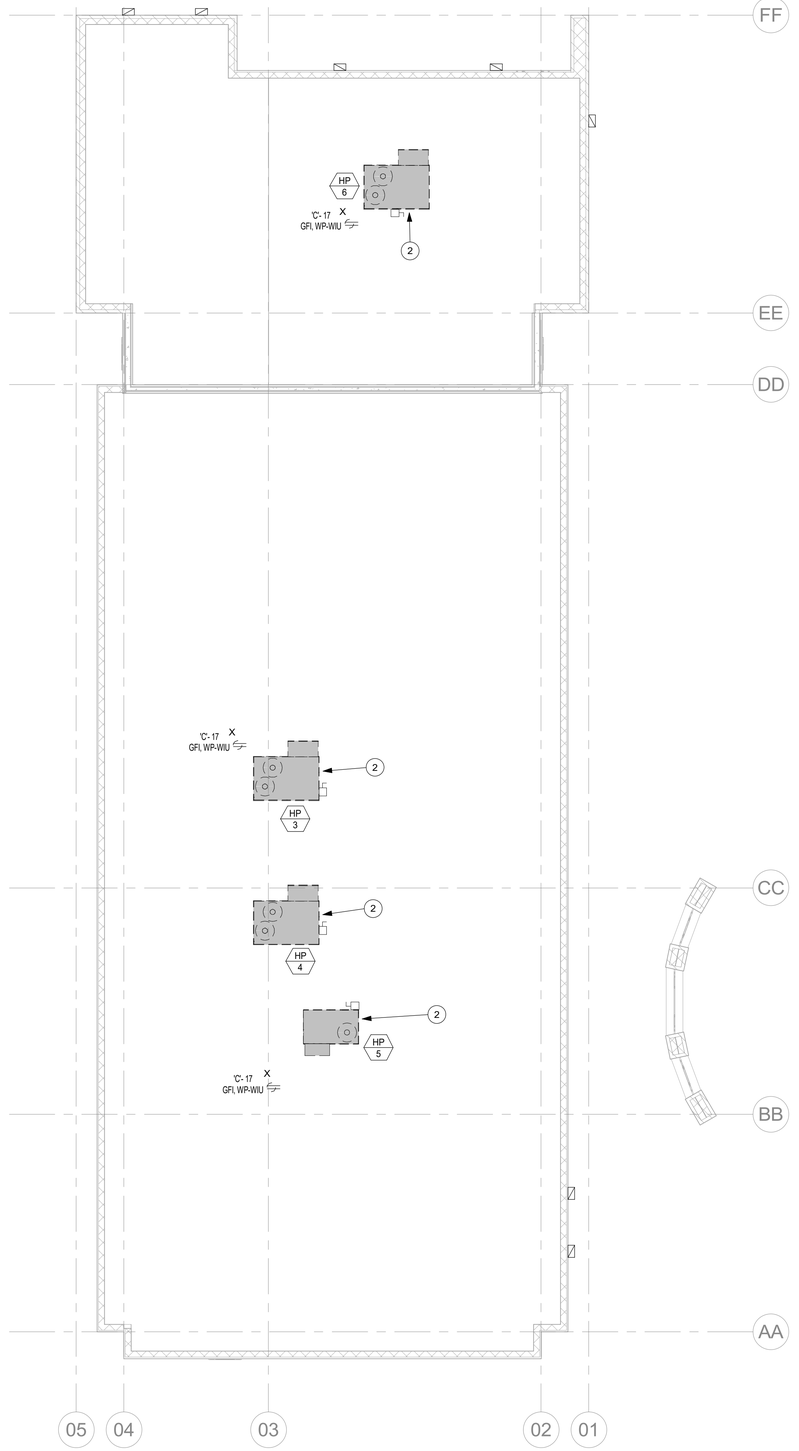
15.3.2 ALL FIXTURES AND COMPONENT PARTS SHALL BEAR THE UL LABEL.

15.4 ALL STEEL PARTS SHALL BE PHOS



1 BEAD BUILDING - ELECTRICAL DEMOLITION PLAN

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



2 BEAD - ELECTRICAL DEMO ROOF PLAN

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

SHEET NOTES

A THE DRAWINGS REPRESENT ELECTRICAL DESIGN INTENT. THEY ARE SCHEMATIC AND DIAGRAMMATIC AND DO NOT INDICATE CONSTRUCTION DETAILS OR ROUTING. UNLESS OTHERWISE NOTED. THE SPECIFICATIONS ESTABLISH MINIMUM PERFORMANCE AND PRODUCT INSTALLATION REQUIREMENTS. PROVIDE PRODUCTS CONSISTENT WITH THE DESIGN INTENT AND NECESSARY FOR A COMPLETE OPERATING ELECTRICAL SYSTEM.

B ANY ELECTRICAL DEVICE OR EQUIPMENT NOT NOTED TO BE REMOVED OR RELOCATED SHALL REMAIN UNCHANGED. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONTACT THE ARCHITECT/ENGINEER REGARDING ANY ITEM IN QUESTION.

C EXISTING CONDUITS TO BE REUSED TO FULLEST EXTENT POSSIBLE. COORDINATE WITH NEW PLANS.

D WHERE ITEMS ARE NOTED TO BE REMOVED, ELECTRICAL CONTRACTOR SHALL:

A) REMOVE INDICATED ITEM.

B) REMOVE ANY ASSOCIATED CONDUIT AND WIRING WHERE SURFACE MOUNTED OR ABOVE AN ACCESSIBLE CEILING.

C) PULL OUT ASSOCIATED WIRING, CUT OFF, CAP, and ABANDON CONDUIT WHERE CONCEALED IN WALLS OR PARTITIONS WHICH ARE REMAINING.

D) RETURN ALL REMOVED EQUIPMENT TO OWNER OR DISPOSE OF AS DIRECTED BY OWNER.

E WHERE ELECTRICAL CONTRACTOR REMOVES AN ITEM AND CIRCUITING TO OTHER ITEMS WILL BE INTERRUPTED, ELECTRICAL CONTRACTOR SHALL PROVIDE NEW CONDUIT, WIRE, BOXES, ETC. AS REQUIRED AND RECONNECT REMAINING ITEMS SO THEY WILL NOT BE INTERRUPTED.

F WHERE AN ITEM IS SHOWN TO BE RELOCATED, ELECTRICAL CONTRACTOR SHALL EXTEND WIRING AND CONDUIT TO THE APPROPRIATE NEW LOCATION AND PROVIDE ALL NECESSARY CONDUIT, WIRE, BOXES, ETC. AS REQUIRED. RECONNECT TO EXISTING CIRCUIT OR RECIRCUIT AS SHOWN. IF DEVICE IS NOT SALVAGEABLE, ELECTRICAL CONTRACTOR SHALL PROVIDE A NEW DEVICE.

G THE FOLLOWING DEMOLITION SYMBOLS MAY BE USED AS WELL AS KEYED NOTES:

"R" = NEW LOCATION OF RELOCATED ITEM.

"X" = EXISTING ITEM TO REMAIN.

"XR" = EXISTING ITEM TO BE REMOVED.

"XRP" = EXISTING ITEM TO BE REPLACED WITH NEW IN SAME LOCATION AS SHOWN. EXTEND EXISTING CIRCUIT TO MATCH EXISTING U.N.O.

H SAW-CUT, CORE DRILL, TRENCH, BACKFILL, PATCH AND REPAIR WHERE REQUIRED.

KEYED NOTES

1 REMOVE ALL INTERIOR LIGHT FIXTURES, INTERIOR LIGHTING CONTROLS, AND ASSOCIATED CIRCUITING BACK TO IT'S SOURCE. VERIFY CONDUIT THAT CAN BE REUSED WITH NEW WORK AND REUSE TO FULLEST EXTENT POSSIBLE. REFER TO NEW LIGHTING PLAN ON SHEET E3.0 FOR NEW WORK. EXISTING EXTERIOR LIGHT FIXTURES AND EXISTING LIGHTING CONTROLS FOR EXTERIOR LIGHT FIXTURES SHALL REMAIN. TRACE OUT AND MAINTAIN EXISTING EXTERIOR CIRCUITING. EXTERIOR LIGHTING CONTROLLED BY TIMECLOCK.

2 REMOVE EXISTING DISCONNECT AND WIRING BACK TO IT'S SOURCE. REUSE EXISTING CONDUIT IN NEW WORK FOR ROOF TOP EQUIPMENT TO FULLEST EXTENT POSSIBLE. REFER TO "BEAD BUILDING - POWER PLAN - ROOF" ON SHEET E2.0 FOR NEW WORK.

3 EXISTING EXTERIOR EMERGENCY EGRESS LIGHT TO REMAIN. VERIFY EMERGENCY BATTERY IN WORKING CONDITION, AND REPLACE WITH NEW AS REQUIRED.

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GLENDALE DCRP BEAD MUSEUM RENOVATION

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revisions

No.	Description	Date

title

BEAD BUILDING - ELECTRICAL DEMOLITION PLANS

phase

CONSTRUCTION DOCUMENTS

date

04 NOV 2022

project no.

202169.4

sheet number

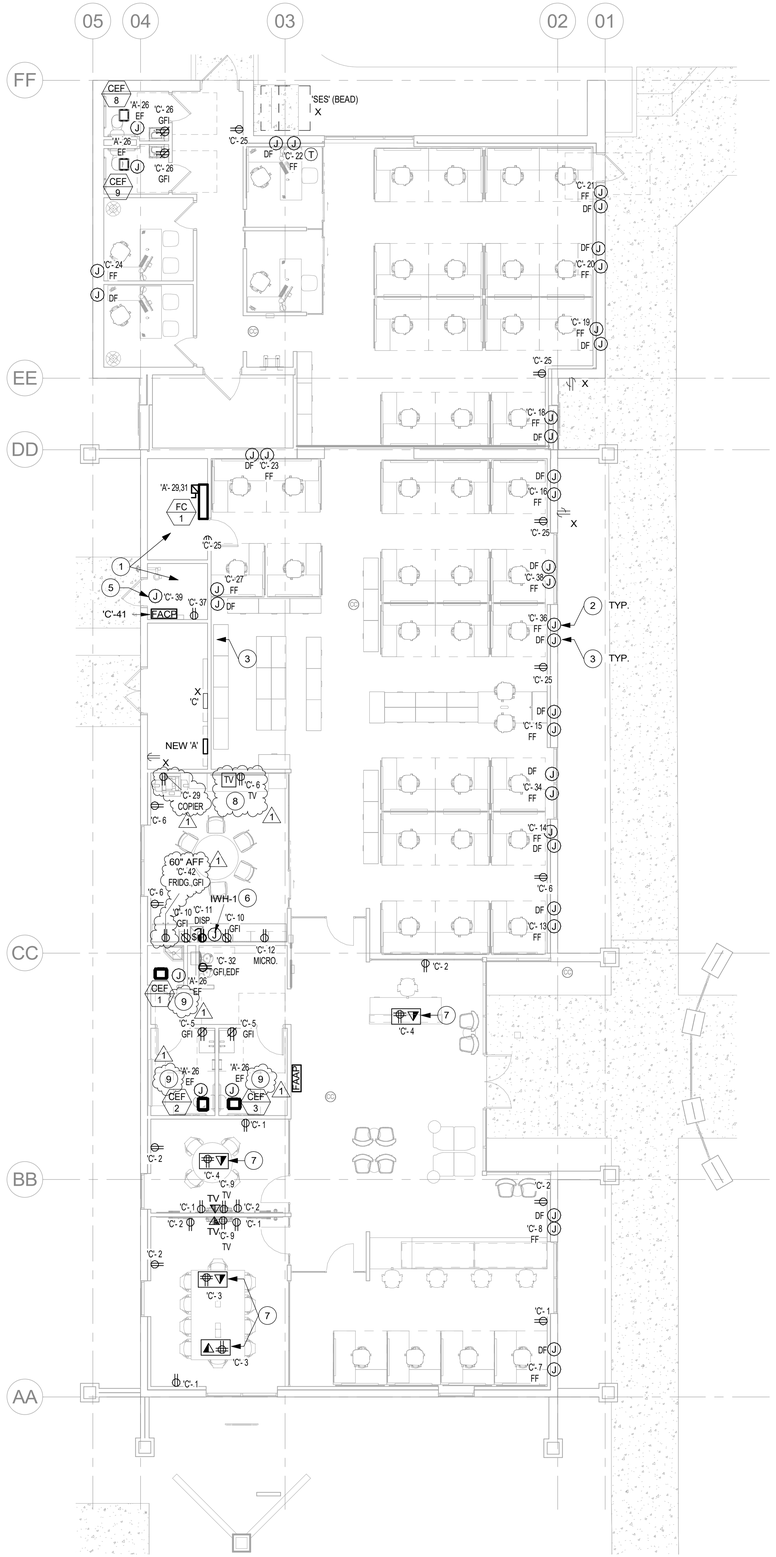
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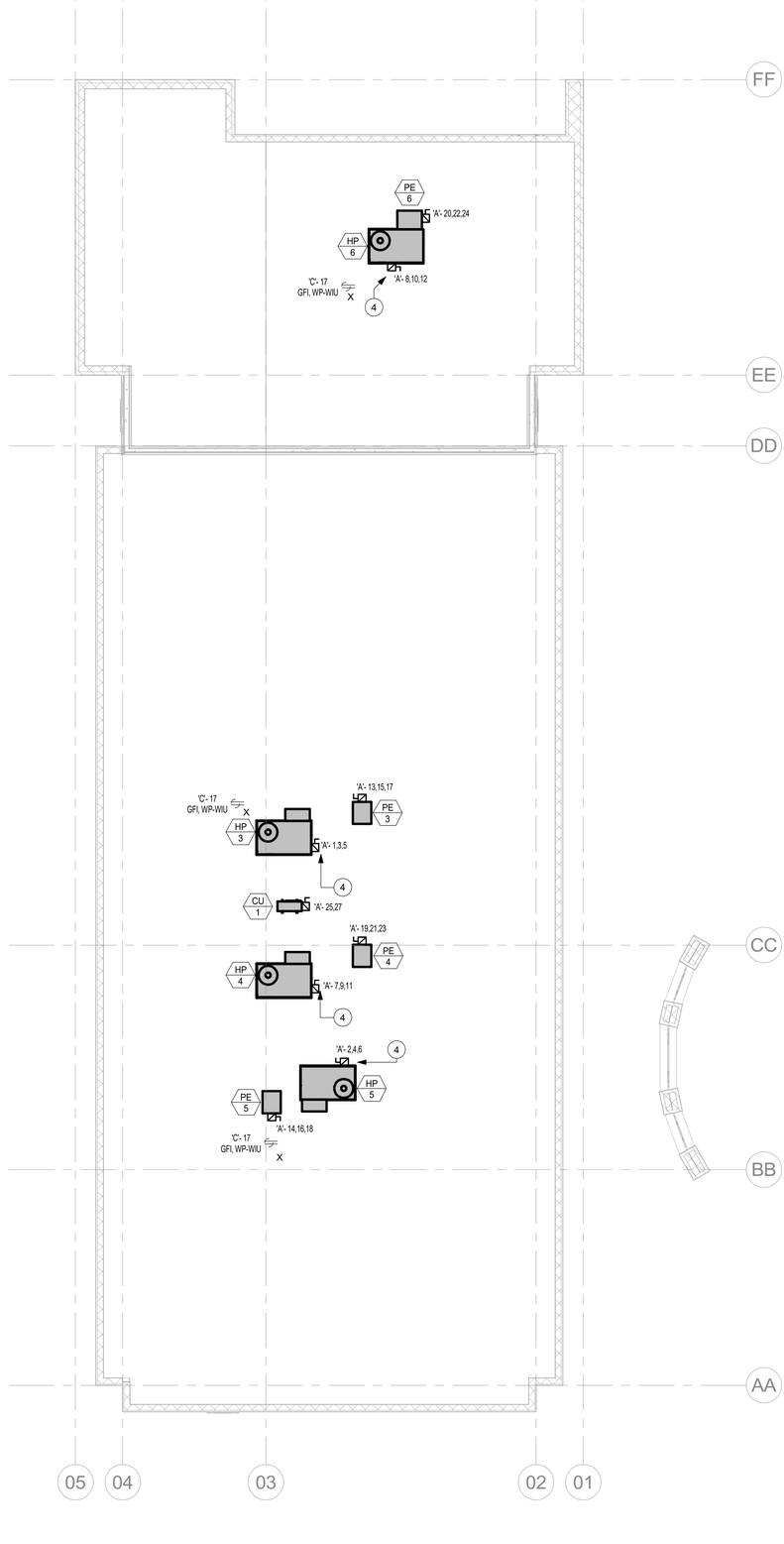
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1 BEAD BUILDING - POWER PLAN - FIRST FLOOR

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



2 BEAD BUILDING - POWER PLAN - ROOF

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

SHEET NOTES

A THE DRAWINGS REPRESENT ELECTRICAL DESIGN INTENT. THEY ARE SCHEMATIC AND DIAGRAMMATIC AND DO NOT INDICATE CONSTRUCTION DETAILS OR ROUTING. UNLESS OTHERWISE NOTED. THE SPECIFICATIONS ESTABLISH MINIMUM PERFORMANCE AND PRODUCT INSTALLATION REQUIREMENTS. PROVIDE PRODUCTS CONSISTENT WITH THE DESIGN INTENT AND NECESSARY FOR A COMPLETE OPERATING ELECTRICAL SYSTEM.

B ALL CONDUCTORS SHALL BE COPPER, UNLESS NOTED OTHERWISE.

C REFER TO SHEET E0.0, E.1,0 AND E0.3 FOR SYMBOLS, NOTES AND ADDITIONAL REQUIREMENTS.

D 120/208V BRANCH CIRCUITS 100' OR GREATER IN CONDUCTOR LENGTH SHALL BE #10 AWG, UNLESS OTHERWISE NOTED.

E BRANCH CIRCUITS SHALL BE CONFIGURED WITH DEDICATED NEUTRALS AND INDEPENDENTLY OPERATED BREAKERS, UNLESS NOTED OTHERWISE.

F REFER TO ARCHITECTURAL FLOOR PLANS, ELEVATIONS, SECTIONS, MILLWORK DETAILS AND GENERAL DETAILS FOR EXACT PLACEMENT INFORMATION REGARDING ALL ELECTRICAL DEVICE MOUNTING LOCATIONS, INCLUDING CEILING AND FLOOR MOUNTED DEVICES.

G ALL WALL MOUNTED LOW VOLTAGE DEVICES SHALL BE MOUNTED TO MATCH HEIGHT OF ADJACENT POWER DEVICE, UNLESS NOTED OTHERWISE.

H LABEL ALL RECEPTACLE DEVICE PLATES WITH SOURCE PANEL AND CIRCUIT NUMBER. PROVIDE PERMANENT MACHINE GENERATED LABEL.

I DIV. 26 CONTRACTOR SHALL COORDINATE AND PROVIDE ALL RECEPTACLE, FLOORBOXES, CONDUIT, RACEWAYS AND J-BOX ROUGH-IN LOCATIONS FOR DIV. 27 AND DIV. 28 CONTRACTORS. REFER TO CONSULTANT PLANS AND SPECIFICATIONS FOR DEVICE LOCATIONS. DIV. 26, 27, AND 28 CONTRACTORS SHALL SCHEDULE A COORDINATION MEETING PRIOR TO DEVICE ROUGH-IN.

J THE FIRE ALARM SYSTEM IS A DEFERRED SUBMITTAL ITEM. THE FIRE ALARM CONTRACTOR SHALL PROVIDE PLANS AND REQUIRED CALCULATIONS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF ARIZONA. THE DEFERRED FIRE ALARM SYSTEM SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION AND ENGINEER OF RECORD.

K ALL WALL VOICE/DATA DROPS SHOWN ON DRAWINGS SHALL HAVE A MINIMUM 4" SQUARE JUNCTION BOX AND 1" CONDUIT WITH PULL CORD STUBBED INTO CEILING SPACE.

L PROVIDE CONDUITS FOR VOICE/DATA, SECURITY, EMS, ETC. CABLING BACK TO IDF ROOM IN ALL AREAS WITH HARD CEILINGS.

M NO MORE THAN 270 DEGREES OF CONDUIT BENDS ARE ALLOWED IN ANY OF THE CONDUIT RUNS. ALL BENDS SHALL BE LONG SWEEP.

N IDENTIFY ALL CONDUITS WITH MARKER TAPE.

O MAKE ALL FINAL EQUIPMENT CONNECTIONS AS REQUIRED.

P ALL FIRE ALARM CABLING SHALL BE IN RED EMT CONDUIT.

Q ALL TELECOM CONDUIT SHALL BE EMT EXCEPT WHERE EXPOSED AND SUBJECT TO VANDALISM WHERE IT SHALL BE RGS.

R TV OUTLETS SHALL BE OFFSET FROM CENTER OF TV FOR ACCESSIBLITY. COORDINATE EXACT LOCATION AND HEIGHT WITH OWNER'S LOW VOLTAGE INSTALLER.

S VERIFY FINISHES OF ALL ELECTRICAL DEVICES WITH ARCHITECT OR INTERIOR DESIGNER.

T PROVIDE GFCI TYPE RECEPTACLE FOR ALL RECEPTACLES WITH-IN 6-FEET OF A SINK.

U RECEPTACLES AND JUNCTION BOXES SHALL BE LABELED WITH PANEL NUMBER AND CIRCUIT NUMBER USING INDELIBLE INK.

V SEE THE HVAC & PLUMBING ELECTRICAL CONNECTION SCHEDULE ON SHEET E004 FOR DISCONNECT, CONDUIT AND CONDUCTOR INFORMATION.

W PROVIDE FLEXIBLE STEEL CONDUIT FOR CONECTIONS FROM DISCONNECT SWITCH TO HVAC UNITS AND MOTOR CONNECTIONS.

X ALL EQUIPMENT ENCLOSURES LOCATED OUTSIDE OR IN WET ENVIRONMENT SHALL BE NEMA 3R.

Y EQUIPMENT FEEDER TAPS ARE PERMITTED UNDER 10' IN LENGTH PER NEC 240.21(B)(1).

KEYED NOTES

1. EXISTING EQUIPMENT AND EXISTING WIRING DEVICES TO REMAIN IN THIS ROOM.
2. PROVIDE JUNCTION BOX, CONDUIT AND BRANCH CIRCUIT FOR FURNITURE FEED. COORDINATE WITH OWNER/ARCHITECT FOR EXACT POWER REQUIREMENTS.
3. PROVIDE JUNCTION BOX AND CONDUIT FOR FURNITURE DATA FEED. COORDINATE WITH AV CONTRACTOR FOR SPECIFICATIONS.
4. PROVIDE NEW DISCONNECT AND NEW CONDUCTORS BACK TO ORIGINALCIRCUIT. ROUTE CONDUCTORS THROUGH EXISTING CONDUIT.
5. PROVIDE CIRCUIT FOR FLOW AND TAMPER SWITCHES.
6. PROVIDE (3) #8, #10 GND, IN 1" CONDUIT FOR INSTA-HOT WATER HEATER (IWH-1). CIRCUIT TO 'C'-30,32.
7. PROVIDE HUBBELL SYSTEMONE 6" FLOOR BOX WITH 2-GANG FOR DUPLEX RECEPTACLE AND DATA. PROVIDE 3/4" CONDUIT FOR POWER AND 1" CONDUIT FOR DATA. ROUTE CONDUIT UNDERGROUND, AND STUB UP THRU ADJACENT WALL INTO ACCESSIBLE CEILING LOCATION. PROVIDE SAW-CUT, TRENCH, BACKFILL, AND PATCH AND REPAIR WORK AS REQUIRED. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE FINISHES AND COLORS WITH ARCHITECT AND OWNER.
8. COORDINATE WITH TV AND TV HARDWARE, AND MOUNT TV RECEPTACLE AND TV COMMUNICATIONS OUTLET BEHIND TV FOR CONCEALMENT OF CORD AND PLUG. COORDINATE WITH CITY OF GLENDALE A/V REPRESENTATIVE FOR ADDITIONAL CABLING REQUIREMENTS.
9. EXHAUST FANS CONTROLLED THROUGH EXISTING TIMECLOCK. COORDINATE WITH MECHANICAL PLANS FOR ADDITIONAL INFORMATION. PROVIDE WIRING AND ACCESSORIES AS REQUIRED FOR POWER AND CONTROLS.

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Registered Professional Engineer (Electrical) CERTIFICATE NO. 53328 NATHAN SHORT Date Signed 12/01/22 ARIZONA U.S.A.

GLENDALE DCRP BEAD MUSEUM RENOVATION

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revisions

No.	Description	Date
1	PERMIT COMMENTS	12/5/22

title

BEAD BUILDING POWER PLANS

phase

CONSTRUCTION DOCUMENTS

date

04 NOV 2022

project no.

202169.4

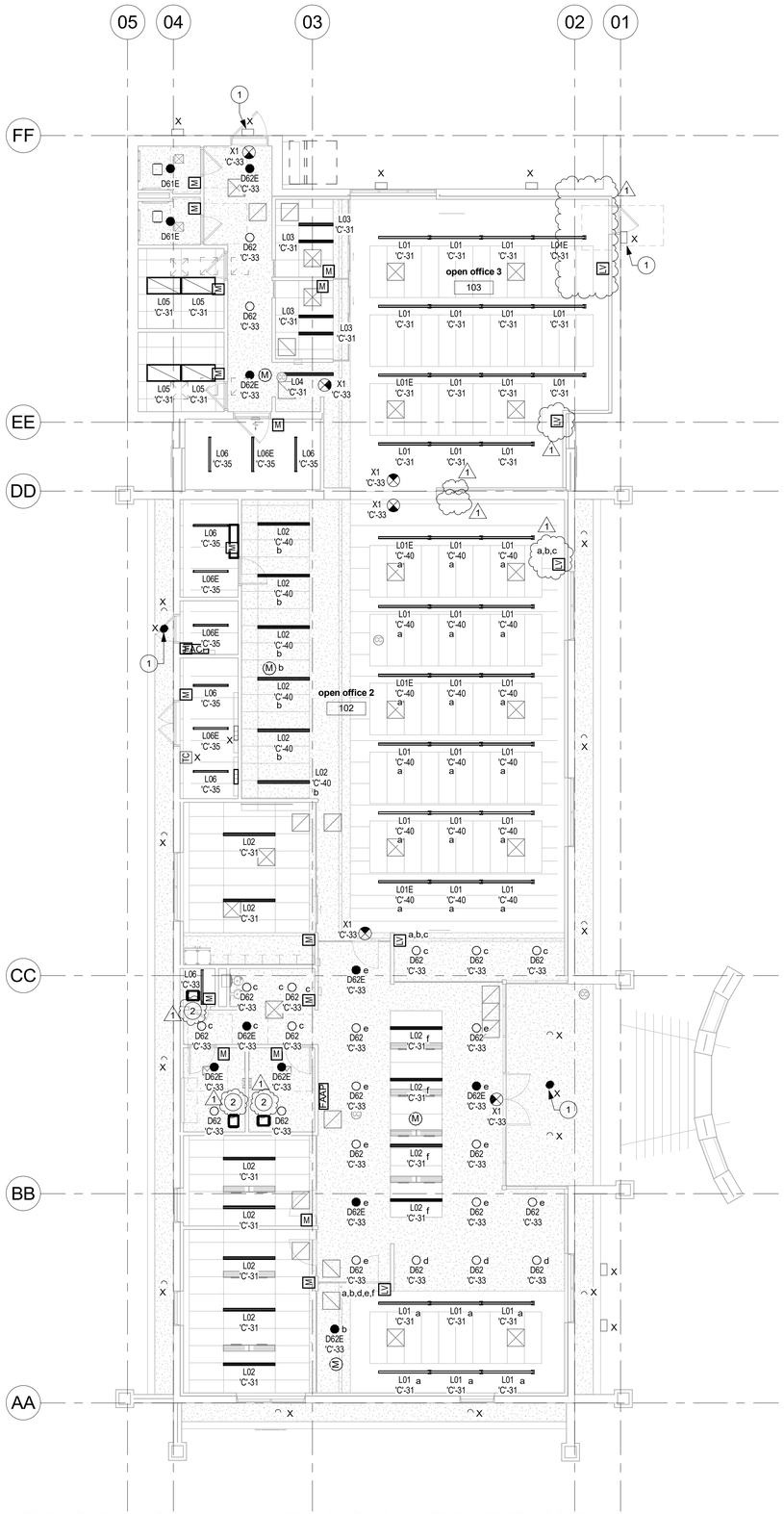
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1 BEAD BUILDING - LIGHTING PLAN - FIRST FLOOR

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

LIGHTING CONTROLS SCOPE OF WORK

EXISTING EXTERIOR LIGHTS AND EXISTING EXTERIOR LIGHTING TIMECLOCK CONTROLS TO REMAIN.

ALL NEW INTERIOR LIGHTS AND INTERIOR LIGHTING CONTROLS.
INTERIOR LIGHTING CONTROLS INDICATE MODULAR DEVICES (MOTION SENSORS, LOW VOLTAGE DIMMING SWITCHES, POWER PACKS OR RELAYS, AND ETC.). INTERIOR LIGHTING CONTROLS TO BE MOTION SENSOR OPERATED FOR SPACES AND FOR OPEN OFFICE SPACES. INTEGRAL MOTION SENSORS SPECIFIED FOR EACH LINEAR PENDANT FOR DOWNLIGHT. OPEN OFFICES ZONED FOR SPACES LESS THAN 600 SF.

SHEET NOTES

A CONTRACTOR TO COORDINATE WORK WITH OTHER TRADES, CEILING TYPES, ARCHITECTURAL MOUNTING DETAILS, ELEVATIONS, AND FIELD CONDITIONS. CONTRACTOR TO PROVIDE ALL EQUIPMENT AND ACCESSORIES NECESSARY TO INSTALL LIGHTING FIXTURES IN SPECIFIED CEILING CONDITION.

B REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES AND OTHER CEILING MOUNTED DEVICES.

C REFER TO LUMINAIRE SCHEDULES ON SHEET E0.1 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

D 120/208V BRANCH CIRCUITS 100' OR GREATER IN CONDUCTOR LENGTH SHALL BE #10 AWG, UNLESS OTHERWISE NOTED.

E ALL EXIT SIGN LIGHTING FIXTURES ARE TYPE X1 AND SHALL BE CONNECTED TO AN UNSWITCHED LEG. REFER TO LIGHTING FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION.

F VERIFY FINISHES OF ALL LIGHTING EQUIPMENT WITH ARCHITECT, OWNER AND INTERIOR DESIGNER.

G PER 2018 IECC SECTION 408.3, ALL LIGHTING SYSTEMS ARE REQUIRED TO BE TESTED FOR PROPER FUNCTIONALITY TO ENSURE THAT INSTALLED LIGHTING CONTROLS MEET PROVISIONS OF SECTION C405. LIGHTING SYSTEM COMMISSIONING IS TO BE BY THIRD PARTY UNDER DIRECT CONTRACT WITH GENERAL CONTRACTOR. A COPY OF THE COMMISSIONING REPORT WILL BE PROVIDED TO OWNER WITHIN 90 DAYS OF PROJECT CERTIFICATE OF OCCUPANCY.

H ELECTRICAL CONTRACTOR SHALL PROVIDE SHOP DRAWING SUBMITTAL FOR THE LIGHTING CONTROL SYSTEM. SUBMITTAL SHALL INCLUDE DEVICE LAYOUT AND DATA SHEETS.

KEYED NOTES

1 EXISTING EXTERIOR EMERGENCY EGRESS LIGHT TO REMAIN. VERIFY EMERGENCY BATTERY IN WORKING CONDITION, AND REPLACE NON-WORKING EMERGENCY BATTERY. COORDINATE WITH FIXTURE TYPE FOR REPLACEMENT.

1 2 REFER TO POWER PLANS FOR EXHAUST FAN DESIGNATIONS AND CIRCUITING.

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Registered Professional Engineer (Electrical) CERTIFICATE NO. 53328 NATHAN SHORT Date Signed 12/07/22 ARIZONA U.S.A.

GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date
1	PERMIT COMMENTS	12/5/22

title
BEAD BUILDING LIGHTING PLAN

phase
CONSTRUCTION DOCUMENTS

date
04 NOV 2022

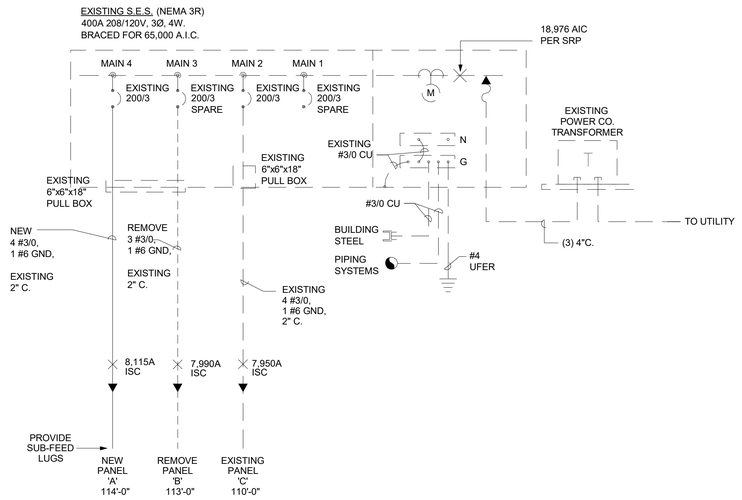
project no.
202169.4

sheet number
E3.0

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EXISTING ELECTRICAL ONE-LINE DIAGRAM - BEAD MUSEUM

N.T.S.

NAME: 'SES' (BEAD)

Location: NORTH EXTERIOR OF...
Supply From: UTILITY
Mounting: PAD MOUNTED
Enclosure: NEMA 3R

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 65 KAIC
Mains Type: MLO
Mains Rating: 400 A
MCB Rating: 1 A

Position	Breaker Name	Rating	Frame	Amps Phase A	Amps Phase B	Amps Phase C	Peak Load	Load	Remarks
1	PANEL 'A'	200 A	200 A	144 A	142 A	125 A		48776 VA	
2	BUSSED SPACE	--	--	--	--	--	--	--	
3	SPARE	200 A	200 A	--	--	--	--	0 VA	
4									
5	PANEL 'C'	200 A	200 A	86 A	80 A	97 A		31419 VA	
					Total Connected Load:			80195 VA	
						Total Amps:		223 A	

Legend:

LOAD TYPE(LT) CLASSIFICATION	Connected Load	Demand Factor	Demand Load	Totals	
NON-CONTINUOS LOAD (N)	23156 VA	100%	23156 VA		
CONTINOUS LOAD (C)	3043 VA	125%	3804 VA	**Total Connected Load:**	80195 VA
MOTOR LOAD (MI)	48776 VA	NEC 430.24	51179 VA	**Total Demand:**	83359 VA
RECEPTACLE LOAD (R)	5220 VA	NEC 220.44	5220 VA	**Total Connected Current:**	223 A
KITCHEN LOAD (K)		NEC 220.56		**Total Demand Current:**	231 A
MULTI-FAMILY DWELLING UNITS LOAD (DM)		NEC 220.84			
DWELLING UNIT LOAD (DU)		NEC 220.82 (B)			
LOWEST MOTOR LOAD (LM)		100%			

** WHEN MULTIPLE MOTORS ARE CIRCUITED TO ONE BREAKER **

SHORT CIRCUIT CALCULATIONS

The following calculations are based on the IEEE standard 141 "Per Unit (PU)" method, and the values provided in Table 9, Chapter 9 of the NEC:

Isc = Isc x M M = 1/(1+f) $f = \frac{1.732 \times L \times Isc}{Y \times E}$ **XFMR:** $Is(sca) = \frac{Vp \times M \times Ip(sca)}{Vs}$ $f = \frac{Ip(sca) \times Vp \times 1.732 \times \%Z}{1{,}000 \times KVA}$

Fault Point	Panel, Transformer, or Motor	Load Type	Source (Fault Point)	Source I (amps)	Motor FLA	Conduit Type	Cable/Wire/Bus Size (Ph)	Sets	Cable Size	Feeder Material CU or AL	Feeder Type C, FB, PB	NEC Ampacity (75 C)	NEC Admittance	Line-to-line Volts E	Circuit Length L	XFMR KVA	XFMR %Z	XFMR Vs	f	M	Motor Isc	Isc	Fault Point
1	SES	S		18976			*							208	n/a							18976	1
2	PANEL 'A'	PB	1	18976		PVC	3	1 Set of	3/0	CU	C	200	12987.01	208	110				1.338	0.428		8115	2
3	PANEL 'B'	PB	1	18976		PVC	3	1 Set of	3/0	CU	C	200	12987.01	208	113				1.375	0.421		7990	3
4	PANEL 'C'	PB	1	18976		PVC	3	1 Set of	3/0	CU	C	200	12987.01	208	114				1.387	0.419		7950	4

* PER SRP ELECTRIC SERVICE REQUIREMENTS TABLE 3, PAGE 1-37

Load Types:
S - Source
PB - Panel Board
TX - Transformer
M - Motor
L - Lighting

Feeder Types:
C - Conductors
FB - Feeder Busduct
PB - Plug-in Busduct

Abbreviations:
Ip = Primary short circuit current
Is = Secondary short circuit current
Vp = Primary voltage
Vs = Secondary voltage

SHEET NOTES

A MANUFACTURER OF ELECTRICAL SWITCHGEAR, PANELS ETC. TO BE THE SAME. THE MANUFACTURER SHALL PROVIDE BREAKERS THAT ARE COORDINATED FROM UPSTREAM C/B'S DOWN TO BRANCH CIRCUIT BREAKERS. CONTRACTOR VIA SWITCHGEAR MANUFACTURER SHALL PROVIDE DOCUMENTATION AND COORDINATED BREAKER SETTINGS WITH SUBMITTAL.

B ALL PANELS SHALL HAVE DOOR-IN-DOOR COVERS.

C ALL CONDUCTORS SHOWN ON ONE LINE SHALL BE COPPER UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL HAVE 90° INSULATION. SEE SPECIFICATIONS FOR CONDUCTOR INSTALLATION.

D CONTRACTOR SHALL VERIFY ALL CIRCUIT BREAKERS ARE SUPPLIED WITH LUGS THAT WILL ACCOMMODATE THE CONDUCTORS SHOWN.

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Registered Professional Engineer (Electrical)
CERTIFICATE NO.
53328
NATHAN
SHORT
Date Signed 12/07/22
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GLENDALE DCRP BEAD MUSEUM RENOVATION
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BEAD ONE-LINE DIAGRAM

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sheet number
E5.0

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Name: 'A'

Location: electrical 113
Electrical Source:
Supply From: 'SES' (BEAD)
Mounting: SURFACE
Enclosure: NEMA 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

New or Existing: NEW
A.I.C. Rating: 10 KAIC
Type of Main: MLO
MCB Rating: 225 A
Bussing: 225 A

LT	DESCRIPTION	STAT	BT	BKR	CKT	A		B		C		CKT	BKR	BT	STAT	DESCRIPTION	LT
					1	3000	3204					2					
M	HP-3		3	40 A	3			3000	3204			4	40 A	3		HP-5	M
					5					3000	3204	6					
					7	3000	3000					8					
M	HP-4		3	40 A	9			3000	3000			10	40 A	3		HP-6	M
					11					3000	3000	12					
					13	768	468					14					
M	PE-3		3	15 A	15			768	468			16	15 A	3		PE-5	M
					17					768	468	18					
					19	768	768					20					
M	PE-4		3	15 A	21			768	768			22	15 A	3		PE-6	M
					23					768	768	24					
M	CU-1		2	25 A	25	1758	175					26	20 A	1	NLE	EXHAUST FANS	M
					27			1758	0			28	20 A	1		SPARE	
M	FC-1		2	15 A	29					79	0	30	20 A	1		SPARE	--
					31	79	--					32	--	1	--	BUSSED SPACE	--
--	SPARE		1	20 A	33			0	--			34	--	1	--	BUSSED SPACE	--
--	SPARE		1	20 A	35					0	--	36	--	1	--	BUSSED SPACE	--
--	SPARE		1	20 A	37	0	--					38	--	1	--	BUSSED SPACE	--
--	BUSSED SPACE	--	1	--	39			--	--			40	--	1	--	BUSSED SPACE	--
--	BUSSED SPACE	--	1	--	41					--	--	42	--	1	--	BUSSED SPACE	--
						TOTAL VA:		16988		16734		15055				**48776 VA**	**TOTAL COMBINED LOAD**
						TOTAL A:		144		142		125				**135 A**	**TOTAL COMBINED AMPERE**

LOAD TYPE (LT) CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTAL	
NON-CONTINUOUS LOAD (N)		100%		**TOTAL DEMAND LOAD:**	51179 VA
CONTINUOUS LOAD (C)		125%		**TOTAL DEMAND AMPERE:**	142 A
MOTOR LOAD (M)	48776 VA	NEC 430.24	51179 VA		
RECEPTACLE LOAD (R)		NEC 220.44			
KITCHEN LOADK (K)		NEC 220.56			
MULTI-FAMILY DWELLING UNITS LOAD (DM)		NEC 220.84			
DWELLING UNIT LOAD (DU)		NEC 220.82 (B)			
LOWEST MOTOR LOAD (LM) **		100%			

** WHEN MULTIPLE MOTORS ARE CIRCUITED TO ONE BREAKER

PROVIDE SUBFEED LUGS

STATUS ABBREVIATIONS

ELC	EXISTING LIGHTING CONTROL CIRCUIT ROUTED THROUGH LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL SCHEDULE.
ELE	EXISTING LOAD AND CIRCUIT BREAKER TO REMAIN. NO REVISION. EXISTING LOAD MAY HAVE BEEN ESTIMATED.
ELK	EXISTING LOCKING HANDLE OR LOCK-OUT-TAG-OUT
GFB	GROUND FAULT BREAKER
AFB	ARCHING FAULT BREAKER
LCC	LIGHTING CONTROL CIRCUIT ROUTED THROUGH LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL SCHEDULE.
LKH	PROVIDE NEW "LOCK-DOG" ON CIRCUIT BREAKER
LTO	LOCK OUT TAG OUT
NLC	NEW LIGHTING CONTROL CIRCUIT ROUTED THROUGH LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL SCHEDULE.
NLE	NEW LOAD ADDED TO EXISTING CIRCUIT BREAKER
NLN	NEW LOAD AND NEW CIRCUIT BREAKER ADDED TO EXISTING BUSSED SPACE
RLS	EXISTING LOAD REMOVED AND BREAKER TO BECOME SPARE
RRN	EXISTING LOAD AND BREAKER REMOVED AND REPLACED WITH NEW BREAKER AND POSSIBLY NEW LOAD

Name: 'C'

Location: electrical 113
Electrical Source:
Supply From: 'SES' (BEAD)
Mounting: SURFACE
Enclosure: NEMA 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

New or Existing: EXISTING
A.I.C. Rating: 10 KAIC
Type of Main: MLO
MCB Rating: 225 A
Bussing: 225 A

LT	DESCRIPTION	STAT	BT	BKR	CKT	A		B		C		CKT	BKR	BT	STAT	DESCRIPTION	LT
R	RECEPTACLES - MEETING AND CONFERENCE...	NLE	1	20 A	1	900	1080					2	20 A	1	NLE	RECEPTAC,ES -MEETING/CONFERENCE/OPEN...	R
N	FLOOR BOX CONFERENCE ROOM	NLE	1	20 A	3			720	720			4	20 A	1	NLE	FLOOR BOX CONFERENCE ROOM	N
R	REC - RESTROOMS	NLE	1	20 A	5					360	690	6	20 A	1	NLE	BREAK ROOMOPEN OFFICE CONV OUTLETS	R, N
N	FURNITURE FEED SOUTH	NLE	1	20 A	7	720	720					8	20 A	1	NLE	FURNITURE FEEED SOUTH	N
N	REC - TVS	NLE	1	20 A	9			300	360			10	20 A	1	NLE	BREAKROMM GFCI	R
N	GARBAGE DISPOSAL	NLE	1	20 A	11					1176	1200	12	20 A	1	NLE	MICROWAVE	N
N	FURNITURE FEED OPEN OFFICE	NLE	1	20 A	13	720	720					14	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
N	FURNITURE FEED OPEN OFFICE	NLE	1	20 A	15			720	720			16	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
R	REC - ROOF	ELE	1	20 A	17					540	720	18	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
N	FURNITURE FEED OPEN OFFICE	NLE	1	20 A	19	720	720					20	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
N	FURNITURE FEED OPEN OFFICE	NLE	1	20 A	21			720	720			22	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
N	FURNITURE FEED OPEN OFFICE	NLE	1	20 A	23					720	720	24	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
R	CONVENIENCE OUTLETS OPEN OFFICE	NLE	1	20 A	25	900	360					26	20 A	1	NLE	CONVENIENCE OUTLETS NORTH RESTROOMS	R
N	FURNITURE FEED OPEN OFFICE	NLE	1	20 A	27			720	1800			28	20 A	2	NLN	IWH-1	N
N	REC - COPIER, BREAK RM	NLE	1	20 A	29					1500	1800	30					
C	LINEAR LIGHTS	NLE	1	20 A	31	1386	350					32	20 A	1	NLE	EDF	N
C	ROUND DOWN LIGHTS	NLE	1	20 A	33			577	720			34	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
C	MECHANICAL LINEAR	NLE	1	20 A	35					252	720	36	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
R	REC -FIRE RISER	LKH	1	20 A	37	180	720					38	20 A	1	NLE	FURNITURE FEED OPEN OFFICE	N
N	FLOW & TAMPER SWXS	LKH	1	20 A	39			0	828			40	20 A	1	NLE	LTG - OPEN OFFICE 2	C
N	FACP	LKH	1	20 A	41					600	600	42	20 A	1	NLE	REC - REFRIGERATOR BREAK RM	N
						TOTAL VA:		10196		9625		11598				**31419 VA**	**TOTAL COMBINED LOAD**
						TOTAL A:		86		80		97				**87 A**	**TOTAL COMBINED AMPERE**

LOAD TYPE (LT) CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTAL	
NON-CONTINUOUS LOAD (N)	23156 VA	100%	23156 VA	**TOTAL DEMAND LOAD:**	32180 VA
CONTINUOUS LOAD (C)	3043 VA	125%	3804 VA	**TOTAL DEMAND AMPERE:**	89 A
MOTOR LOAD (M)		NEC 430.24			
RECEPTACLE LOAD (R)	5220 VA	NEC 220.44	5220 VA		
KITCHEN LOADK (K)		NEC 220.56			
MULTI-FAMILY DWELLING UNITS LOAD (DM)		NEC 220.84			
DWELLING UNIT LOAD (DU)		NEC 220.82 (B)			
LOWEST MOTOR LOAD (LM) **		100%			

** WHEN MULTIPLE MOTORS ARE CIRCUITED TO ONE BREAKER

STATUS ABBREVIATIONS

ELC	EXISTING LIGHTING CONTROL CIRCUIT ROUTED THROUGH LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL SCHEDULE.
ELE	EXISTING LOAD AND CIRCUIT BREAKER TO REMAIN. NO REVISION. EXISTING LOAD MAY HAVE BEEN ESTIMATED.
ELK	EXISTING LOCKING HANDLE OR LOCK-OUT-TAG-OUT
GFB	GROUND FAULT BREAKER
AFB	ARCHING FAULT BREAKER
LCC	LIGHTING CONTROL CIRCUIT ROUTED THROUGH LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL SCHEDULE.
LKH	PROVIDE NEW "LOCK-DOG" ON CIRCUIT BREAKER
LTO	LOCK OUT TAG OUT
NLC	NEW LIGHTING CONTROL CIRCUIT ROUTED THROUGH LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL SCHEDULE.
NLE	NEW LOAD ADDED TO EXISTING CIRCUIT BREAKER
NLN	NEW LOAD AND NEW CIRCUIT BREAKER ADDED TO EXISTING BUSSED SPACE
RLS	EXISTING LOAD REMOVED AND BREAKER TO BECOME SPARE
RRN	EXISTING LOAD AND BREAKER REMOVED AND REPLACED WITH NEW BREAKER AND POSSIBLY NEW LOAD

PANELBOARD SYMBOL SCHEDULE

⊤	INDICATES PROVIDE NEW 'LOCK-DOG' ON CIRCUIT BREAKER, LKH OR LOTO.
●	INDICATES NEW LOAD ADDED TO EXISTING CIRCUIT BREAKER.
○	INDICATES NEW LOAD AND NEW CIRCUIT BREAKER ADDED TO EXISTING BUSSED SPACE.
□	INDICATES EXISTING LOAD REMOVED AND BREAKER TO BECOME SPARE.
■	INDICATES EXISTING LOAD AND BREAKER REMOVED AND REPLACED WITH NEW BREAKER AND POSSIBLY NEW LOAD.
△	INDICATES EXISTING LOAD & CIRCUIT BREAKER TO REMAIN - NO REVISION. EXISTING LOADS MAY HAVE BEEN ESTIMATED.
▲	CIRCUIT THRU LIGHTING CONTACTOR. SEE WIRING DIAGRAM(S).
⌐ ⌙	BREAKERS WITH COMMON HANDLE-TIES OR MULTI-POLE BREAKER WHERE HANDLE-TIES ARE NOT AVAILABLE OR PANELBOARD IS EXISTING. PROVIDE PER NEC 210.4(B).
C	INDICATES CONTINUOUS LOAD.
N	INDICATES NON-CONTINUOUS LOAD.
SR	INDICATES SPARE CIRCUIT BREAKER.
BSP	INDICATES BUSSED SPACE FOR FUTURE CIRCUIT BREAKER.
M	INDICATES MOTOR LOAD.
R	INDICATES GENERAL PURPOSE RECEPTACLE LOAD.

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GLENDALE DCRP BEAD MUSEUM RENOVATION

5750 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date
1	PERMIT COMMENTS	12/5/22

title

BEAD BUILDING - PANEL SCHEDULES

phase

CONSTRUCTION DOCUMENTS

date

04 NOV 2022

project no.

202169.4

sheet number

E5.1

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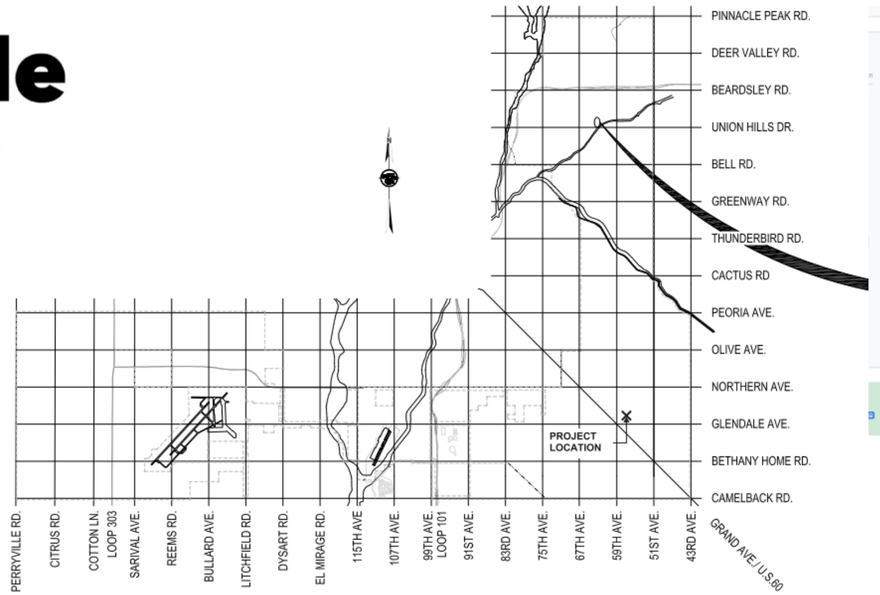
CITY OF GLENDALE

GLENDALE, ARIZONA

PROJECT # 202169.3

Glenn Dr & 58th Ave
Glendale DCRP C.C Annex Renovation
5752 W Glenn Dr

Glendale
ARIZONA



VICINITY MAP



KEY MAP

Sheet Index:

A0.0 - Arch Standards
A0.1 - ADA Standards
A0.2 - Code Plans
A1.0 - Floor Plan

M0.0 - Legend and General Notes
M0.1 - Specifications
M2.0 - Demo Plan
M3.0 - Floor Plan

E0.0 - Symbols, Abbr., and General Notes
E0.1 - Specifications
E1.0 - Existing Power Plan
E2.0 - Power Plan
E5.0 - One Line Diagram
E5.1 - Panel Schedules

MAYOR
JERRY P. WEIERS

CITY COUNCIL
JAMIE ALDAMA
JOYCE V. CLARK
IAN HUGH
RAY MALNAR
LAUREN TOLMACHOFF
BART TURNER

CITY MANAGER
KEVIN R. PHELPS

CITY CLERK
JULIE K. BOWER

CITY ATTORNEY
MICHAEL D. BAILEY

MARICOPA COUNTY DEPARTMENT
OF ENVIRONMENTAL SERVICES

DATE

RECORD DRAWING

I certify that the locations, elevations, depths and record drawing comments accurately reflect the existing field conditions and materials actually used during construction. This certification is based on periodic field observations and the contractors representations of the facilities as constructed.

NAME _____ DATE _____ (SEAL)

REGISTRATION NO. _____ EXP. DATE _____

REVD. BY: _____
CONSTRUCTION ENGINEER

PLANS ACCEPTANCE

The City of Glendale accepts these plans for construction, as being in general compliance with plan preparation requirements of the City. Responsibility for the completeness and accuracy of the plans and related design resides with the Engineer and the Engineering Firm of Record.

_____ _____
CITY ENGINEER DATE

_____ _____
TRANSPORTATION DIRECTOR DATE

_____ _____
WATER SERVICES DIRECTOR DATE

_____ _____
FIELD OPERATIONS DIRECTOR DATE

CITY OF GLENDALE
ENGINEERING DEPARTMENT
5850 W. GLENDALE AVE.
GLENDALE, ARIZONA 85301 (623) 930-3630

REGISTERED ARCHITECT
CERTIFICATE NO.
32961
MICHAEL E. JACOBS
PHOENIX, ARIZONA, U.S.A.
expiration: 9.30.2025

Designed | Drawn | Checked

REVISIONS

No.	Date	Description

602.263.1100
TWO WORKING DAYS BEFORE YOU DIG CALL FOR THE BLUE STAKES
BLUE STAKES CENTER CALL COLLECT

SHT. _____
OF _____

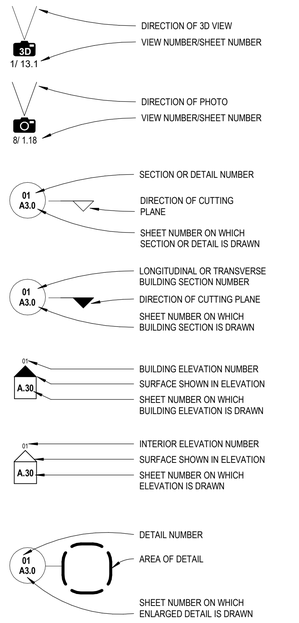
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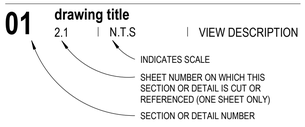
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abbreviations

A/C	AIR CONDITIONING
A/V	AUDIO VISUAL
AB	ANCHOR BOLT
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
ABV	ABOVE
ACC	ACCESS
ACC PNL	ACCESS PANEL
ACST	ACOUSTICAL
AD	AREA DRAIN
ADD'L	ADDITIONAL
ADD.	ADDENDUM
ADJ	ADJACENT, ADHUSTABLE
AFF	ABOVE FINISH FLOOR
AGG.	AGGREGATE
AHR	ANCHOR
AHU	AIR HANDLING UNIT
AL. ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ASI	ARCHITECT'S SUPPLEMENTAL INFORMATION
AUTO	AUTOMATIC
AUX	AUXILARY
AVE	AVENUE
AVG	AVERAGE
BAL	BALANCE
BD	BOARD
BF	BACK FACE
BFE	BOTTOM FOOTING ELEVATION
BITUM	BITUMINOUS
BJT	BED JOINT
BL	BUILDING LINE
BLDG	BUILDING
BLKG	BLOCKING
BLT	BOLT
BLW	BELOW
BM	BEAM
BM	BENCH MARK
BO	BOTTOM OF
BO	BY OTHERS/OWNER
BRG	BEARING
BRKT	BRACKET
BS	BOTH SIDES
BSMT	BASEMENT
BTWN	BETWEEN
BVL	BEVEL(ED)
BW	BOTH WAYS
C	CELSIUS
C to C	CENTER TO CENTER
CAB	CABINET
CAL	CALIPER
CANTL	CANTILEVER
CB	CATCH BASIN
CCD	CONSTRUCTION CHANGE DIRECTIVE
CD	CONSTRUCTION DOCUMENT
CEM	CEMENT(ITIOUS)
CFLG	COUNTERFLASHING
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CHEM	CHEMICAL, CHEMISTRY
CHFR	CHAMFER
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CLL	CONTRACT LIMIT LINE
CLR	CLEAR
CLRM	CLASSROOM
CM	CONSTRUCTION MANAGER
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CHANGE ORDER
CO	CLEANOUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONF	CONFERENCE
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CT	COOLING TOWER
CTR	CENTER
CTSK	COUNTERSINK
CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CU YD	CUBIC YARD
D	DEEP/DEPTH
DBL ACT	DOUBLE ACTING
DC	DIRECT CURRENT
DEG	DEGREE
DEMO	DEMOLISH, DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DH	DOUBLE HUNG
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFUSER
DIM	DIMENSION
DIR	DIRECT(ION)(OR)
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DEAD LOAD
DMPF	DAMPPROOF(ING)
DN	DOWN
DR	DOOR
DWG	DRAWING
E	EAST
EA	EACH
EJT	EXPANSION JOINT
EL	ELEVATION
ELAST	ELASTOMERIC
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOS(URE)(ED)
ENL	ENLARGED
ENTR	ENTRANCE
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPAN(SION)(DED)
EXT	EXTERIOR
EXTRU	EXTRU(SION)(DED)
F	FARENHEIT
FBO	FURNISHED BY OTHERS
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISHED FLOOR
FF EL	FINISHED FLOOR ELEVATION
FF&E	FURNITURE, FURNISHINGS, & EQUIPMENT
FHMS	FLAT HEAD MACHINE SCREWS
FHWS	FLAT HEAD WOOD SCREWS
FIN	FINISH
FIP	FOAM IN PLACE
FIXT	FIXTURE
FL. FLR	FLOOR
FLASH	FLASHING
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FP	FIREPROOF
FSTNR	FASTENER
FT	FEET, FOOT
FTG	FOOTING
FURN	FURNI(SH)(TURE)
FURR	FURRING
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACT(OR)
GEN	GENERATOR
GLAZ	GLAZING
GRND	GROUND
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HIGH
HB	HOSE BIB
HC	HANDICAP
HCFC	HYDRO-CHLOROFLUOROCARBON
HD	HEAD
HDBD	HARDBOARD
HDR	HEADER
HDW	HARDWARE
HDWD	HARDWOOD
HM	HOLLOW METAL
HNDRL	HANDRAIL
HORIZ	HORIZONTAL
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTG	HEATING
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HW	HOT WATER
HWH	HOT WATER HEATER
HWY	HIGHWAY
HYD	HYDRANT
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IF	INSIDE FACE
ILLUM	ILLUMINATION
IN	INCHES
INCL	INCLUD(E)(ED)(ING)
INFO	INFORMATION
INSUL	INSULAT(ED)(ION)
INT	INTERIOR
INVT, INV	INVERT
J-BOX	JUNCTION BOX
JAN	JANITOR
JC	JANITOR CLOSET
JST	JOIST
JST BR	JOIST BEARING
JT	JOINT
K	KIPS
KD	KNOCK DOWN
KIT	KITCHEN
KO	KNOCKOUT
KPL	KICK PLATE
KVA	KILOVOLT AMPS
KW	KILOWATTS
L	LENGTH
LAB	LABORATORY
LAM	LAMINATED
LAV	LAVATORY
LDR	LEADER
LG	LARGE
LH	LEFT HAND
LIN	LINEAR
LIQ	LIQUID
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCAT(E)(ION)
LONG	LONGITUDINAL
LP	LOW POINT
LT	LIGHT
LTG	LIGHTING
LTL	LINTEL
LTWT	LIGHTWEIGHT
LVR	LOUVER
M	METER
MACH	MACHINE
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MBR	MEMBER
MDF	MEDIUM-DENSITY FIBERBOARD
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MEZZ	MEZZANINE
MFR	MANUFACTUR(ER)(ED)
MH	MANHOLE
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MIX	MIXTURE
MLWK	MILLWORK
MM	MILLIMETER
MO	MASONRY OPENING
MOD	MODIFIED, MODULAR
MS	MACHINE SCREW
MTD	MOUNTED
MTL	METAL
MTR	MORTAR
MULL	MULLION
N	NORTH
NA	NOT APPLICABLE
NAT	NATURAL
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO/NUM	NUMBER
NOM	NOMINAL
NORM	NORMAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
NW	NORTHWEST
O/O	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OH	OVERHEAD
OPER	OPERABLE
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
ORIG	ORIGINAL
OZ	OUNCE
LB, #	POUND
PC	POINT OF CURVE
PCF	POUNDS PER CUBIC FOOT
PERF	PERFORAT(ED)(ION)
PERIM	PERIMETER
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLVC	PLASTER VENEER COAT
PLYWD	PLYWOOD
PNL	PANEL
PR	PAIR
PR	PROPOSAL REQUEST
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRELIM	PRELIMINARY
PROJ	PROJECT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
PT	POINT, POINT OF TANGENT
PT	PRESSURE TREATED
PTD	PAINTED
PTN	PARTITION
PV	PHOTOVOLTAIC
PVG	PAVING
PVMT	PAVEMENT
PWR	POWER
QT	QUART
QT	QUARRY TILE
QTR	QUARTER
QUAL	QUALITY
R	RADIUS
RA	RETURN AIR
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RE	REFER
REBAR	REINFORCING BAR
REC	RECESSED
RECT	RECTANGLE
REF	REFERENCE
REF	REFRIGERATOR
REG	REGISTER
REG	REGULAR
REINF	REINFORC(E)(ED)(ING)
REQD	REQUIRED
RET	RETURN
REV	REVISION
RFG	ROOFING
RH	RIGHT HAND
RLF	RELIEF
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
S	SOUTH
S&R	STILE & RAIL
SA	SUPPLY AIR
SALV	SALVAGE(D)
SAN	SANITARY
SC	SOLID CORE
SCD JT	SCORED JOINT
SCHED	SCHEDULE
SE	SOUTHEAST
SECT	SECTION
SF	SQUARE FOOT
SF	STOREFRONT
SHT	SHEET
SIM	SIMILAR
SM	SHEET METAL
SP	STAND PIPE
SPEC	SPECIFICATION
SPK	SPEAKER
SPL	SPECIAL
SQ	SQUARE
SST	STAINLESS STEEL
STAG	STAGGERED
STC	SOUND TRANSMISSION COEFFICIENT
STD	STANDARD
STL	STEEL
STN	STONE
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPEN(DED)(SION)
SW	SOUTHWEST
SYS	SYSTEM
T	TREAD
T&G	TONGUE & GROOVE
TC	TERRA COTTA
TEL	TELEPHONE
TEMP	TEMPERTURE
THERM	THERMAL
THK	THICK(NESS)
THOLD	THRESHOLD
TMPD	TEMPERED
TO	TOP OF
TOPAR	TOP OF PARAPET
TOS	TOP OF STEEL
TRANS	TRANSOM
TRANSL	TRANSLUCENT
TRANSP	TRANSPARENT
TRTD	TREATED
TV	TELEVISION
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
USG	UNITED STATES GAGE
UTIL	UTILITY
V	VOLT
VAL	VALUE
VAR	VARIES
VAV	VARIABLE AIR VOLUME
VB	VAPOR BARRIER
VENT	VENTILAT(ING)(ION)
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VIT	VITREOUS
VNR	VENEER
VOC	VOLATILE ORGANIC COMPOUND
VOL	VOLUME
W	WEST
W	WIDTH
W/	WITH
W/O	WITHOUT
WW	WALL TO WALL
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WF	WIDE FLANGE
WGL	WIRED GLASS
WH	WATER HEATER
WT	WEIGHT
WWF	WELDED WIRE FABRIC
YD	YARD

drafting symbols

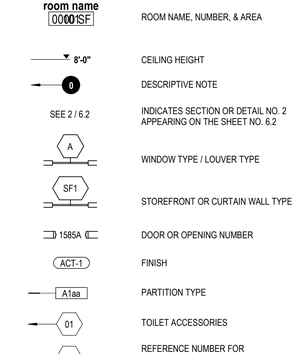






NEW COLUMN OR WALL REFERENCE GRID

EXISTING COLUMN OR WALL REFERENCE GRID



general notes

THESE NOTES ARE IN ADDITION TO ANY INFORMATION IN THE DRAWINGS, SPECIFICATIONS, OR THE NOTES PROVIDED BY THE PRIME CONSULTANT.

1. DO NOT SCALE DRAWINGS - USE DIMENSIONS ONLY. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE ON CONSTRUCTION DOCUMENTS.
2. VERIFY ALL DIMENSIONS AND CONDITIONS IN FIELD. IF CONDITION NOT COVERED IN THE DRAWINGS IS ENCOUNTERED, CONTRACTOR SHALL NOTIFY ARCHITECT, IN WRITING, BEFORE COMMENCING THAT PORTION OF THE WORK.
3. DIMENSIONS WHERE SHOWN ARE NORMALLY GIVEN:
   A. TO FACE OF CONCRETE OR MASONRY UNIT, OR FINISHED FACE
   B. TO CENTER LINES
4. NOTIFY ARCHITECT IF DISCREPANCIES ARE NOTED IN THESE CONTRACT DOCUMENTS IN SUFFICIENT TIME AS TO NOT CAUSE DELAY. DO NOT DEVIATE WITHOUT WRITTEN AUTHORIZATION FROM THE ARCHITECT.
5. DETAILS, NOTES AND FINISHES SHALL BE APPLICABLE TO ALL TYPICAL CONDITIONS WHETHER OR NOT REFERENCED AT ALL PLACES ON THESE PLANS.
6. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED, AND CONDITIONED, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS OR INSTRUCTIONS UNLESS SPECIFIED TO THE CONTRARY HEREIN.
7. THE STARTING OF WORK BY ANY CONTRACTOR OR SUBCONTRACTOR SHALL BE CONSIDERED PRIMA FACIE EVIDENCE THAT HE HAS INSPECTED THE DOCUMENTS AND FINDS THEM SATISFACTORY.
8. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT THE PUBLIC AND ADJACENT PROPERTIES FROM DAMAGE THROUGHOUT CONSTRUCTION.
9. ALL STUDS AND ANY OTHER FRAMING ARE AT 16" O.C. MIN. AT WALLS AND FLOORS, AND 24" O.C. MIN. AT CEILINGS AND ROOFS UNLESS OTHERWISE NOTED.
10. ALL MATERIALS FOR USE SHALL BE NEW UNLESS OTHERWISE NOTED.
11. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING.
12. CAULK, SEAL, AND/OR WEATHERPROOF ALL PENETRATIONS IN WALLS, CEILINGS, AND FLOORS FOR PLUMBING, ELECTRICAL, AND OTHER OPENINGS IN THE BUILDING ENVELOPE.
13. THE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK WITH THE ARCHITECTURAL DRAWINGS BEFORE PROCEEDING WITH THE INSTALLATION OF MECHANICAL, PLUMBING AND ELECTRICAL WORK. SHOULD THERE BE A DISCREPANCY BETWEEN THE ARCHITECTURAL DRAWINGS AND THE CONSULTING ENGINEERS DRAWINGS THAT WOULD CAUSE AN AWKWARD INSTALLATION, IT SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION FOR CLARIFICATION PRIOR TO INSTALLATION OF SAID WORK. ANY WORK INSTALLED IN CONFLICT WITH THE ARCHITECTURAL DRAWINGS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO ADDITIONAL EXPENSE TO THE OWNER.
14. THE ARCHITECTURAL DRAWINGS SHOW PRINCIPAL AREAS WHERE WORK MUST BE ACCOMPLISHED UNDER THIS CONTRACT. INCIDENTAL WORK MAY ALSO BE NECESSARY IN AREAS NOT SHOWN ON THE ARCHITECTURAL DRAWINGS DUE TO CHANGES AFFECTING EXISTING MECHANICAL, ELECTRICAL, PLUMBING OR OTHER SYSTEMS. SUCH INCIDENTAL WORK IS ALSO PART OF THIS CONTRACT. INSPECT THOSE AREAS AND ASCERTAIN WORK NEEDED, AND COMPLETE THAT WORK AS PART OF THE ORIGINAL CONTRACT SUM.
15. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF APPLICABLE CODES AND ALL OTHER GOVERNING AUTHORITIES HAVING JURISDICTION.
16. ISOLATE CONTACT BETWEEN DISSIMILAR METALS
17. ANY ITEMS OR FEATURES IN CEILINGS, SUCH AS, BUT NOT LIMITED TO, LIGHT FIXTURES AND AIR DIFFUSERS SHALL BE PLACED OR INSTALLED WITH SPECIAL ATTENTION TO CENTERING, SPACING AND ALIGNMENT WITH OTHER FEATURES IN PROXIMITY. CONSULT WITH THE ARCHITECT CONCERNING ANY QUESTIONS OR CONFLICTS ABOUT LOCATIONS.
18. PROVIDE BLOCKING BEHIND ALL WALL MOUNTED DOOR STOPS, AND AS REQUIRED FOR MILLWORK, EXHIBIT CASEWORK, AND ALL WALL MOUNTED SHELVING OR EQUIPMENT.
19. ALL RUBBISH AND DEBRIS RESULTING FROM DEMOLITION AND/OR NEW WORK SHALL BE SORTED AND RECYCLED OR DISPOSED OF IN A SUITABLE MANOR AND SHALL NOT BE ALLOWED TO ACCUMULATE.
20. GENERAL CONTRACTOR SHALL HIRE A DETECTION SERVICE TO LOCATE ALL EXISTING ON-SITE UTILITIES WITHIN THE PROJECT BOUNDARY AND A REASONABLE DISTANCE OUTSIDE OF THE PROJECT BOUNDARY WHERE LOCATIONAL UNCERTAINTY OCCURS

Holly Street Studio
1319 E VanBuren St.
Phoenix, AZ 85006
o: 602.258.8555
hollystreetstudio.com

LIGHTVOX

REGISTERED ARCHITECT
CERTIFICATE NO.
32961
MICHAEL E JACOBS
Date Signed
ARIZONA U.S.A.
expiration: 9.30.2025

CITY OF GLENDALE
ENGINEERING DEPT.
5850 W. Glendale ave.
Glendale, AZ 85301
(623) 930 3630

GLENDALE DCRP C.C ANNEX RENOVATION

5752 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title
ARCHITECTURAL STANDARDS

phase
CONSTRUCTION DOCUMENTS

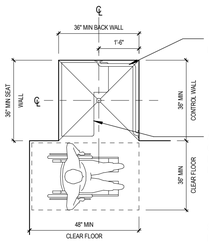
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project no.
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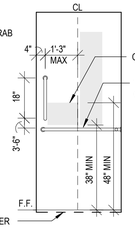
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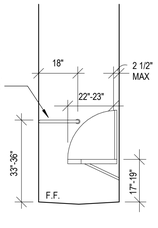
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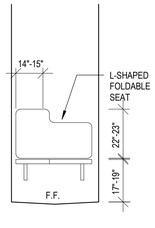
PLAN VIEW



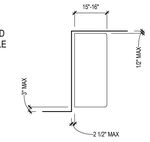
ELEVATION: TRANSFER SHOWER CONTROL WALL



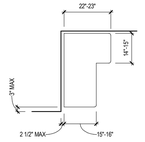
ELEVATION: BACK WALL (WITH SEAT)



ELEVATION: SIDE WALL (WITH SEAT)



RECTANGULAR SHOWER SEAT

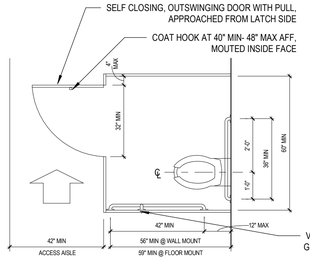


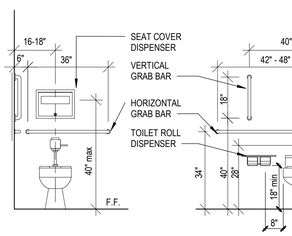
L-SHAPED SHOWER SEAT

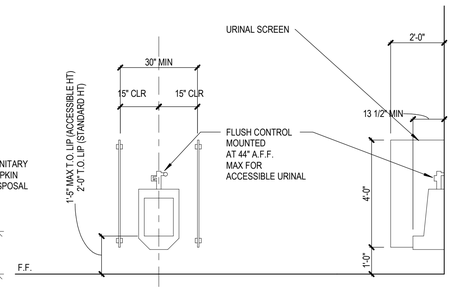
COMPARTMENT ENTRY

COMPARTMENT ENTRY

transfer shower compartment



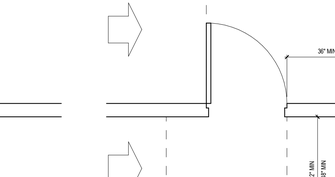




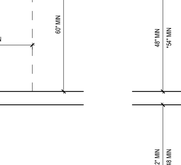
accessible toilet compartment

urinals

UNOBSTRUCTED FORWARD REACH

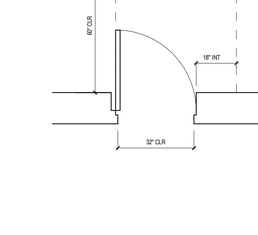


UNOBSTRUCTED HIGH FORWARD REACH



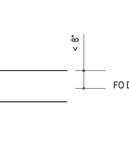
UNOBSTRUCTED SIDE REACH

OBSTRUCTED HIGH SIDE REACH



FRONT ELEV

SIDE ELEV



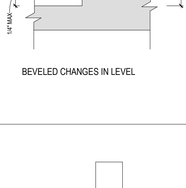
FRONT APPROACH - SINK

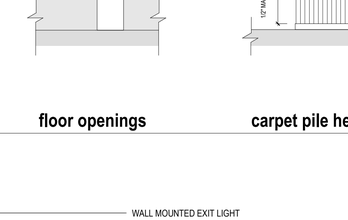


SIDE APPROACH - SINK



FRONT APPROACH - LAVATORY



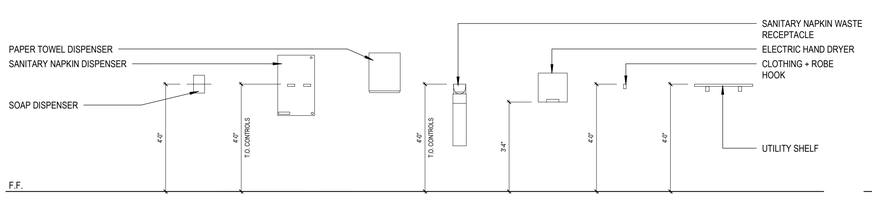


reach ranges

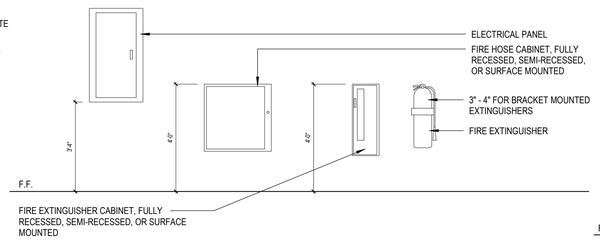
lavatories + mirrors

drinking fountains

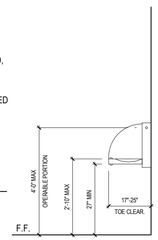
all fixtures to protrude no less than 4" from face of wall



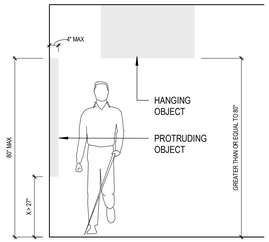
restroom accessories mounting heights



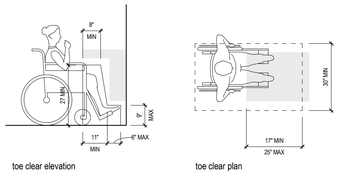
miscellaneous mounting heights



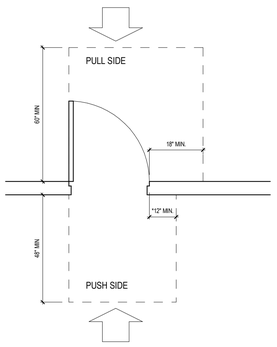
baby changing station



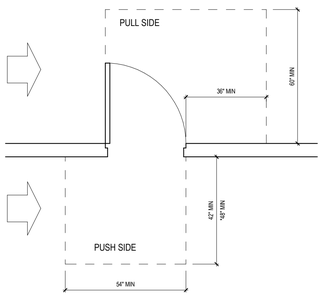
protruding objects



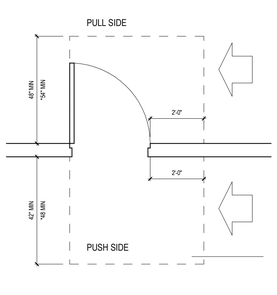
knee + toe clearance



* IF DOOR HAS BOTH A LATCH AND A CLOSER

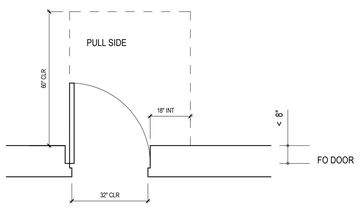


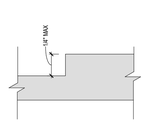
* IF DOOR HAS BOTH A LATCH AND A CLOSER



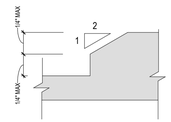
* IF DOOR HAS BOTH A LATCH AND A CLOSER

door clearance requirements for accessible routes

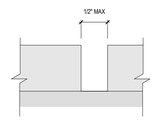


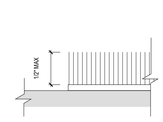


VERTICAL CHANGE



BEVELED CHANGES IN LEVEL

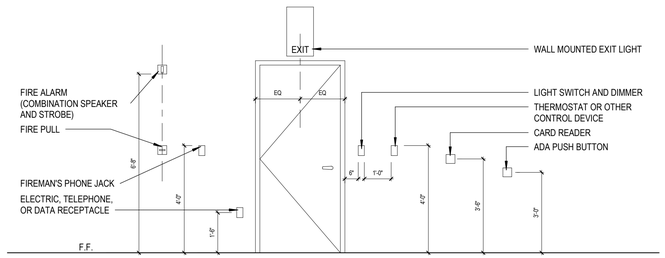




changes in level

floor openings

carpet pile height



controls mounting height

1. REFER TO THE DIAGRAMS ON THIS SHEET FOR ADDITIONAL ACCESSIBILITY DIAGRAMS.
2. WHERE APPLICABLE, THE CODE AND SECTION FOR EACH CORRESPONDING STANDARD HAS BEEN LISTED (ADA/ANSI/IBC).
3. NOT ALL ACCESSIBILITY STANDARDS APPLY TO THIS PROJECT.

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LIGHTVOX

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(623) 930 3630

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5752 W Glenn Drive
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revisions

No.	Description	Date

title

ADA STANDARDS

phase

CONSTRUCTION DOCUMENTS

date

9 DECEMBER 2022

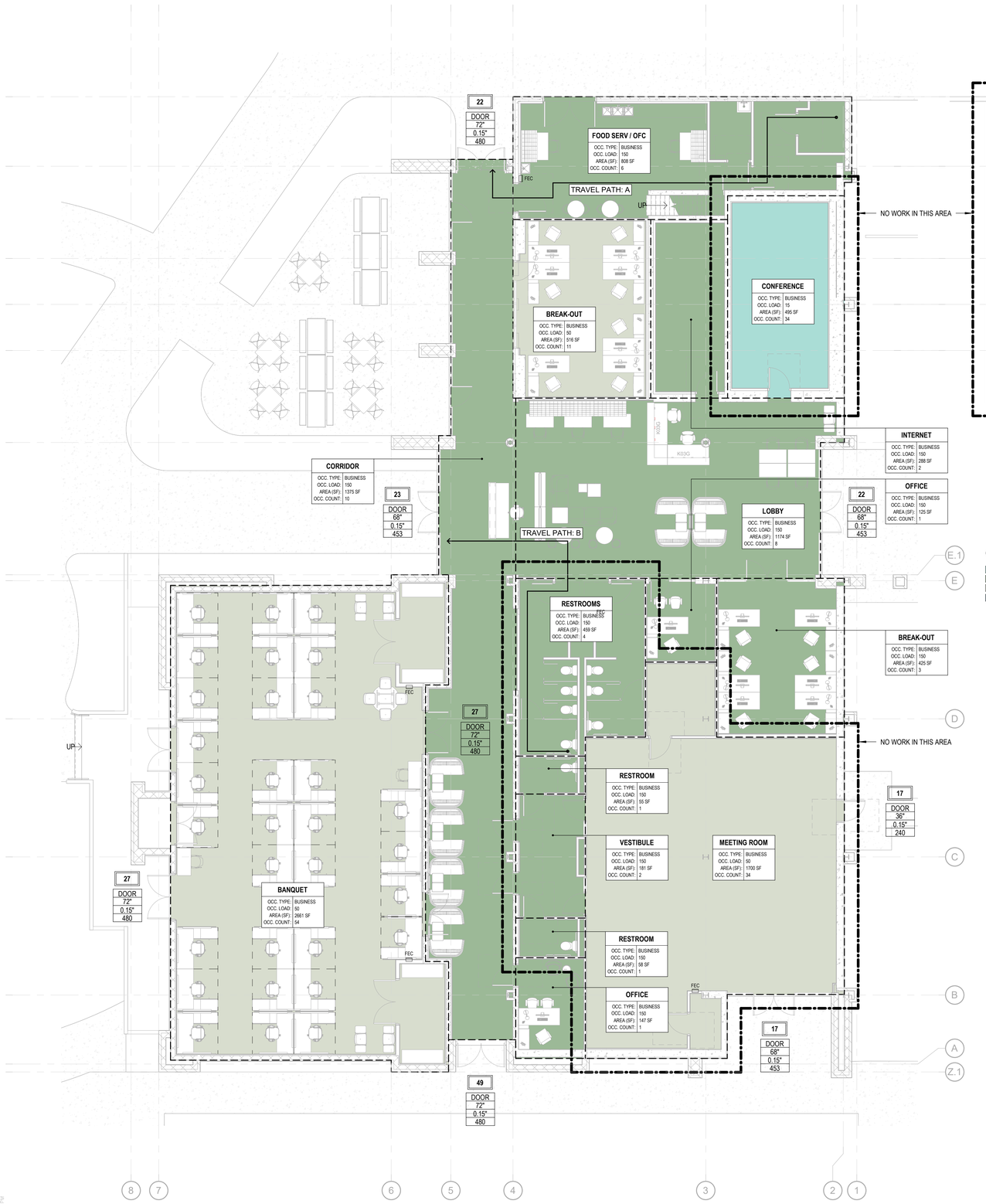
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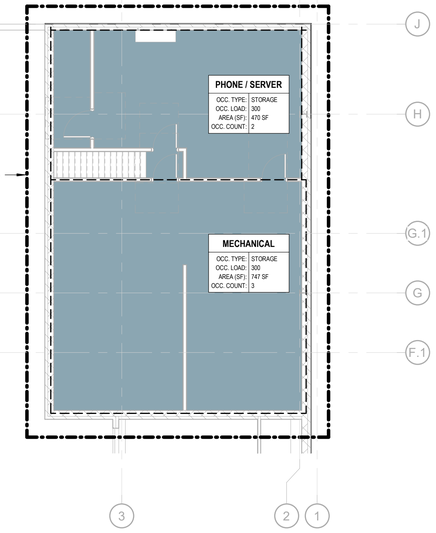
sheet number

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1 code plan - first floor
1/8" = 1'-0"



2 code plan - second floor
1/8" = 1'-0"

OCCUPANCY CLASSIFICATION

- ASSEMBLY - UNCONCENTRATED (TABLES + CHAIRS)
- BUSINESS AREAS
- BUSINESS AREAS - CONCENTRATED BUSINESS USE
- ACCESSORY STORAGE AREA

CH.3: USE + OCCUPANCY

Occupancy: B [Business]
S-2 [Storage]

CH.5: HEIGHT + AREA

B	ACTUAL	ALLOWABLE
Stories	2	< 3 Story (Table 504.4)
Height	25'-4"	< 60' (Talbe 504.3)
Area	10,087 sf	< 36,000 sf (Table 506.2)

CH.6: TYPES OF CONSTRUCTION

GROUP	FIRE RESISTANCE RATING REQUIREMENTS	
V-B	Bearing Walls	
Per Table 602	Exterior	0 HR
	Interior	0 HR
	Non-Bearing Walls	
	Exterior	0 HR
	Interior	0 HR
	Floor Construction	0 HR
	Roof Construction	0 HR
	Corridors (1018.1)	0 HR
	Stairs	0 HR

CH.8: INTERIOR FINISHES

Interior wall and ceiling finishes shall be Class B or C rated per Table 803.13

CH.9: FIRE PROTECTION

Fully Sprinkled per NFPA 13

CH.10: MEANS OF EGRESS

See Occupant Load Schedule.

1005.3.2.1
Egress Sizing (Sprinklered): 177 x .15 = 26.55" min.
Provided: 68" (door 1) + 68" (door 2) = 136"

1006.2.1
Common Path of Egress Travel (Sec. 1006.2.1): 100' (B)

1017.2
Exit Access Travel Distance (Table 1017.2): 300' (B, Sprinkled)

EGRESS TRAVEL DISTANCES

PATH NAME	DISTANCE
TRAVEL PATH: A	65'-6"
TRAVEL PATH: B	59'-7"

CH.11: ACCESSIBILITY

100% Entrances are accessible > 60% minimum required by Sec. 1105.1

CH.29: PLUMBING SYSTEMS

OCCUPANT LOADS: B (Business): 172 Occupants
S-2 (Storage) 5 Occupants

FIXTURE COUNTS:

B	**WC-M** [86]	**WC-W** [86]	**LAV-M** [86]	**LAV-W** [86]
172	1/25 = 3.44	1/25 = 3.44	1/40 = 2.15	1/40 = 2.15
S-2	**WC-M** [3]	**WC-W** [3]	**LAV-M** [3]	**LAV-W** [3]
5	1/100 = .03	1/100 = .03	1/1000 = .003	1/1000 = .003

COMPLIANCE:	REQUIRED	PROVIDED
M - WC	4	4
W - WC	4	5
M - LAV	3	3
W - LAV	3	3
Drinking Fountains	2	2
Service Sinks	1	1

OCCUPANT LOAD - IBC 2018 TABLE 1004.5

NAME	AREA	IBC OCC TYPE	FUNCTION OF SPACE	LOAD FACTOR	SF TYPE	OCC. #	0.15" EGRESS WIDTH
BANQUET	2661 SF	B BUSINESS	BUSINESS AREAS - CONCENTRATED BUSINESS USE	50 SF	GROSS	54	8.1"
BREAK-OUT	516 SF	B BUSINESS	BUSINESS AREAS - CONCENTRATED BUSINESS USE	50 SF	GROSS	11	1.65"
BREAK-OUT	425 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	3	0.45"
CONFERENCE	495 SF	B BUSINESS	ASSEMBLY - UNCONCENTRATED (TABLES + CHAIRS)	15 SF	NET	34	5.1"
CORRIDOR	1375 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	10	1.5"
FOOD SERV / OFC	808 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	6	0.9"
INTERNET	288 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	2	0.3"
LOBBY	1174 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	8	1.2"
MEETING ROOM	1700 SF	B BUSINESS	BUSINESS AREAS - CONCENTRATED BUSINESS USE	50 SF	GROSS	34	5.1"
OFFICE	125 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	1	0.15"
OFFICE	147 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	1	0.15"
RESTROOM	58 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	1	0.15"
RESTROOM	55 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	1	0.15"
RESTROOMS	459 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	4	0.6"
VESTIBULE	181 SF	B BUSINESS	BUSINESS AREAS	150 SF	GROSS	2	0.3"
first floor: 15	10467 SF					172	25.8"
MECHANICAL	747 SF	S-1 STORAGE	ACCESSORY STORAGE AREA	300 SF	GROSS	3	0.45"
PHONE / SERVER	470 SF	S-1 STORAGE	ACCESSORY STORAGE AREA	300 SF	GROSS	2	0.3"
second floor: 2	1217 SF					5	0.75"

OWNER/TENANT

owner
City of Glendale
Representative: Eddie Garcia
2850 W. Glendale Ave
Glendale, AZ 85301
O: 623-930-3652
EGarcia3@glendaleaz.com

PROJECT DESCRIPTION

The project is a tenant improvement of an existing 10,000 SF freestanding single-story building to accomodate new Offices and Conferencing spaces with supporting program. Project scope includes temporary furniture systems layouts, new outlets, a floor box, and additional WIFI capability. New construction will be limited, the space will remain similar to the current condition. Interior architecture and electrical improvements are defined in the documents.

ZONING + USE

C-2 - General Commencial; APN: 147-26-088B

BUILDING CODE

2018 International Building Code (IBC) - with link to amendments effective April 26, 2019
2018 International Mechanical Code (IMC)
2018 International Plumbing Code (IPC)
2018 International Energy Conservation Code (IECC)
2018 International Fuel Gas Code (IFGC)
2018 International Fire Code (IFC)
2017 National Electrical Code (NEC)
2018 ADA Standards for Accessible Design
Arizonans with Disabilities Act
2018 International Existing Building Code (IEBC)
2018 International Property Maintenance Code (IPMC)
City of Glendale Revised Sound Attenuation Standards

CODE SUMMARY

Bulding Construction Type:	V-B
Automatic Fire Sprinkler System:	Yes
Building Maximum Height:	20 ft
Stories:	1 story
Area:	6,802 sf

GENERAL NOTES

1. INSULATION & INSULATION ASSEMBLIES SHALL MEET THE FOLLOWING REQ'S.
   A. CONCEALED INSULATION SHALL HAVE A FLAME SPREAD OF 0-25 AND SMOKE DEVELOPED OF 0-450 FACING MAY COMPLY WITH APPLICABLE SBC CODES.
   B. EXPOSED INSULATION SHALL HAVE A FLAME SPREAD OF 0-25 AND A SMOKE DEVELOPED OF 0-450.
2. INTERIOR WALLS AND CEILINGS SHALL HAVE A FLAME SPREAD OF 0-25 AND A SMOKE DEVELOPMENT RATING OF 0-450.
3. PENETRATIONS THROUGH RATED CONSTRUCTION SHALL BE SEALED W/ A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES & HOT GASSES WHEN TESTED IN ACCORDANCE W/ ASTM-E814. PROVIDE ASSEMBLY DOCS. TO THE INSPECTOR.

CLARIFICATION OF SYMBOLS

- ROUTE OF MAXIMUM COMMON PATH OR TRAVEL DISTANCE
- 1200 — CUMULATIVE OCCUPANT LOAD OF ROOM OR AREA
- DOOR / 34" / 0.2" / 170 — EGRESS COMPONENT; CLEAR WIDTH OF EGRESS COMPONENT; EGRESS CAPACITY FACTOR; EGRESS CAPACITY
- EXISTING PARTITION
- NEW UNRATED PARTITION
- FEC — FIRE EXTINGUISHER CABINET

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LIGHTVOX

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5752 W Glenn Drive
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revisions

No.	Description	Date

title
CODE PLANS

phase
CONSTRUCTION DOCUMENTS

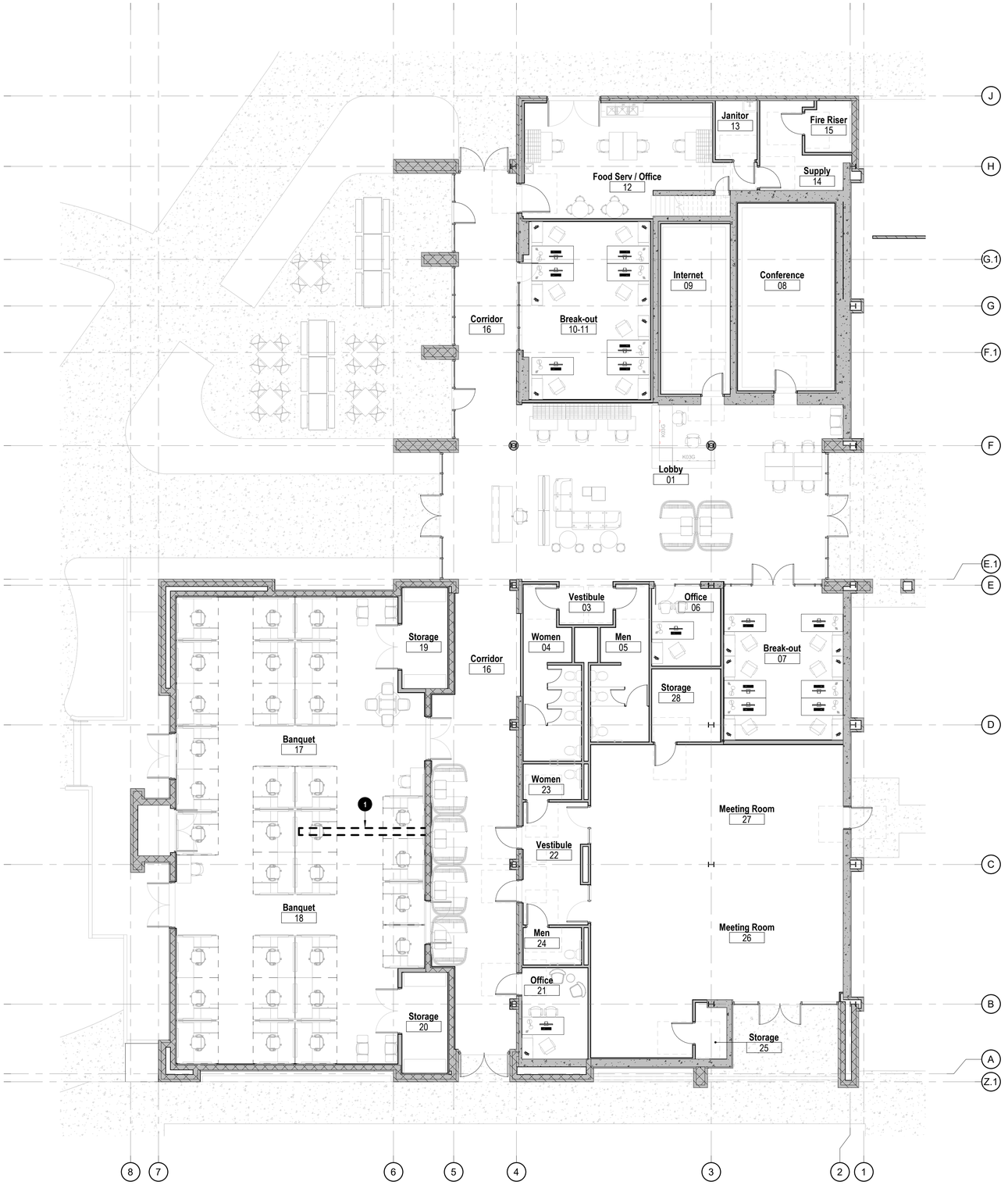
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sheet number
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1 **floor plan**
1/8" = 1'-0"

general notes - floor plan

1. DIMENSIONS ARE FROM FACE OF PARTITION FINISH OR STRUCTURAL GRIDLINE UNLESS OTHERWISE NOTED
2. PARTITIONS ILLUSTRATED ON COLUMN CENTERLINES ARE CENTERED ON CENTERLINE.
3. PROVIDE BLOCKING IN WALLS FOR ALL WALL MOUNTED EQUIPMENT/DEVICES.
4. REFERENCE A0.1 FOR ACCESSIBILITY REQUIREMENTS AND TYPICAL MOUNTING HEIGHTS.
5. REFERENCE A0.03 FOR DOOR & PARTITION SCHEDULES.
6. REFER TO ROOM FINISH SCHEDULE FOR INFORMATION ON FLOOR, WALL, AND CEILING FINISHES.
7. REFERENCE INTERIOR AND EXTERIOR ELEVATIONS FOR ADDITIONAL FINISH INFORMATION
8. REFER TO INTERIOR ELEVATIONS FOR MILLWORK CONFIGURATIONS.
9. MEP EQUIPMENT SHOWN FOR REFERENCE ONLY. SEE MEP DRAWINGS FOR FURTHER INFORMATION.
10. LIGHT FIXTURES, ELECTRICAL FIXTURES, BOXES, ETC., LOCATED IN RATED ASSEMBLIES SHALL BE INSTALLED WITH RATED HOUSING -OR- BE INSTALLED WITH A FIVE SIDED ENCLOSURE AS REQUIRED TO RETAIN RATING OF ASSEMBLY.
11. KITCHEN APPLIANCES AND EQUIPMENT SHOWN FOR REFERENCE ONLY.
12. ELECTRICAL EQUIPMENT AND DEVICES SHOWN FOR REFERENCE AND ARCHITECTURAL PLACEMENT. SEE ELEVATIONS FOR DIMENSIONS. SEE ELECTRICAL DRAWINGS FOR FURTHER INFORMATION.
13. VERIFY ALL EXTERIOR LIGHT FIXTURES WORK PROPERLY AND REPLACE LIGHT BULBS.
14. FURNITURE SHOWN FOR REFERENCE ONLY.

descriptive notes - floor plan

1 NEW TRENCH FOR POWER ACCESS. DEMO EXISTING FLOOR AS NEEDED.

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ABBREVIATIONS

ABBR	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
BD	BALANCING DAMPER
BD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CD	CONDENSATE DRAIN LINE
CFM	CUBIC FEET PER MINUTE
CONT.	CONTINUATION, CONTINUOUS, CONTINUED
DB	DRY BULB
DIA	ROUND, DIAMETER
DN	RISER DOWN
EA	EXHAUST AIR
ENT	ENTERING
°F	DEGREES FAHRENHEIT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	COMBINATION FIRE AND SMOKE DAMPER
FT.	FEET
GA	GAUGE
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HP	HEAT PUMP
IN.	INCHES
INV. ELEV.	INVERT ELEVATION
KVA	KILOVOLT-AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LBS	POUNDS
MAX.	MAXIMUM
MIN.	MINIMUM
N/A	NON APPLICABLE
NC	NOISE CRITERIA
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OBD	OPPOSED BLADE DAMPER
OSA / O.A.	OUTSIDE AIR
P.O.C.	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
QTY.	QUANTITY
RA	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SOV	SHUT-OFF VALVE
STR.	STRAINER WITH HOSE END VALVE
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TYP.	TYPICAL
UP	RISER UP
U.N.O.	UNLESS NOTED OTHERWISE
VAV	VARIABLE AIR VOLUME
WB	WET BULB

MECHANICAL LEGEND

DUCTWORK SYMBOLS

SINGLE	DOUBLE	DESCRIPTION
		RECTANGULAR DUCT
		ROUND DUCT
		TAP FOR BRANCH (RECTANGULAR DUCT)
		TAP FOR BRANCH (ROUND DUCT)
		90 DEG. ELBOW W/ TURNING VANES
		CURVED ELBOW - MIN. RADIUS R=1.5xWIDTH
		FLEXIBLE DUCT CONNECTION
		SUPPLY DIFFUSER
		RETURN GRILLE
		EXHAUST GRILLE
T		THERMOSTAT / TEMPERATURE SENSOR
H		HUMIDISTAT / HUMIDITY SENSOR
S		SENSOR
		RECTANGULAR DUCT RISE
		RECTANGULAR DUCT DROP
		ROUND DUCT RISE
		ROUND DUCT DROP
		COMBINATION FIRE AND SMOKE DAMPER
FD		FIRE DAMPER
		BALANCING DAMPER
MCD		MOTORIZED DAMPER
		RISER UP
		RISER DOWN
		BREAK
CD		CONDENSATE DRAIN LINE
		FLOW ARROW
		POINT OF CONNECTION
Ø		ROUND, DIAMETER
		EQUIPMENT TAG

PIPING SYMBOLS

SYMBOL	DESCRIPTION
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
C	PUMP
	REDUCER, CONCENTRIC
	REDUCER, ECCENTRIC STRAIGHT INVERT
	REDUCER, ECCENTRIC STRAIGHT CROWN
	FLOW ARROW
	PIPE CAP
	VALVE
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	2-WAY CONTROL VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	STRAINER WITH HOSE END VALVE
	BALANCE VALVE & FLOW METER ORIFICE (I.E. CIRCUIT SETTER)
	MANUAL AIR VENT
	FLEXIBLE PIPE CONNECTOR
	PLUG VALVE
	UNION
	THERMOMETER WITH THERMOWELL
	PRESSURE GAUGE WITH COCK
	CIRCUIT SETTER
	CALIBRATED BALANCING / SHUTOFF VALVE
AV	AIR VENT, AUTOMATIC
MV	AIR VENT, MANUAL
	AIR SEPARATOR
PS	PRESSURE SWITCH
	PRESSURE RELIEF VALVE
	THROUGH WALL / GROUND
	SUCTION DIFFUSER
	MOTORIZED BUTTERFLY VALVE

DIFFUSER TAG LEGEND

GRILLE TAG → XX - # / DIMENSION → SIZE

DIFFUSER TAG → XX - # / AIRFLOW → CFM

DIFFUSER TAG → XX - # / AIRFLOW → CFM / # → QTY

REGISTER TAG → XX - # / AIRFLOW → CFM / DIMENSION → SIZE

DUCT ANNOTATION LEGEND

W x H	RECTANGULAR DUCT WIDTH x HEIGHT
D Ø	ROUND DUCT DIAMETER
W / H	FLAT OVAL DUCT WIDTH / HEIGHT

MECHANICAL GENERAL NOTES

1. THE CONTRACTOR SHALL DO ALL NECESSARY CUTTING OF WALLS AND CEILING.
2. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT/STRUCTURAL ENGINEER.
3. PATCH AROUND ALL OPENINGS TO MATCH EXISTING CONSTRUCTION.
4. DUCTWORK CONSTRUCTION AND INSTALLATION INCLUDING SHEET METAL GAUGES, REINFORCEMENT, JOINT SEALING, AIR LEAKAGE AND DETAILS NOT SPECIFICALLY SHOWN ON DRAWINGS SHALL BE IN ACCORDANCE WITH 2018 IMC DUCT CONSTRUCTION STANDARDS.
5. INSULATION CONTRACTOR SHALL TAPE ALL JOINTS AND SEAMS ON THE DUCT INSULATION WRAP (INCLUDING NEW AND EXISTING INSULATION) TO MAINTAIN A CONSTANT VAPOR BARRIER.
6. ALL MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL HAVE A FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH THE TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS PER 2018 IMC 602.2.
7. CONTRACTOR SHALL PROVIDE DAMPERS WHERE NOT SHOWN TO PROVIDE PROPER BALANCING OF SYSTEM.
8. TURNING VANES SHALL BE INSTALLED IN ALL MITERED ELBOWS.
9. ALL DUCT DIMENSIONS ARE "CLEAR" INSIDE DIMENSIONS.
10. LIGHTING & SPRINKLER HEADS TAKE PRECEDENCE OVER DIFFUSER LOCATION. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS TO DIFFUSERS TO AVOID ANY CONFLICT WITH LIGHTING LAYOUT & SPRINKLER HEADS. COORDINATE ALL LOCATIONS WITH ARCHITECT.
11. ALL ROUND RUNOUTS SERVING DIFFUSERS SHALL BE SAME SIZE AS NECK DIAMETER.
12. ALL THERMOSTATS/TEMPERATURE SENSORS ARE TO BE MOUNTED AT A HEIGHT OF 48" ABOVE THE FLOOR LEVEL FOR DISABLED ACCESS. CONTRACTOR TO COORDINATE ALL FINAL THERMOSTAT/TEMPERATURE SENSOR LOCATIONS WITH OWNER & ARCHITECT PRIOR TO ROUGH-IN.
13. THE MECHANICAL CONTRACTOR IS TO FIELD VERIFY EXACT LOCATION OF ALL EQUIPMENT PRIOR TO SUBMITTING BID. LOCATIONS OF EQUIPMENT SHOWN ON DRAWINGS ARE APPROXIMATE. UNITS SHALL BE RELOCATED TO PROVIDE NECESSARY CLEARANCES FOR STRUCTURAL MEMBERS, PLUMBING, FIRE PROTECTION, ELECTRICAL, DEMISING WALLS, HARD CEILINGS, ETC.
14. TEMPORARY FILTERS SHALL BE INSTALLED ON ALL RETURN AIR OPENINGS IN SPACE DURING CONSTRUCTION.
15. HANGERS FOR SHEET METAL DUCTWORK SHALL BE INSTALLED AS REQUIRED PER IMC 2018 SECTION 603.10. REFERENCE SMACNA HVAC DUCT STANDARDS.
16. SMOKE DETECTORS ASSOCIATED WITH SMOKE DAMPERS AND HVAC SHUTOFFS SHALL BE TESTED BY AN APPROVED TESTING AGENCY OR A QUALIFIED THIRD PARTY SPECIAL INSPECTOR. THE SPECIAL INSPECTOR / TESTING AGENCY SHALL BE AN INDEPENDENT THIRD PARTY INDIVIDUAL OR FIRM AND SHALL NOT BE THE INSTALLING CONTRACTOR. IF A SPECIAL INSPECTION IS REQUIRED, A PROFESSIONAL ENGINEER SHALL SUBMIT A FINAL SIGNED AND SEALED REPORT TO THE MECHANICAL INSPECTOR PRIOR TO CITY ISSUANCE OF FINAL INSPECTION APPROVAL OR OCCUPANCY APPROVAL, INCLUDING CONDITIONAL OCCUPANCY APPROVAL.
17. CONTRACTOR TO COORDINATE ALL MECHANICAL, PLUMBING AND ELECTRICAL WORK WITH CEILING HEIGHTS. CONTACT ENGINEER WITH ANY DISCREPANCIES PRIOR TO INSTALLATION OF ANY EQUIPMENT.
18. WHERE WALLS ABOVE THE CEILING ARE BEING EXTENDED TO THE DECK, CONTRACTOR SHALL PROVIDE MINIMUM OF ONE 18"x18" OPENING WITH SOUND BOOT IN THE WALL ABOVE THE CEILING FOR RETURN PURPOSES. ADDITIONAL OPENINGS TO BE ADDED AS REQUIRED TO MAINTAIN MAXIMUM OF 500 FPM RETURN AIR VELOCITY.
19. ALL WIRING AND DUCTWORK ABOVE CEILING TO BE PLENUM RATED PER 2018 IMC 602.2.1.
20. CONTRACTOR SHALL PROVIDE CONDENSATE PUMPS IF REQUIRED TO MEET SLOPE OF CONDENSATE DRAIN EQUAL TO LITTLE GIANT MODEL VCMA-20UL.
21. PROVIDE ACCESS PANELS OR DOORS IN HARD CEILINGS OR INACCESSIBLE CEILINGS/CHASES FOR ALL VALVES, TRAPS, DAMPERS, CONTROLS, EQUIPMENT ACCESS, ETC. CONTRACTOR SHALL GROUP EQUIPMENT ABOVE CEILING TOGETHER TO MINIMIZE ACCESS PANELS. ACCESS PANELS SHALL BE LARGE ENOUGH TO REMOVE EQUIPMENT FOR REPLACEMENT. COORDINATE ALL ACCESS PANELS WITH ARCHITECT PRIOR TO ANY INSTALLATION.
22. CONTRACTOR SHALL ENSURE THAT ALL EXISTING MECHANICAL EQUIPMENT IS IN SATISFACTORY WORKING CONDITION SO HE MAY MAKE PROVISION IN HIS BID TO ACCOMMODATE ANY REPLACEMENTS REQUIRED. INSTALL NEW FILTERS ON EXISTING EQUIPMENT TO MATCH EXISTING FOLLOWING COMPLETION OF CONSTRUCTION.
23. CONTRACTOR SHALL COMB FINS AND CLEAN COILS ON EXISTING A/C EQUIPMENT IN PROJECT AREA.
24. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. UNLISTED DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.

2018 IECC MANDATORY REQUIREMENTS

HEATING AND COOLING EFFICIENCIES (IECC C403.3):

-ALL EQUIPMENT AND SYSTEMS HAVE BEEN SIZED TO BE NO GREATER THAN NEEDED TO MEET CALCULATED LOADS. (IECC C403.3.1)

-EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C403.3.2(1) - C403.3.2(9). (IECC C403.3.2)

HEATING AND COOLING SYSTEM CONTROLS (IECC C403.4):

-THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, AT LEAST ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM. (IECC. C403.4.1).

-WHEN CONTROLLING BOTH HEATING AND COOLING, THERMOSTATIC CONTROLS SHALL PROVIDE A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM, WITH EXCEPTION TO THERMOSTATS WITH MANUAL CHANGEOVER (IECC C403.4.1.2).

-ZONES WITH SEPARATE HEATING AND COOLING CONTROLS SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN THE A DEADBAND (IECC C403.4.1.3)

-EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM, WITH EXCEPTION TO ZONES OPERATED CONTINUOUSLY AND ZONES WITH FULL LOADS NOT EXCEEDING 6,800 BTU/H WITH A READILY ACCESSIBLE MANUAL SHUTOFF SWITCH (IECC C403.4.2). SETBACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM DOWN TO 55°F OR UP TO 85°F (IECC C403.4.2.1). AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS (IECC C403.4.2.2). AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY (IECC C403.4.2.3).

ECONOMIZERS (IECC C403.5):

-FAULT DETECTION AND DIAGNOSTICS INSTALLED WITH AIR-COOLED UNITARY DX UNITS HAVING ECONOMIZERS (IECC C403.5.5)

VENTILATION AND EXHAUST SYSTEMS (IECC C403.7):

-DEMAND CONTROL VENTILATION REQUIREMENTS FOR THIS PROJECT ARE EXEMPT. SYSTEMS DO NOT SERVE SPACES LARGER THAN 500 SQUARE FEET AND WITH AN AVERAGE OCCUPANT LOAD OF 25 PEOPLE PER 1000 SQUARE FEET OF FLOOR AREA, DO NOT INCLUDE AIR SIDE ECONOMIZERS, AUTO MODULATING AIR DAMPER CONTROL, OR DESIGN OUTDOOR AIRFLOW GREATER THAN 3,000 CFM. (IECC C403.7.1).

FANS AND FAN CONTROLS (IECC C403.8):

-HVAC FAN SYSTEMS WHERE TOTAL SYSTEM MOTOR NAMEPLATE HP EXCEEDING 5 HP AT DESIGN CONDITIONS DO NOT EXCEED THE ALLOWABLE FAN SYSTEM MOTOR NAMEPLATE HP (OPTION 1) OR FAN SYSTEM BHP (OPTION 2), INCLUDING SUPPLY FANS, EXHAUST FANS, RETURN/RELIEF FANS AND FAN-POWERED TERMINAL UNITS. (IECC. C403.8.1).

-FOR EACH FAN, THE SELECTED MOTOR SHALL NOT BE LARGER THAN THE FIRST AVAILABLE MOTOR SIZE GREATER THAN THE FOLLOWING: FOR FANS LESS THAN 6.0 BHP, 1.5 TIMES THE FAN BHP. FOR FANS 6.0 BHP AND LARGER, 1.3 TIMES THE FAN BHP. SYSTEMS COMPLYING WITH C403.8.1 OPTION 1 (IECC C403.8.2)

-FANS SHALL HAVE A FAN EFFICIENCY GRADE (FEG) >= 67.0 THE TOTAL EFFICIENCY OF THE FAN AT THE DESIGN POINT OF OPERATION <= 15% OF MAXIMUM TOTAL EFFICIENCY OF THE FAN (IECC C403.8.3)

-MOTORS FOR FANS THAT ARE NOT LESS THAN 1/12 HP AND LESS THAN 1.0 HP ARE ELECTRONICALLY COMMUNICATED MOTORS (ECM) OR HAVE A MINIMUM MOTOR EFFICIENCY OF 70%. THESE MOTORS HAVE THE MEANS TO ADJUST MOTOR SPEED (IECC C403.8.4)

CONSTRUCTION OF HVAC SYSTEM ELEMENTS (IECC C403.11):

-ALL SUPPLY AND RETURN DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION AND WITH A MINIMUM OF R-8 INSULATION FOR ANY DUCTWORK OUTSIDE THE BUILDING. **USE R-8 BETWEEN DUCTS AND BUILDING EXTERIOR WHEN DUCTS ARE PART OF THE BUILDING ASSEMBLY. (IECC C403.11.1).

-DUCTWORK SHALL BE CONSTRUCTED AND ERECTED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. (IECC C403.11.2)

-LOW PRESSURE DUCT SYSTEMS - ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS OPERATING AT A STATIC PRESSURE LESS THAN OR EQUAL TO 2 INCHES W.G. SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PRESSURE CLASSIFICATIONS SPECIFIC TO THE DUCT SYSTEM SHALL BE CLEARLY INDICATED ON THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. (IECC C403.11.2.1).

-MEDIUM PRESSURE DUCT SYSTEMS - ALL DUCTS AND PLENUMS DESIGNED TO OPERATE AT A STATIC PRESSURE GREATER THAN 2 INCHES W.G. BUT LESS THAN 3 INCHES W.G. SHALL BE INSULATED AND SEALED IN ACCORDANCE WITH SECTION C403.2.9. PRESSURE CLASSIFICATIONS SPECIFIC TO THE DUCT SYSTEM SHALL BE CLEARLY INDICATED ON THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. (IECC C403.11.2.2).

-ALL PIPING SERVING AS PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED. (IECC C403.11.3)

REFRIGERANT VAPOR (SUCTION) PIPES (40-60 DEGREES):
MIN. .5" INSULATION FOR PIPES LESS THAN 1.5"

-PIPING INSULATION EXPOSED TO THE WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. ADHESIVE TAPE SHALL NOT BE PERMITTED (IECC C403.11.4)

MAINTENANCE INFORMATION AND SYSTEM COMMISSIONING (IECC C408):

-BUILDING OPERATIONS AND MAINTENANCE DOCUMENTS SHALL BE PROVIDED TO THE BUILDING OWNER. DOCUMENTS SHALL COVER MANUFACTURERS' INFORMATION, SPECIFICATIONS, PROGRAMMING PROCEDURES AND MEANS OF ILLUSTRATING TO OWNER HOW BUILDING, EQUIPMENT AND SYSTEMS ARE INTENDED TO BE INSTALLED, MAINTAINED, AND OPERATED (IECC C408.1.1)

-COMMISSIONING REQUIREMENTS FOR THIS PROJECT IS EXEMPT. TOTAL MECHANICAL SYSTEM CAPACITY IS LESS 480,000 BTU/H COOLING CAPACITY AND 600,000 BTU/H HEATING CAPACITY. (IECC C408.2, EXCEPTION #1).

-HVAC SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS. AIR AND WATER FLOW RATES SHALL BE MEASURED AND ADJUSTED TO DELIVER FINAL FLOW RATES WITHIN THE TOLERANCES PROVIDED IN THE SPECIFICATIONS. TEST AND BALANCE ACTIVITIES SHALL INCLUDE AIR SYSTEM AND HYDRONIC SYSTEM BALANCING. (IECC C408.2.2). EACH SUPPLY AIR OUTLET AND ZONE TERMINAL DEVICE SHALL BE EQUIPPED WITH MEANS FOR AIR BALANCING IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 OF THE INTERNATIONAL MECHANICAL CODE. (IECC C408.2.2.1).

-THE FOLLOWING DOCUMENTS SHALL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY: SYSTEM BALANCING REPORT (IECC C408.2.5.1).

2018 IECC PRESCRIPTIVE REQUIREMENTS

ECONOMIZERS (IECC C403.5):

-ECONOMIZER SYSTEMS SHALL BE INTEGRATED WITH THE MECHANICAL COOLING SYSTEM AND BE CONFIGURED TO PROVIDE PARTIAL COOLING EVEN WHERE ADDITIONAL MECHANICAL COOLING IS REQUIRED TO PROVIDE THE REMAINDER OF THE COOLING LOAD (IECC C403.5.1)

-HVAC SYSTEM DESIGN AND ECONOMIZER CONTROL SHALL BE SUCH THAT ECONOMIZER OPERATION DOES NOT INCREASE THE BUILDING HEATING ENERGY USE DURING NORMAL OPERATION (IECC 403.5.2).

-AIR ECONOMIZER SYSTEMS SHALL BE CAPABLE OF MODULATING OUTDOOR AIR AND RETURN AIR DAMPERS TO PROVIDE UP TO 100 PERCENT OF THE DESIGN SUPPLY AIR QUANTITY AS OUTDOOR AIR FOR COOLING (IECC C403.5.3.1). ECONOMIZER DAMPERS SHALL BE CAPABLE OF BEING SEQUENCED WITH THE MECHANICAL COOLING EQUIPMENT AND SHALL NOT BE CONTROLLED BY ONLY MIXED AIR TEMPERATURE, WITH EXCEPTION TO SYSTEMS CONTROLLED FROM SPACE TEMPERATURE (IECC C403.5.3.2). AIR ECONOMIZERS SHALL BE CAPABLE OF AUTOMATICALLY REDUCING OUTDOOR AIR INTAKE TO THE DESIGN MINIMUM OUTDOOR AIR QUANTITY WHEN OUTDOOR AIR INTAKE WILL NO LONGER REDUCE COOLING ENERGY USAGE. REFER TO EQUIPMENT SCHEDULES FOR HIGH-LIMIT SHUTOFF CONTROL TYPES AND SETPOINTS (IECC C403.5.3.3). SYSTEMS SHALL BE CAPABLE OF RELIEVING EXCESS OUTDOOR AIR DURING AIR ECONOMIZER OPERATION TO PREVENT OVER-PRESSURIZING THE BUILDING. THE RELIEF AIR OUTLET SHALL BE LOCATED TO AVOID RE-CIRCULATION INTO THE BUILDING (IECC C403.5.3.4).

FANS AND FAN CONTROLS (IECC C403.8):

-EACH DX COOLING SYSTEM > 65 KBTU AND CHILLED WATER / EVAPORATIVE COOLING SYSTEMS WITH FANS > 1/4 HP ARE DESIGNED TO VARY THE INDOOR FAN AIRFLOW AS A FUNCTION OF LOAD AND COMPLY WITH DETAILED REQUIREMENTS OF THIS SECTION (IECC C403.8.5)

MECHANICAL SHEET INDEX

SHEET NUMBER	SHEET NAME
M0.0	MECHANICAL LEGEND AND GENERAL NOTES
M0.1	MECHANICAL SPECIFICATIONS
M2.0	MECHANICAL DEMO PLAN
M3.0	MECHANICAL FLOOR PLAN

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GLENDALE DCRP C.C ANNEX RENOVATION

5752 W Glenn Drive
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revisions

No.	Description	Date

title
MECHANICAL LEGEND AND GENERAL NOTES

phase
CONSTRUCTION DOCUMENTS

date
09 DEC 2022

project no.
202169.3

sheet number
M0.0

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MECHANICAL SPECIFICATIONS

GENERAL REQUIREMENTS
GENERAL PROVISIONS WHICH MAKE SPECIFIC REFERENCE TO ELECTRICAL DIVISION ONLY ARE INCLUDED HEREIN FOR CLARITY AND SIMPLIFICATION OF SPECIFICATIONS WRITING AND ARE NOT PART OF THE MECHANICAL WORK. THE WORK OF DIVISION 15, MECHANICAL, IS SUBJECT TO THE CONDITIONS OF THE CONTRACT, DIVISION 1, GENERAL REQUIREMENTS, AND APPLICABLE REQUIREMENTS OF OTHER PORTIONS OF THE CONTRACT DOCUMENTS. EXAMINE AND BECOME FAMILIAR WITH ALL CONTRACT DOCUMENTS AND COORDINATE THE MECHANICAL WORK ACCORDINGLY.

INTENT
IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THE SPECIFICATIONS OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE PROVIDED WITHOUT ADDITIONAL EXPENSE TO THE OWNER. SHALL THERE APPEAR TO BE DISCREPANCIES OR QUESTIONS OF INTENT IN THE CONTRACT DOCUMENTS, REFER THE MATTER TO THE ARCHITECT FOR THEIR DECISION BEFORE ORDERING ANY MATERIALS OR EQUIPMENT OR BEFORE THE START OF ANY RELATED WORK. THE DECISION OF THE ARCHITECT SHALL BE FINAL, CONCLUSIVE AND BINDING.

DRAWINGS AND DATA
DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE OF WORK AND TO INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS, CONDUITS, PIPING AND FIXTURES. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET OR FITTINGS OR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED DURING INSTALLATION OF THE WORK. LOCATION OF ALL ITEMS NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. EXACT LOCATIONS NECESSARY TO SECURE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE PROJECT SITE AND SHALL HAVE THE APPROVAL OF ARCHITECT BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS. IF SO DIRECTED BY ARCHITECT, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR PROPER EXECUTION OF WORK. INCLUDE MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER INSTALLATION AND OPERATION OF A SYSTEM OR PIECE OF EQUIPMENT IN BID PRICE.

CODES
INCLUDE IN WORK, WITHOUT EXTRA COST TO OWNER, LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS) REQUIRED TO COMPLY WITH APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS. DRAWINGS AND SPECIFICATIONS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT THAN CODES, ORDINANCES, STANDARDS AND STATUTES. CODES, ORDINANCES, STANDARDS AND STATUES TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH DRAWINGS OR SPECIFICATIONS. FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS AND CODES ARE MINIMUM REQUIREMENTS:

A. APPLICABLE CITY, COUNTY, AND STATE MECHANICAL, ELECTRICAL, GAS, PLUMBING, HEALTH AND SANITARY CODES, LAWS AND ORDINANCES.
B. CITY OR OTHER APPLICABLE BUILDING CODES.
C. 2018 INTERNATIONAL MECHANICAL CODE WITH LOCAL AMENDMENTS.
D. 2018 INTERNATIONAL PLUMBING CODE WITH LOCAL AMENDMENTS.
E. 2018 INTERNATIONAL ENERGY CONSERVATION CODE.
F. 2017 NATIONAL ELECTRIC CODE / NFPA-70 WITH AMENDMENTS.
G. UNDERWRITER'S LABORATORIES, INC. STANDARDS.
H. AMERICAN NATIONAL STANDARDS INSTITUTE.
I. AMERICAN SOCIETY FOR TESTING MATERIALS STANDARDS.
J. STANDARDS AND REQUIREMENTS OF LOCAL UTILITY COMPANIES.
K. AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODES.

REGULATIONS, PERMITS & INSPECTIONS:
COMPLY WITH ALL APPLICABLE CODES, RULES AND REGULATIONS. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES. WHEN REQUIRED BY CODE, ALL WORK MUST BE INSPECTED AND APPROVED BY LOCAL AUTHORITIES.

GENERAL
MATERIALS AND EQUIPMENT STANDARD PRODUCTS OF A REPUTABLE MANUFACTURER REGULARLY ENGAGED IN MANUFACTURE OF THE SPECIFIED ITEMS. WHERE MORE THAN ONE UNIT IS REQUIRED OF ANY ITEM, FURNISH BY THE SAME MANUFACTURER, EXCEPT WHERE SPECIFIED OTHERWISE. INSTALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SHOULD VARIANCE BETWEEN PLANS AND SPECIFICATIONS OCCUR WITH THESE, CONTACT ARCHITECT IMMEDIATELY SO THAT VARIATIONS IN INSTALLATION CAN BE KNOWN BY ALL PARTIES CONCERNED. PROVIDE EQUIPMENT FROM MANUFACTURER WHOSE PRODUCTS HAVE LOCAL REPRESENTATION. SHOP DRAWINGS TO BE SUBMITTED ONE COMPLETE PACKAGE. INDIVIDUAL SHOP DRAWINGS WILL NOT BE ACCEPTED.

NOTE: COMPLY WITH BUILDING STANDARDS. NOTIFY THE ENGINEER IF STANDARDS ARE IN CONFLICT WITH WHAT APPEARS ON THESE CONSTRUCTION DOCUMENTS. (PRIOR TO BID)

MECHANICAL CONTRACTOR TO VERIFY AND COORDINATE AVAILABLE VOLTAGE WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT

EXECUTION
PROTECT EXISTING ACTIVE SERVICES (WATER, SEWER, GAS, ELECTRIC, ETC.), WHEN ENCOUNTERED, AGAINST DAMAGE FROM CONSTRUCTION WORK.
DO NOT PREVENT OR DISTURB OPERATION OF ACTIVE SERVICES WHICH ARE TO REMAIN. IF WORK MAKES TEMPORARY SHUTDOWNS OF SERVICES UNAVOIDABLE, CONSULT WITH OWNER AS TO DATES, PROCEDURES, AND ESTIMATED DURATION OF AT LEAST 10 WORKING DAYS IN ADVANCE OF DATE WHEN WORK IS TO BE PERFORMED. ARRANGE WORK FOR CONTINUOUS PERFORMANCE TO ASSURE THAT EXISTING OPERATING SERVICES WILL BE SHUT DOWN ONLY DURING THE TIME REQUIRED TO MAKE NECESSARY CONNECTIONS. IF A SYSTEM CANNOT SHUT DOWN, INSTALL TEMPORARY BYPASSES OR JUMPERS UNTIL CONNECTIONS ARE COMPLETE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCURRED BY ABOVE SHUTDOWNS, INCLUDING BYPASS OR JUMPER INSTALLATIONS, FOR WORK PERFORMED UNDER THIS SECTION.
IF EXISTING ACTIVE UTILITY SERVICES ARE ENCOUNTERED WHICH REQUIRE RELOCATION, MAKE REQUEST TO PROPER AUTHORITIES FOR DETERMINATION OF PROCEDURES. PROPERLY TERMINATE EXISTING SERVICES TO BE ABANDONED IN CONFORMANCE WITH REQUIREMENTS OF AUTHORITIES. WHERE CONNECTIONS OR DISRUPTIONS ARE MADE TO EXISTING SYSTEMS, REACTIVATE, REFILL, AND RECHARGE ALL COMPONENTS AND RESTORE SYSTEMS TO OPERATING CONDITIONS AT TIME OF DISRUPTION.

GUARANTEE
EACH COMPLETE SYSTEM GUARANTEED BY CONTRACTOR FOR A PERIOD OF ONE YEAR, FROM DATE OF ACCEPTANCE OF WORK BY OWNER IN WRITING, TO BE FREE OF DEFECTS OF MATERIALS AND WORKMANSHIP, AND TO PERFORM SATISFACTORILY UNDER ALL CONDITIONS OF LOAD OR SERVICE. THE GUARANTEES PROVIDE THAT ANY ADDITIONAL CONTROLS, PROTECTIVE DEVICES, OR EQUIPMENT BE PROVIDED AS NECESSARY TO MAKE THE SYSTEM OF EQUIPMENT OPERATE SATISFACTORILY, AND THAT ANY FAULTY MATERIALS OR WORKMANSHIP BE REPLACED OR REPAIRED. ON FAILURE OF GUARANTOR TO DO THE ABOVE AFTER WRITTEN NOTICE FROM OWNER, THE OWNER MAY HAVE THE WORK DONE AT THE COST OF GUARANTOR. LOSS OF REFRIGERANT IS CONSIDERED A DEFECT IN WORKMANSHIP AND/OR EQUIPMENT, TO BE CORRECTED AS REQUIRED AT NO EXTRA COST TO THE OWNER.

EXISTING CONDITIONS:
CONTRACTOR TO VISIT SITE PRIOR TO BID. CONTRACTOR SHALL RELOCATE AS NECESSARY ALL EXISTING ITEMS SUCH AS DUCTWORK, SPRINKLER PIPING, PLUMBING, CONDUITS, ETC AS REQUIRED TO MAINTAIN ALL EQUIPMENT CLEARANCES. CONTRACTOR TO PROVIDE A NEAT SKETCH TO ENGINEER SHOWING ANY DEVIATION TO THE CONSTRUCTION DOCUMENTS REQUIRED DUE TO FIELD CONDITIONS. NO ALLOWANCES WILL BE MADE AFTER THE PROJECT HAS BEEN AWARDED FOR FAILURE TO VERIFY EXISTING CONDITIONS.

ALL REFERENCES ON THESE DRAWINGS TO EXISTING EQUIPMENT, DUCTWORK, DIFFUSERS, PIPING, ARE FOR REFERENCE ONLY. CONTRACTOR HAS THE RESPONSIBILITY OF FIELD VERIFYING ALL ITEMS PRIOR TO BID AND INCLUDE IN BID ALL AMOUNT REQUIRED TO ACCOMMODATE EXISTING CONDITIONS.

SPRINKLER
SPRINKLER CONTRACTOR SHALL MODIFY EXISTING SPRINKLER SYSTEM TO ACCOMMODATE NEW CEILING LAYOUT SEE ARCH DRAWINGS FOR AREAS OF WORK. MODIFICATIONS SHALL BE PER NFPA 13. PROVIDE SYSTEMS WITH ALL NECESSARY SUPPORTS, ANCHORS, BRACING AND SUBMIT THE DESIGN TO ARCHITECT FOR REVIEW. COORDINATE NEW EQUIPMENT AND DEVICE LOCATIONS WITH EXISTING BUILDING CONDITIONS. PREPARE COMPLETE FIRE PROTECTION SHOP DRAWINGS AND CALC'S AND SUBMIT TO THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION AND RECEIVE APPROVAL PRIOR TO WORK. CONTRACTOR SHALL PROVIDE PIPING, VALVES, SPRINKLERS, HANGERS AND SUPPORTS FOR A COMPLETE INSTALLATION. VERIFY FINISHES WITH ARCHITECT. COORDINATE WORK WITH ALL TRADES AND REQUIRED POWER WITH ELECTRICAL CONTRACTOR. COORDINATE LOCATIONS OF FLOW AND TAMPER SWITCHES, AND SUPERVISORY CIRCUITS WITH THE FIRE ALARM CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING/PATCHING. ALL EQUIPMENT SHALL BE UL LISTED OR FM APPROVED. THE DESIGN, EQUIPMENT, INSTALLATION, TESTING AND MAINTENANCE OF THE FIRE SPRINKLER SYSTEM SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS IN THE LATEST EDITION OF THE FOLLOWING CODES/STANDARDS: NFPA NO. 13-FIRE SPRINKLER SYSTEMS, UL LISTINGS, AND LOCAL AUTHORITY HAVING JURISDICTION

AIR CONDITIONING, HEATING AND VENTILATING

SCOPE:
WORK UNDER THIS SECTION INCLUDES FURNISHING ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE REMODELING, INSTALLATION AND PLACING INTO OPERATION THE HEATING, VENTILATING AND AIR CONDITIONING WORK AS SPECIFIED HEREIN AND INDICATED ON THE DRAWINGS.

VERIFICATION OF DIMENSIONS:
SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE ONLY. BEFORE PROCEEDING WITH WORK, CAREFULLY CHECK AND VERIFY AT THE SITE EQUIPMENT AND MATERIALS TOGETHER TO ENSURE THEY WILL FIT, CAREFULLY STUDY DRAWINGS AND PREMISES IN ORDER TO DETERMINE BEST METHODS, EXACT LOCATIONS, ROUTES AND BUILDING OBSTRUCTIONS, PRESERVE HEADROOM, AND KEEP OPENINGS AND PASSAGEWAYS CLEAR.

CUTTING AND PATCHING:
CUT EXISTING WORK AND PATCH AS NECESSARY TO PROPERLY INSTALL THE NEW WORK. AS THE WORK PROGRESSES, LEAVE NECESSARY OPENINGS, HOLES, CHASES, ETC. IN THEIR CORRECT LOCATIONS. IF THE REQUIRED OPENINGS, HOLES, CHASES ETC. ARE NOT IN THEIR CORRECT LOCATIONS, MAKE THE NECESSARY CORRECTIONS AT NO COST TO THE OWNER. AVOID EXCESSIVE CUTTING AND DO NOT CUT STRUCTURAL MEMBERS WITHOUT CONSENT OF ARCHITECT/ENGINEER.

PATCH AROUND ALL OPENINGS TO MATCH EXISTING CONSTRUCTION.

DUCTWORK:
ALL DUCTWORK AND HANGER FABRICATION SHALL BE INSTALLED AS PER LATEST MECHANICAL CODE REQUIREMENTS AND SMACNA MANUAL. DUCTWORK SHALL BE CONSTRUCTED OF NEW HOT-DIPPED GALVANIZED SHEET METAL ASTM A-120 FOR EACH SIDE.

TURNING VANES SHALL BE INSTALLED IN ALL MITERED ELBOWS. TAPE ALL CROSS-JOINTS IN SHEET METAL DUCT WITH HARDCAST.

LOW PRESSURE TAKE-OFF FITTINGS SHALL BE STRAIGHT-SIDED HIGH EFFICIENCY WITH 2" ELEVATED LOCKING QUADRANT DAMPER. BRANCH DUCT SERVING DIFFUSERS SHALL BE SAME SIZE AS NECK DIAMETER. (MIN)

EXTENSION OF EXISTING DUCTWORK SHALL BE MADE WITH SAME MATERIAL.

FLEXIBLE DUCT:
FLEXIBLE FIBROUS GLASS DUCT SHALL BE FACTORY FABRICATED ASSEMBLY, UL 181 LISTED, COMPOSED OF CLASS I AIR DUCT MATERIAL COMPLYING WITH NFPA 90A AND 90B. FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, R-6 MINIMUM, LINER TO BE CPE LINER BONDED TO HELIX SPRING WIRE. ENCLOSED BY REINFORCED METALIZED FILM VAPOR BARRIER, RATED FOR MIN. 5000 FPM AND MIN. 10" POS (4-12 ID). ATTACHMENT SHALL BE WITH WORM DRIVE CLAMPS. LENGTH SHALL NOT EXCEED 6'-0".
MANUFACTURER: THERMAFLEX TYPE M-KE, FLEXMASTER 1M

DUCT INSULATION:(LINER AND WRAP)
ALL DUCT INSULATION INSIDE BUILDING SHALL BE R-6 MINIMUM AND MINIMUM R-8 FOR EXTERIOR DUCTWORK.

DUCT SIZES ON DRAWINGS ARE "CLEAR INSIDE." FOR LINED DUCTWORK.

ADHESIVE AND INSULATING MATERIALS SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS MAXIMUM 25 FOR FLAME SPREAD AND 50 FOR SMOKE DEVELOPED. ADHESIVES SHALL BE WATERPROOF.

ALL SUPPLY AND RETURN AIR DUCTS SHALL BE PROVIDED WITH THE MINIMUM REQUIRED INSULATION THICKNESS TO ACHIEVE THE INSTALLED R-VALUES LISTED ABOVE.

DUCT LINER:
LINE THE FIRST 12' OF LOW PRESSURE SUPPLY AND RETURN RECTANGULAR DUCTS AFTER PACKAGED ROOFTOP UNITS INTERNALLY WITH SEMI-RIGID GLASS FIBER INSULATION, 1 1/2 PCF DENSITY, R-6 MINIMUM, WITH EXPOSED INTERNAL SURFACE OF A THICK, BLACK, FIRE RETARDANT COATING TO BIND FIBERS TIGHTLY AND PROVIDE A SMOOTH AIRFLOW SURFACE. LINER TO BE RATED FOR 6000 FPM AIR VELOCITY. NRC MIN TO BE .85
MANUFACTURERS: JOHNS MANVILLE "LINACOUSTIC RC", CERTAINTEED "TOUGH GUARD R", KNAUF "ATMOSPHERE" OR OWENS CORNING "QUIET R".

DUCT WRAP:
PROVIDE DUCTWRAP WITH VAPOR BARRIER ON ALL ROUND DUCTS. DUCT WRAP SHALL BE GLASS FIBER BLANKET INSULATION, R-6 MINIMUM, WITH FACTORY APPLIED REINFORCED FLAME RETARDANT FOIL VAPOR BARRIER. PROVIDED THE MINIMUM REQUIRED INSULATION THICKNESS TO ACHIEVE THE INSTALLED R-VALUES LISTED ABOVE. PROVIDE 1.5 PCF DENSITY (TYPE 150). WRAP ALL FLEXIBLE CONNECTIONS AT MECHANICAL UNITS. WRAP INITIAL 12' OF EXHAUST DUCTS WITH 1.5 PCF DENSITY DUCT WRAP.
MANUFACTURES: JOHNS MANVILLE "MICROLITE XG", CERTAINTEED "SOFT TOUCH", KNAUF "ATMOSPHERE" OR OWENS CORNING "SOFT R".

GRILLES AND DIFFUSERS:
ACCEPTABLE MANUFACTURERS ARE TITUS, PRICE, NAILOR OR KRUEGER. ALL UNITS MUST BE FACTORY FINISHED WITH BORDER TO MATCH CEILING STYLE. CONFIRM COLOR WITH ARCHITECT. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

SMOKE DETECTORS:
SMOKE DETECTORS AND HVAC SHUTOFFS SHALL BE TESTED BY AN APPROVED TESTING AGENCY OR QUALIFIED THIRD PARTY SPECIAL INSPECTOR. THE SPECIAL INSPECTOR/TESTING AGENCY SHALL BE AN INDEPENDENT THIRD PARTY INDIVIDUAL OR FIRM AND SHALL NOT BE THE INSTALLING CONTRACTOR. IF A SPECIAL INSPECTION IS REQUIRED, A PROFESSIONAL ENGINEER SHALL SUBMIT A FINAL SIGNED AND SEALED REPORT TO THE MECHANICAL INSPECTOR PRIOR TO CITY ISSUANCE OF FINAL INSPECTION APPROVAL OR OCCUPANCY APPROVAL, INCLUDING CONDITIONAL OCCUPANCY APPROVAL PER 2018 IMC (606.1).

CONDENSATE PIPING:
CONDENSATE PIPING SHALL BE SLOPED TOWARD DRAIN AT A RATE OF 1/8" PER 12" OF RUN. CONTRACTOR SHALL COORDINATE EQUIPMENT INSTALLATION TO ACHIEVE REQUIRED SLOPE. CONDENSATE DRAIN PIPING SHALL BE HARD TEMPER COPPER PIPE, TYPE "DWV" FOR SIZES 2" AND LARGER, TYPE "M" FOR SIZES 1 1/2" AND SMALLER. FITTINGS SHALL BE CAST BRASS OR WROUGHT COPPER IN LONG SWEEP DRAINAGE PATTERN FOR "DWV" PIPING, LONG RADIUS AND 45 DEGREE WYE PATTERN FOR TYPE "M" PIPING.

ALL CONDENSATE PIPING SHALL BE INSULATED WITH 3/4" THICK FLEXIBLE ELASTOMERIC INSULATION. THERMAL CONDUCTIVITY AT 75°F. MAXIMUM 0.28 BTU/IN./SQ.FT./DEG. F/HR. AND MAXIMUM WATER VAPOR TRANSMISSION OF 0.1 PERMS.

IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT:
CONTRACTOR SHALL PROVIDE IDENTIFICATION FOR HVAC EQUIPMENT. IDENTIFICATIONS SHALL INCLUDE EQUIPMENT LABELS AND WARNING SIGNS. LOCATE EQUIPMENT LABELS WHERE ACCESSIBLE AND VISIBLE.

EQUIPMENT LABELS: SHALL BE PLASTIC, MULTILAYER, MULTICOLOR, FOR MECHANICAL ENGRAVING, 1/8 INCH THICK, AND HAVING PREDRILLED HOLES FOR ATTACHMENT HARDWARE. LETTER COLOR TO BE WHITE. BACKGROUND COLOR TO BE BLACK. ABLE TO WITHSTAND TEMPERATURES UP TO 160 DEG F. LENGTH AND WIDTH VARY FOR REQUIRED LABEL CONTENT, BUT NOT LESS THAN 2-1/2 BY 3/4 INCH. MINIMUM LETTER SIZE TO BE 1/4 INCH.
THE OBJECTIVE OF LABELING EQUIPMENT IS TO COORDINATE WITH DRAWINGS, INCLUDING PLANS, DETAILS, AND SCHEDULES. INCLUDE EQUIPMENT'S DRAWING DESIGNATION OR UNIQUE EQUIPMENT NUMBER AS INDICATED ON PLANS, DETAILS, AND SCHEDULES.

SYSTEM TESTING AND BALANCING:
THE CONTRACTOR SHALL INCLUDE IN HIS BID THE SERVICES OF AN TESTING AND BALANCING AGENCY. THE AGENCY SHALL BE APPROVED BY THE OWNER AND ARCHITECT. THE TESTING AGENCY SHALL BE ONE WHICH SPECIALIZES IN THE BALANCING AND TESTING OF HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS TO BALANCE, ADJUST AND TEST EQUIPMENT AND AIR DISTRIBUTING AND EXHAUSTING SYSTEMS, AND PIPING SYSTEMS AS HEREIN SPECIFIED. THE TESTING AND BALANCING CONTRACTOR IS RESPONSIBLE FOR ALL AIR AND HYDRONIC SYSTEMS AS WELL AS TESTING AND VERIFICATION OF OPERATION OF ALL THE DUCT SMOKE DETECTORS AND FIRE DAMPERS WITHIN THE SCOPE OF WORK. ALL WORK SHALL BE DONE UNDER DIRECT SUPERVISION OF A REGISTERED PROFESSIONAL HEATING AND VENTILATING ENGINEER OR AABC OR NEBB CERTIFIED COMPANY. A COPY OF THE AIR BALANCE REPORT SHALL BE PROVIDED TO THE ENGINEER OF RECORD, OWNERS REPRESENTATIVE AND THE MECHANICAL INSPECTOR FOR FINAL INSPECTION APPROVAL.

GENERAL PROCEDURES FOR TESTING AND BALANCING SHALL BE IN ACCORDANCE TO THE PROCEDURES CONTAINED IN ASHRAE 111, AND NEBB'S "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" AND COMPLY WITH REQUIREMENTS IN ASHRAE 62.1-2007, SECTION 7.2.2, "AIR BALANCING."
TOLERANCES OF HVAC SYSTEM'S AIR FLOW RATES AND WATER FLOW RATES ARE AS FOLLOWS: SUPPLY, RETURN, AND EXHAUST AIR SYSTEMS - PLUS OR MINUS 10 PERCENT. COOLING/HEATING-WATER FLOW RATES - MINUS 5 PERCENT.

THE TESTING AND BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR, DOCUMENT, AND PROVIDE A REPORT ON THE FINAL OPERATION OF THE ENTIRE MECHANICAL SYSTEM. THIS INCLUDES THE TESTING AND BALANCING OF ALL AIR AND HYDRONIC SYSTEMS, NOTIFYING/DOCUMENTING ANY AND ALL DISCREPANCIES BETWEEN INSTALLED CONDITIONS AND CONTRACT DOCUMENTS/DRAWINGS, VERIFICATION OF CONTROLS AND OPERATION OF SEQUENCE OF OPERATIONS AS SET FORTH ON THE MECHANICAL PLANS.

ALL REQUIRED SPECIAL INSPECTIONS TO BE SIGNED BY PROFESSIONAL ENGINEER RETAINED BY TEST AND BALANCE COMPANY. IF ENERGY SYSTEMS DESIGN IS TO SIGN SPECIAL INSPECTION FORMS CONTACT FOR FEE.

APPROVED COMPANIES: TECHNICAL AIR BALANCE, ABLE BALANCE AZ, ARIZONA AIR BALANCE, PRECISION AIR, GTAB, SOUTHWEST TEST AND BALANCE, SYSTEMS COMMISSIONING AND TESTING AND COMMERCIAL SYSTEM ANALYSIS.

DUCT STATIC PRESSURE CONSTRUCTION

DUCT SYSTEM	LOCATION	PRESSURE CLASS (INCH. W.G.)	SEAL CLASS
SUPPLY	DOWNSTREAM ROOFTOP UNITS	1.0	A
RETURN	UPSTREAM ROOFTOP UNITS	-1.0	B
EXHAUST	CONNECTED TO EXHAUST FANS	-1.5	B

DUCTS DESIGNED TO OPERATE AT A STATIC PRESSURE GREATER THAN 3.0" SHALL BE INSULATED AND SEALED PER IECC. DUCTS SHALL BE LEAK-TESTED WITH A RATE OF AIR LEAKAGE (CL) NO GREATER THAN 4.0. NO LESS THAN 25% OF DUCTS SHALL BE TESTED TO ENSURE COMPLIANCE.

CODE INFORMATION

A. 2018 IBC, 2018 IMC, 2018 IECC, AND AMENDMENTS.
B. PROJECT LOCATED IN CLIMATE ZONE 2B PER 2018 IECC SECTION C301.
C. ALL MATERIALS MUST BE PROVIDED AND INSTALLED PER THE REQUIREMENTS OF THE 2018 IECC AND REQUIREMENTS OF COMCHECK MECHANICAL COMPLIANCE CERTIFICATES.
D. DESIGN HEATING AND COOLING LOADS FOR THIS SPACE ARE CALCULATED USING CARRIER BLOCK LOAD BASED ON ASHRAE METHODS.
E. OUTDOOR AIR VENTILATION PROVIDED AND BASED ON 2018 IMC CHAPTER 4, SECTION 403.3.
F. ALL ROOFTOP EQUIPMENT SHALL BE PERMANENTLY IDENTIFIED AS TO THE AREA SERVED WITH A RUST PROOF METAL NAMEPLATE PER 2018 IMC.
G. DUCT SMOKE DETECTORS REQUIRED BY 2018 IMC SECTION 606 SHALL BE INSTALLED IN THE RETURN AIR DUCT OR PLENUM UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS, OUTDOOR AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT AND APPLIANCES. DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 606.3 AND NFPA 72.

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GLENDALE DCRP C.C ANNEX RENOVATION

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revisions

No.	Description	Date

title
MECHANICAL SPECIFICATIONS

phase
CONSTRUCTION DOCUMENTS

date
09 DEC 2022

project no.
202169.3

sheet number
M0.1

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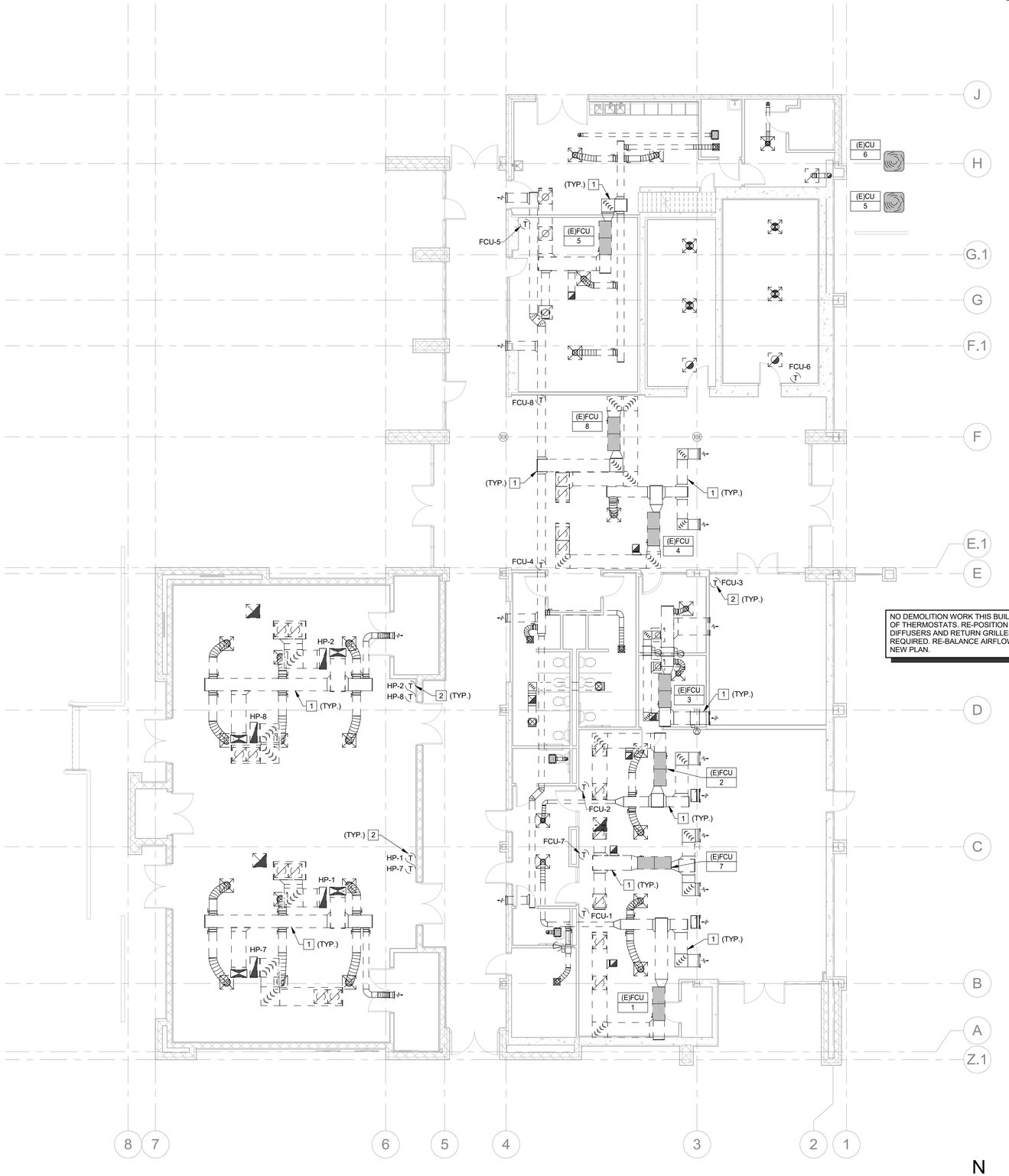
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DEMO KEYED NOTES

1 EXISTING MECHANICAL EQUIPMENT, DUCTWORK AND AIR TERMINALS SHOWN DASHED SHALL REMAIN AS-IS (TYP.).

2 EXISTING THERMOSTAT TO REMAIN AS IS.



NO DEMOLITION WORK THIS BUILDING EXCEPT RELOCATION OF THERMOSTATS. RE-POSITION EXISTING SUPPLY DIFFUSERS AND RETURN GRILLES IN CEILING GRID AS REQUIRED. RE-BALANCE AIRFLOW TO VALUES SHOWN ON NEW PLAN.

ANNEX - MECHANICAL FLOOR PLAN - DEMO

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

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KEYED NOTES

1 RELOCATE EXISTING THERMOSTAT TO LOCATION SHOWN. EXTEND NEW PLENUM RATED CONTROL WIRING BACK TO UNIT, PROVIDE CONDUIT FOR ALL HVAC CONTROL WIRE WHERE EXPOSED. PROVIDE INSULATED BACKING ON ALL THERMOSTATS MOUNTED ON EXTERIOR WALLS. COORDINATE FINAL LOCATION OF THERMOSTATS WITH ARCHITECT PRIOR TO INSTALLATION (TYP).



ANNEX - MECHANICAL FLOOR PLAN

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

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ELECTRICAL SYMBOLS

NOTE: NOT ALL SYMBOLS ARE USED.

WALL LIGHT/OUTLET FIXTURE. UPPER CASE LETTER WITH NUMBER INDICATES TYPE. SEE LIGHT FIXTURE SCHEDULE FOR TYPE. LOWER CASE LETTER INDICATES SWITCHING. NUMBER INDICATES BRANCH CIRCUIT(S).

DOWN LIGHT FIXTURE. UPPER CASE LETTER WITH NUMBER INDICATES TYPE. SEE LIGHT FIXTURE SCHEDULE FOR TYPE. LOWER CASE LETTER INDICATES SWITCHING. NUMBER INDICATES BRANCH CIRCUIT(S).

WALL WASH LUMINAIRE. UPPER CASE LETTER WITH NUMBER INDICATES TYPE. SEE LIGHT FIXTURE SCHEDULE FOR TYPE. LOWER CASE LETTER INDICATES SWITCHING. NUMBER INDICATES BRANCH CIRCUIT(S).

LINEAR LUMINAIRE. UPPER CASE LETTER WITH NUMBER INDICATES TYPE. SEE LIGHT FIXTURE SCHEDULE FOR TYPE. LOWER CASE LETTER INDICATES SWITCHING. NUMBER INDICATES BRANCH CIRCUIT(S).

TRACK LIGHTING SYSTEM. TRIANGLES DENOTE TRACK HEADS. UPPER CASE LETTER WITH NUMBER INDICATES TYPE. SEE LIGHT FIXTURE SCHEDULE FOR TYPE. LOWER CASE LETTER INDICATES SWITCHING. NUMBER INDICATES BRANCH CIRCUIT(S).

EMERGENCY LUMINAIRE. EMERGENCY LUMINAIRE IS EITHER CONNECTED TO A LIFE SAFETY GENERATOR SYSTEM, INVERTER, OR BATTERY PACK. UPPER CASE LETTER WITH NUMBER INDICATES TYPE, WHERE AN "E" OR "G" ALSO DENOTES AN EMERGENCY LUMINAIRE. LOWER CASE LETTER INDICATES SWITCHING CONTROL. THE "NL" ANNOTATION DENOTES THE LUMINAIRE SHALL NOT BE CONTROLLED AND SHALL ALWAYS BE ON. EMERGENCY LUMINAIRE SHALL NOT BE SWITCHED OFF, BUT MAY BE DIMMED TO A MINIMUM OF ONE FOOT CANDLE AT FINISHED FLOOR, UNO.

EXIT SIGN. SHADED PORTION INDICATES FACE OF SIGN. SEE LIGHT FIXTURE SCHEDULE.

EMERGENCY LIGHT BATTERY PACK WITH TWIN LAMP HEADS. SEE LIGHT FIXTURE SCHEDULE.

PROVIDE (2) 20A BRANCH CIRCUITS FOR DUAL SOURCE POWER TO AUTOMATIC TRANSFER SWITCH (AX) FROM (2) DIFFERENT SOURCES FOR A/B SOURCE OR NORMAL/EMERGENCY SOURCE POWER TO LOAD. AX SHALL BE UL 924 LISTED AND/OR UL 1008 LISTED. REFER TO FLOOR PLANS, KEYED NOTES, AND/OR DETAILS FOR ADDITIONAL REQUIREMENTS.

JUNCTION BOX IN ACCESSIBLE LOCATION ABOVE CEILING WITH FLEXIBLE CONDUIT CONNECTION TO LIGHT FIXTURE.

JUNCTION BOX IN ACCESSIBLE LOCATION.

SINGLE POLE SWITCH.

THREE-WAY SWITCH.

SINGLE POLE DIMMER SWITCH.

KEY OPERATED SWITCH.

MOTOR RATED, 1hp, TOGGLE SWITCH WITH RED PILOT LIGHT AND THERMAL OVERLOAD RELAY. REFER TO BRANCH CIRCUIT FOR VOLTAGE. EQUAL TO SQUARE D CLASS 2510 TYPE F MANUAL SWITCH. NEMA 3R WHERE OUTSIDE.

FLEXIBLE CONDUIT CONNECTION TO EQUIPMENT. "WP" INDICATES LIQUID TIGHT AND WEATHERPROOF COVER.

SINGLE RECEPTACLE. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER.

DUPLEX RECEPTACLE. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER.

FOURPLEX RECEPTACLE. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER.

ISOLATED GROUND DUPLEX RECEPTACLE. SLASH LINE INDICATES MOUNTING IN ABOVE COUNTER.

ISOLATED GROUND FOURPLEX RECEPTACLE. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER.

SWITCHED RECEPTACLE. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER.

DUPLEX RECEPTACLE WITH INTEGRAL USB CHARGER PORTS. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER.

FLUSH FLOOR OUTLET WITH DEVICE SYMBOLIZED. PROVIDE ITS BRASS DEVICE PLATE AND CARPET FLANGE, IN CARPETED AREAS. TELEPHONE AND DATA OUTLETS SHALL HAVE MIN. 1"C. WITH PULL STRINGS STUBBED UP INTO ACCESSIBLE CEILING SPACE. PROVIDE CONDUIT BUSHINGS ABOVE CEILING.

SPECIAL PURPOSE RECEPTACLE WITH NEMA CONFIGURATION NOTED, i.e.; 6-50, 15-20, ETC.

MULTI OUTLET ASSEMBLY. PROVIDE RECEPTACLES AS NOTED. PROVIDE ALL COMPONENTS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

NOTE: REFER TO ABBREVIATIONS FOR RECEPTACLE SUBSCRIPTS.

DATA OUTLET. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER. PROVIDE JUNCTION BOX (SINGLE GANG MUD RING) IN WALL AND 3/4" CONDUIT WITH PULL STRING UP INTO ACCESSIBLE CEILING SPACE U.N.O. PROVIDE CONDUIT BUSHING ABOVE CEILING.

TELEPHONE OUTLET. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER. "P" INDICATES PAYPHONE PROVIDE #6 CU GROUND PER NEC #800. PROVIDE JUNCTION BOX (SINGLE GANG MUD RING) IN WALL AND 3/4" CONDUIT WITH PULL STRING INTO ACCESSIBLE CEILING SPACE U.N.O. PROVIDE CONDUIT BUSHING ABOVE CEILING.

DATA AND COMMUNICATIONS JACK. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER. PROVIDE JUNCTION BOX (SINGLE GANG MUD RING) IN WALL AND 3/4" CONDUIT WITH PULL STRING INTO ACCESSIBLE CEILING SPACE U.N.O. PROVIDE CONDUIT BUSHING ABOVE CEILING.

TMB — 4'x4'X3/4" THICK FIRE RATED TELEPHONE BOARD. MOUNT AT 6" BELOW CEILING. PROVIDE #6 SOLID CU GROUND PER NEC #800.

CIRCUITS IN CONDUIT CONCEALED IN FLOOR OR BELOW GRADE.

CIRCUITS IN CONDUIT CONCEALED IN WALLS OR ABOVE CEILING.

HOMERUN TO PANELBOARD OR AS NOTED.

HACHURES INDICATE NUMBER OF PHASE AND NEUTRAL CONDUCTORS ONLY. WHERE NO HACHURES ARE SHOWN PROVIDE 2 #12 Cu, 1 #12 Cu G. WHERE WIRE IS NOTED ON HOMERUN TO BE LARGER THAN #12, PROVIDE SIZE WIRE AND CONDUIT INDICATE FOR ENTIRE LENGTH OF CIRCUIT. MINIMUM CONDUIT SIZE IS 3/4". PROVIDE A GROUNDING CONDUCTORS SIZED PER NEC 250 IN ALL RACEWAYS. GROUNDING CONDUCTORS ARE NOT NORMALLY SHOWN ON THE DRAWINGS.

CONDUIT STUB-UP.

CONDUIT STUB-OUT. CAP AND MARK FOR FUTURE USE.

PANELBOARD. SURFACE OR FLUSH AS SCHEDULED.

MOTOR. SIZE AND RATING AS SHOWN. "EF" INDICATES 150 WATT EXHAUST FAN.

TELEVISION OUTLET. SLASH LINE INDICATES MOUNTING IS ABOVE COUNTER. PROVIDE 3/4"C. WITH PULL STRING UP INTO ACCESSIBLE CEILING SPACE U.N.O. PROVIDE CONDUIT BUSHING ABOVE CEILING.

GENERAL NOTES

1. PRIOR TO ROUGH-IN AND FINAL CONNECTION, VERIFY ELECTRICAL CHARACTERISTICS AND EXACT LOCATION OF EQUIPMENT.
2. COORDINATE THE SCHEDULE OF CONSTRUCTION WITH THE OWNER AND OTHER TRADES (PRIOR TO STARTING ANY WORK).
3. GROUT AND SEAL ALL CONDUIT PENETRATIONS OF WALLS AND FLOOR SLABS TO PRESERVE FIRE RATING AND WATERTIGHT INTEGRITY.
4. DRAWINGS SHOW EXISTING CONDITIONS OF THE SITE. AN ATTEMPT HAS BEEN MADE TO SHOW EXISTING BUILDINGS, DETAILS, ETC., BUT ACCURACY CANNOT BE GUARANTEED. VERIFY EXACT LOCATIONS OF ALL CIRCUITS, CONDUIT, PIPING, EQUIPMENT, ETC. VERIFY ALL BUILDING DETAILS.
5. SEE SPECIFICATIONS, DRAWING E0.1 FOR ADDITIONAL REQUIREMENTS.
6. THE OWNER WILL OCCUPY THE EXISTING BUILDING DURING THE LIFE OF THIS CONTRACT AND ALL WORK SHALL BE SCHEDULED AT SUCH TIME AND IN SUCH A MANNER TO MINIMIZE INTERFERENCE AND INCONVENIENCE TO THE OWNER. THE ELECTRICAL CONTRACTOR MUST OBTAIN THE APPROVAL OF THE CONSTRUCTION MANAGER OR OWNER BEFORE STARTING ANY WORK WITHIN THE EXISTING BUILDING.
7. EXISTING POWER OR LIGHTING CIRCUITS WHICH POWER DEVICES IN OTHER AREAS, AS WELL AS DEVICES IN THE DEMOLITION AREA (IF ANY), SHALL SHALL BE DISCONNECTED FOR AS SHORT A TIME AS NECESSARY. VERIFY WITH SITE PERSONNEL PRIOR TO THE DISCONNECTION OF ANY CIRCUITS.
8. IF ANY EXISTING CIRCUIT CANNOT BE IDENTIFIED, THE CONTRACTOR SHALL USE A CIRCUIT TRACER TO DETERMINE ITS SOURCE. ARCING TO GROUND IS NOT AN ACCEPTABLE PRACTICE AT THIS FACILITY.

ABBREVIATIONS

AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BF	BASE FEED
C	CEILING MOUNTED DEVICE
CAC/CRAC	COMPUTER ROOM AIR CONDITIONING
CF	COMPACT FLUORESCENT
DW	DISHWASHER
DISP	DISPOSAL
EC	EVAPORATIVE COOLER
EDF	ELECTRIC DRINKING FOUNTAIN
EF	EXHAUST FAN
EMT	ELECTRICAL METALLIC TUBING
EP	EMERGENCY PHONE
EUH	ELECTRIC UNIT HEATER
G/GRD	COPPER GROUNDING/BONDING CONDUCTOR
GF/GFP	GROUND FAULT PROTECTED
GFI/GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HID	HIGH INTENSITY DISCHARGED
HPS	HIGH PRESSURE SODIUM
IG	ISOLATED GROUND CONDUCTOR/RECEPTACLE
IM	ICE MACHINE/MAKER
LC	LIGHTING CONTACTOR
LKH	LOCK ON DEVICE FOR CIRCUIT BREAKER
LOTO	LOCK OUT TAG OUT DEVICE FOR CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	METAL HALIDE
N	NEUTRAL CONDUCTOR
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
PNL	PANEL
PVC	RIGID PVC CONDUIT, SCHEDULE 40 UNO
RA	RETURN AIR FAN
RAF	RAISED ACCESS FLOOR
RMC	RIGID METAL CONDUIT
SES	SERVICE ENTRANCE SWITCHBOARD
SF	SUPPLY FAN
ST	SHUNT TRIP
SWBD	SWITCHBOARD
TC	TIME CLOCK
TS	TIME SWITCH
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER

DEVICE MOUNTING HEIGHTS

NOTE! ALL HEIGHTS ARE ABOVE FINISHED FLOOR AND TO THE CENTERLINE OF THE INSTALLED DEVICE U.N.O. THE ELECTRICAL CONTRACTOR SHALL ADJUST THE J-BOX MOUNTING HEIGHT ACCORDINGLY.

RECEPTACLES	+18"
TELEPHONE OUTLETS	+18"
DATA OUTLETS	+18"
ABOVE COUNTER RECEPTACLES, TELEPHONE, AND DATA OUTLETS VERIFY WITH ARCHITECT PRIOR TO ROUGH-IN.	
SWITCHES	+46"
DIMMERS	+46"
OTHER CONTROLS	+46"
TIME SWITCHES	+60"
RECEPTACLE(S) LOCATED AT TMB	+46"
FA MANUAL PULL STATION	+46"
FA VISUAL DEVICES *TO BOTTOM OF LENS*	+80"
FA AUDIO DEVICES *TO BOTTOM OF LENS*	+80"
TELEVISION OUTLETS	+96"
INTERCOM SPEAKERS	+96"
CLOCKS	+96"

DEMOLITION NOTES

1. ANY ELECTRICAL DEVICE OR EQUIPMENT NOT NOTED TO BE REMOVED OR RELOCATED SHALL REMAIN UNCHANGED. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONTACT THE ARCHITECT/ENGINEER REGARDING ANY ITEM IN QUESTION.
2. WHERE ITEMS ARE NOTED TO BE REMOVED, ELECTRICAL CONTRACTOR SHALL:
   - A) REMOVE INDICATED ITEM.
   - B) REMOVE ANY ASSOCIATED CONDUIT AND WIRING WHERE SURFACE MOUNTED OR ABOVE AN ACCESSIBLE CEILING.
   - C) PULL OUT ASSOCIATED WIRING, CUT OFF, CAP, and ABANDON CONDUIT WHERE CONCEALED IN WALLS OR PARTITIONS WHICH ARE REMAINING.
   - D) RETURN ALL REMOVED EQUIPMENT TO OWNER OR DISPOSE OF AS DIRECTED BY OWNER.
3. WHERE ELECTRICAL CONTRACTOR REMOVES AN ITEM AND CIRCUITING TO OTHER ITEMS WILL BE INTERRUPTED, ELECTRICAL CONTRACTOR SHALL PROVIDE NEW CONDUIT, WIRE, BOXES, ETC. AS REQUIRED AND RECONNECT REMAINING ITEMS SO THEY WILL NOT BE INTERRUPTED.
4. WHERE AN ITEM IS SHOWN TO BE RELOCATED, ELECTRICAL CONTRACTOR SHALL EXTEND WIRING AND CONDUIT TO THE APPROPRIATE NEW LOCATION AND PROVIDE ALL NECESSARY CONDUIT, WIRE, BOXES, ETC. AS REQUIRED. RECONNECT TO EXISTING CIRCUIT OR RECIRCUIT AS SHOWN. IF DEVICE IS NOT SALVAGEABLE, ELECTRICAL CONTRACTOR SHALL PROVIDE A NEW DEVICE.
5. THE FOLLOWING DEMOLITION SYMBOLS MAY BE USED AS WELL AS KEYED NOTES:

   "R" = NEW LOCATION OF RELOCATED ITEM.

   "X" = EXISTING ITEM TO REMAIN.

   "XR" = EXISTING ITEM TO BE REMOVED.

   "XRP" = EXISTING ITEM TO BE REPLACED WITH NEW IN SAME LOCATION AS SHOWN. EXTEND EXISTING CIRCUIT TO MATCH EXISTING U.N.O.

   "XRR" = RELOCATE EXISTING ITEM TO NEW LOCATION AS SHOWN. EXTEND EXISTING CIRCUIT TO MATCH EXISTING U.N.O.

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GLENDALE DCRP C.C ANNEX RENOVATION

5752 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title

SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES

phase

CONSTRUCTION DOCUMENTS

date

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ELECTRICAL SPECIFICATIONS

1. SUMMARY & GENERAL REQUIREMENTS

1.1 THE WORK UNDER THIS DIVISION INCLUDES FURNISHING ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY FOR THE INSTALLATION AND PLACING INTO OPERATION OF THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS.

1.2 THE WORK SHALL ALSO INCLUDE THE COMPLETION OF SUCH MINOR DETAILS OF ELECTRICAL WORK NOT MENTIONED OR SHOWN WHICH ARE NECESSARY FOR THE SUCCESSFUL OPERATION OF ALL ELECTRICAL SYSTEMS DESCRIBED ON THE DRAWINGS OR REQUIRED BY THESE SPECIFICATIONS.

1.3 ALL BRANCH CIRCUITS SHALL BE MINIMUM: #12 THHN/THWN COPPER W/ #12 COPPER BOND IN 3/4" CONDUIT UNLESS NOTED OTHERWISE. ALL CONDUCTORS, REGARDLESS OF SIZE SHALL BE COPPER WITH 90 DEGREE C INSULATION (THHN/THWN OR XHHW). ALL WIRING SHALL BE IN CONDUIT WITH N.E.C. SIZED BONDING CONDUCTORS UNLESS NOTED OTHERWISE.

1.4 ELECTRICAL CONTRACTOR SHALL COORDINATE ALL DEVICE AND LIGHTING FIXTURE FINISHES AND DIMENSIONS WITH ARCHITECT PRIOR TO PURCHASING ANY EQUIPMENT. CEILING SPACE IS VERY LIMITED IN THIS PROJECT AREA. ALSO CONFIRM THE EXACT CEILING TYPE PRIOR TO ORDERING ANY FIXTURES.

1.5 PLAN AND INSTALL WORK IN SUCH A MANNER AS TO PREVENT OBSTRUCTIONS, AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. CONSULT GENERAL CONTRACT DRAWINGS FOR CONDITIONS AFFECTING THIS WORK AND VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. NOTIFY ENGINEER IMMEDIATELY OF POSSIBLE CONFLICTS. WHERE INTERFERENCE WITH STRUCTURAL, MECHANICAL OR OTHER FEATURES EXIST, OR WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN LOCATIONS AND ARRANGEMENT OF INDICATED EQUIPMENT, CONDUIT, OUTLETS OR WIRING, THE CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT EXTRA COST TO OWNER, ARCHITECT OR ENGINEER.

1.6 EXISTING CONDUIT RUNS (IF ANY) WHICH MUST BE MODIFIED AS PART OF THIS PROJECT SHALL NOT BE ATTACHED TO NOR SUSPENDED BY ANY WIRE OR CABLE WHICH IS USED TO SUSPEND THE CEILING GRID. NEW CONDUIT SUPPORTS OR CONDUIT SUPPORT WIRES AND APPROVED SUPPORTING DEVICES SHALL BE PROVIDED AS NECESSARY FOR ALL NEW OR EXISTING (TO BE MODIFIED) CONDUIT RUNS.

1.7 THE CONTRACTOR SHALL NOT INTERRUPT OR REMOVE ANY EXISTING CIRCUITS OR EQUIPMENT UNLESS NOTED OTHERWISE ON PLANS. ANY DAMAGED OR DISRUPTED CIRCUITS OR EQUIPMENT SHALL BE RESTORED TO LIKE-NEW CONDITION AT NO ADDITIONAL COST TO OWNER, ARCHITECT OR ENGINEER.

1.8 ALL PENETRATIONS OF FIRE-RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS LABORATORIES LISTINGS FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS". THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS, FURNISHED BY THE MANUFACTURER OF THE FIRE STOP MATERIAL, WHICH SHOW COMPLETE CONFORMANCE TO THE UL TO THE ARCHITECT. THE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION, WITH ALL VARIABLES DEFINED.

1.9 THE CONTRACTOR SHALL PROVIDE NEW, TYPED, PANELBOARD DIRECTORIES FOR ALL NEW AND/OR EXISTING PANELS WITHIN THE SCOPE OF THIS PROJECT. THE DIRECTORIES SHALL INDICATE THE LOAD TYPE AND AREA SERVED. PROVIDE ALL FIELD VERIFICATION WORK AS NECESSARY.

1.10 THE FINAL DETERMINATION OF EXIT LIGHTING LOCATIONS AND EGRESS PATHWAYS SHALL BE THE RESPONSIBILITY OF THE ARCHITECT. THE CONTRACTOR SHALL CONFIRM AND VERIFY THE LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTING WITH THE ARCHITECT PRIOR TO ANY INSTALLATION.

1.11 IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE DRAWINGS AND EXISTING PREMISES PRIOR TO BIDDING. NO SUBSEQUENT ALLOWANCES WILL BE MADE FOR NOT BEING KNOWLEDGEABLE OF EXISTING CONDITIONS.

1.12 THE CONTRACTOR SHALL FIELD VERIFY THE SOURCE OF ALL EXISTING LIGHTING AND POWER CIRCUITS (IF ANY), BY PANEL AND POLE NUMBERS, WHETHER EXISTING OR NEW, FOR THE ENTIRE CONTRACT AREA. THE CONTRACTOR SHALL FIELD VERIFY THE SOURCE OF ALL ELECTRICAL EQUIPMENT, I.E. PANELBOARDS, TRANSFORMERS, ETC. AFFECTED FOR THE ENTIRE CONTRACT AREA.

1.13 TERMS USED THROUGHOUT THE PLAN DOCUMENTS ARE INTENDED TO BE INTERPRETED SPECIFICALLY AS HEREINAFTER DEFINED AND WHERE NOT SPECIFICALLY MENTIONED, PER INDUSTRY COMMON INTERPRETATIONS. DEFINITIONS ARE AS FOLLOWS:

1.13.1 CONCEALED: HIDDEN FROM SIGHT, AS IN TRENCHES, CHASES, HOLLOW CONSTRUCTION, ABOVE FURRED SPACES, SUSPENDED CEILINGS (ACOUSTICAL OR PLASTIC TYPE), OR EXPOSED TO VIEW ONLY IN TUNNELS, ATTICS, SHAFTS, CRAWL SPACES, UNFINISHED SPACES, OR OTHER AREAS SOLELY FOR MAINTENANCE AND REPAIR.

1.13.2 EXPOSED: NOT CONCEALED.

1.13.3 UNFINISHED SPACE: A ROOM OR SPACE THAT IS ORDINARILY ACCESSIBLE ONLY TO BUILDING MAINTENANCE PERSONNEL, A ROOM NOTED ON THE "FINISH SCHEDULE" WITH EXPOSED AND UNPAINTED CONSTRUCTION FOR WALLS, FLOOR OR CEILINGS, OR SPECIFICALLY MENTIONED AS "UNFINISHED".

1.13.4 FINISHED SPACES: ANY SPACE ORDINARILY VISIBLE TO THE VISITING PUBLIC, INCLUDING EXTERIOR AREAS.

1.13.5 "WIRING" OR "CIRCUITRY" INCLUDES, IN ADDITION TO CONDUCTORS, ALL RACEWAYS, CONDUIT, FITTINGS, BOXES, SWITCHES, HANGERS AND OTHER ACCESSORIES RELATED TO SUCH WIRING.

1.13.6 "REGULATING AUTHORITIES" MEANS ALL GOVERNMENT, UTILITY, AND FIRE PROTECTION AUTHORITIES HAVING JURISDICTION.

1.13.7 "PROVIDE" MEANS TO SUPPLY, ERECT, INSTALL, AND CONNECT UP COMPLETE, THE PARTICULAR WORK REFERRED TO, IN READINESS FOR REGULAR OPERATION.

1.13.8 "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE JOB.

1.13.9 "INSTALL" MEANS TO SET IN PLACE, ERECT, AND CONNECT UP COMPLETE, THE PARTICULAR WORK REFERRED TO, IN READINESS FOR REGULAR OPERATION.

1.13.10 "APPROVED EQUAL" MEANS EQUIPMENT OR MATERIALS WHICH, IN THE OPINION OF THE ARCHITECT AND ENGINEER, IS EQUAL IN QUALITY, DURABILITY, APPEARANCE, STRENGTH, DESIGN AND PERFORMANCE TO EQUIPMENT OR MATERIAL SPECIFIED AND WHICH WILL FUNCTION ADEQUATELY IN ACCORDANCE WITH THE GENERAL DESIGN.

1.13.11 "COMMON HANDLE TIE" REFERS TO A COMMON TRIP FOR A MULTIPLE POLE CIRCUIT BREAKER OR UL LISTED DEVICE TO CONNECT ALL OF THE SINGLE POLE CIRCUIT BREAKER HANDLES TOGETHER FOR A MULTIPLE WIRE BRANCH CIRCUIT OR FEEDER, REFER TO NEC 210.4.

2. CODES AND REQUIREMENTS

2.1 ALL ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE AHJ LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL BUILDING CODE, OR AS SPECIFIED HEREIN, WHICHEVER IS MORE STRINGENT.

2.2 THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE GENERAL SUPPLEMENTAL CONDITIONS OF THE PROJECT SPECIFICATIONS.

2.3 ALL ELECTRICAL CONDUIT, DEVICES AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY. DO NOT SCALE PRECISE DETAILS FROM THE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS WITH ARCHITECT / OWNER PRIOR TO ANY ROUGH IN.

2.4 THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR PERMITS, FEES, INSPECTIONS, AND THE LIKE.

3. EQUIPMENT

3.1 THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND ACCESSORIES NECESSARY, WHETHER SPECIFICALLY STATED OR NOT, TO MAKE THE REQUIRED ELECTRICAL SYSTEMS COMPLETE AND OPERATIONAL.

3.2 ALL EQUIPMENT PROVIDED SHALL BE NEW EXCEPT AS OTHERWISE STATED ON THE DRAWINGS. ALL EQUIPMENT PROVIDED SHALL BE UL LISTED WHEN SUCH STANDARDS EXIST FOR THE TYPE OF EQUIPMENT FURNISHED AND SHALL BE ACCEPTABLE FOR INSTALLATION BY THE LOCAL BUILDING SAFETY AND FIRE DEPARTMENT AUTHORITIES.

4. WARRANTY

4.1 THE ELECTRICAL CONTRACTOR SHALL PROVIDE FOR THE OWNER A ONE-YEAR (FROM THE DATE OF FINAL ACCEPTANCE) WARRANTY AND GUARANTEE OF ALL ELECTRICAL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT. ALL DEFECTIVE EQUIPMENT OR MATERIALS WITH THE EXCEPTION OF LIGHTING FIXTURE LAMPS SHALL BE REPLACED OR REPAIRED BY THE ELECTRICAL CONTRACTOR IN A TIMELY FASHION, WITH NO ADDITIONAL COST TO THE OWNER.

5. CONDUIT

5.1 ALL CONDUCTORS SHALL BE ENCLOSED BY CONDUIT SIZED IN ACCORDANCE WITH THE PROPER TABLES CONTAINED IN THE NATIONAL ELECTRICAL CODE FOR THE TYPE OF INSULATION USED. CONDUIT SHALL BE A MINIMUM OF 3/4" EXCEPT FOR FACTORY FURNISHED LIGHTING FIXTURE CONDUIT, WHICH MAY BE 3/8".

5.1.1 GALVANIZED RIGID CONDUIT (GRC) AND INTERMEDIATE METAL CONDUIT (IMC) SHALL BE UTILIZED FOR ABOVE GROUND APPLICATIONS IN ACCORDANCE THE NATIONAL ELECTRICAL CODE. FURTHER, RIGID CONDUIT AND INTERMEDIATE METAL CONDUIT SHALL BE INSTALLED IN ALL AREAS THAT ARE OR MAY BE SUBJECT TO PHYSICAL DAMAGE AND FOR ALL CONDUIT RISERS MOVING BETWEEN FLOOR LEVELS. ALL COUPLINGS SHALL BE THREADED.

5.1.2 RIGID PVC CONDUIT MINIMUM SCHEDULE 40 SHALL BE PERMITTED ONLY UNDERGROUND OR AS NOTED ON DRAWINGS. PROVIDE TAPE WRAPPED RIGID STEEL ELBOWS AND RISERS (NO MINIMUM SIZE). UNDERGROUND CHANGE IN DIRECTION SHALL BE MADE WITH MANUFACTURER ELBOWS. FIELD BENDING WITH HEAT IS NOT ALLOWED. SIZE AND PROVIDE EQUIPMENT GROUNDING CONDUCTOR PER 250-122 AND INCREASE CONDUIT SIZE IF REQUIRED.

5.1.3 ELECTRICAL METALLIC TUBING (EMT) SHALL BE UTILIZED FOR ALL DRY, ABOVE GRADE OR ABOVE FLOOR APPLICATIONS IN ACCORDANCE WITH ARTICLE 358 OF THE NATIONAL ELECTRICAL CODE. COUPLINGS AND CONNECTORS SHALL BE COMPRESSION-TYPE, STEEL, WATERTIGHT FITTINGS SHALL BE USED FOR EMT.PROVIDE GROUND CONDUCTOR FOR ALL RUNS OF EMT CONDUIT.

5.1.4 FLEXIBLE METAL CONDUIT SHALL BE UTILIZED FOR ALL CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS MOTORS AND TRANSFORMERS (MINIMUM OF 2'-0" - MAXIMUM OF 6'-0"), AND CONNECTIONS TO LAY-IN TYPE LIGHT FIXTURES OR IN REMODEL AREAS SPECIFICALLY NOTED FOR "FISHING" IN EXISTING WALLS OR NON-ACCESSIBLE CEILINGS.

5.1.5 SURFACE METALLIC RACEWAYS SHALL BE USED IN AREAS SPECIFICALLY NOTED AND OF SIZE AND TYPE SPECIFIED ON THE DRAWINGS. PAINT TO MATCH SURFACE INSTALLATION.

5.2 ALL EXPOSED CONDUIT (INCLUDING CONDUIT INSTALLED IN CEILING PLENUMS) SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.

5.3 CARE IN PLACEMENT OF CONCEALED CONDUIT SHALL BE USED TO PREVENT EXCESSIVE BUNCHING OF CONDUITS WHICH WILL AFFECT THE CONDUCTOR AMPACITY.

5.4 PROVIDE EXPANSION TYPE FITTINGS FOR ALL CONDUITS WHICH CROSS EXPANSION JOINTS.

6. CONDUCTORS

6.1 MINIMUM SIZE SHALL BE #12 AWG EXCEPT FOR CONTROL CIRCUITS WHICH MAY BE #14 AWG OR SIGNAL CIRCUITS WHICH SHALL BE AS INDICATED. ALL CONDUCTORS SHALL BE COPPER WITH THE 90 DEGREE C INSULATION TYPES AS INDICATED ON THE DRAWINGS OR AS SPECIFIED BELOW. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND INCREASE THE CONDUCTOR SIZE AS NECESSARY TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO A MAXIMUM OF 3% AND FEEDER VOLTAGE DROP TO A MAXIMUM OF 2%.

6.2 CONDUCTOR INSULATION SHALL BE OF A TYPE RECOGNIZED BY THE NATIONAL ELECTRICAL CODE AND AS APPROVED FOR ITS PARTICULAR APPLICATION OR AS REQUIRED BY THE LOCAL BUILDING SAFETY AUTHORITIES, WHICHEVER IS MORE STRINGENT. UNLESS NOTED OTHERWISE ON THE DRAWINGS. CONDUCTOR INSULATION TYPE SHALL BE THHN/THWN-2 OR XHHW-2, 90 DEGREE C RATED.

6.3 SPLICES AND MAKE-UP JOINTS FOR #8 AND SMALLER CONDUCTORS SHALL BE EQUAL PRESSURE TYPE SOLDER-LESS CONNECTORS (BURNDY, SCOTCHLOK, WING NUT OR AS APPROVED). SPLICES OR MAKE-UP JOINTS #6 AWG AND LARGER SHALL BE MADE USING APPROVED SOLDER-LESS TYPE PRESSURE CONNECTORS (BURNDY OR APPROVED) OR HYDRAULIC COMPRESSION TYPE BARREL SPLICES WHEN SPECIFIED ON THE DRAWINGS. ALL UNINSULATED TYPE SPLICES SHALL BE INSULATED USING APPROVED HEAT OR COLD SHRINK COVERS FOLLOWED BY A MINIMUM OF THREE ½ LAPPED LAYERS OF PLASTIC ELECTRICAL TAPE (SCOTCH #33+). IN ADDITION SPLICES OR JOINTS IN DAMP OR WET LOCATIONS SHALL FURTHER BE COVERED BY THREE ½ LAPPED LAYERS OF RUBBER TAPE. FEEDERS LARGER THAN #6 AWG SHALL NOT BE SPLICED (INSTALLED IN ONE CONTINUOUS RUN) UNLESS SPECIFICALLY NOTED OR IMPLIED ON THE DRAWINGS.

6.4 ALL WIRING THROUGHOUT SHALL BE COLOR CODED AS FOLLOWS:

	480V SYSTEM	208V SYSTEM
A PHASE	BROWN	BLACK
B PHASE	ORANGE	RED
C PHASE	YELLOW	BLUE
NEUTRAL	GREY	WHITE
GROUND	GREEN	GREEN
ISOLATED GROUND	---	GREEN W/YELLOW STRIPE

6.5 GROUNDING CONDUCTORS SHALL BE PROVIDED IN ALL CONDUIT RUNS. GROUNDING CONDUCTORS SHALL BE PROVIDED IN THE SIZES AS INDICATED ON THE DRAWINGS OR THE MINIMUM SIZE AS ALLOWED BY THE N.E.C. IF NO PARTICULAR SIZE IS NOTED.

6.6 TYPE MC (METAL-CLAD) CABLE MAY BE USED ON THIS PROJECT SUBJECT TO THE FOLLOWING:
A. THE LOCAL AUTHORITIES HAVING JURISDICTION ALLOW THE USE OF MC CABLE.
B. THE BUILDING OWNER (AND/OR PROPERTY MANAGER) ALLOW THE USE OF MC CABLE.
C. THE CABLE MANUFACTURE & INSTALLATION IS IN ACCORDANCE WITH ALL N.E.C. & LOCAL CODE REQUIREMENTS.
D. THE MC CABLE CONDUCTOR SIZE, INSULATION (MINIMUM #12 AWG, THHN/THWN) AND CONFIGURATION IS AS REQUIRED FOR USE ON THIS PROJECT AND AN N.E.C. SIZED, GREEN GROUNDING CONDUCTOR (MINIMUM #12 AWG, THHN/THWN) IS INCLUDED IN ALL CABLE ASSEMBLIES.
E. RECORD DRAWINGS SHALL REFLECT THE USE AND ROUTING LOCATIONS OF THE MC CABLE RUNS.

7. SEPARATE CONDUIT SYSTEMS

7.1 EACH SYSTEM SHALL BE CONTAINED IN A SEPARATE CONDUIT SYSTEM. THIS INCLUDES EACH POWER SYSTEM, EACH LIGHTING SYSTEM, EACH SIGNAL SYSTEM OF WHATEVER NATURE, TELEPHONE / DATA, CONTROL SYSTEM, FIRE ALARM SYSTEM, FUTURE EMS, SECURITY SYSTEM, ETC.

8. FEEDER AND BRANCH CIRCUITS

8.1 RISER DIAGRAMS, ONE LINE DIAGRAMS AND CIRCUIT RUNS ARE INDICATIVE ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF FEEDERS AND BRANCH CIRCUITS SO AS TO BEST FIT THE LAYOUT OF THE JOB.

8.2 A LAYOUT OF BRANCH CIRCUIT WIRING AND ROUTING IS INDICATED. GENERALLY RECEPTACLES AND APPLIANCES ARE ON SEPARATE CIRCUITS FROM LIGHTING.

8.3 BRANCH PANEL CIRCUITS ARE NUMBERED TO MATCH NEMA POLE NUMBERING SYSTEM: POLES 1 AND 2 - PHASE A; POLES 3 AND 4 - PHASE B; POLES 5 AND 6 - PHASE C; ETC. ACTUAL FIELD NUMBERING OF CIRCUIT DIRECTORIES SHALL BE PHASED AND POLE CONNECTED AS SHOWN.

8.4 WHERE SPECIFIC CONDUCTOR SIZE IS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND IS LARGER THAN CODE MINIMUM, THE LARGER CONDUCTOR SIZE SHALL BE USED.

8.5 CIRCUITS MAY BE ARRANGED IN 4-WIRE FEEDS (3 CIRCUITS AND COMMON NEUTRAL) IN COLOR CODE AS NOTED IN SECTION 6.4 AND SUPPLIED FROM A COMMON HANDLE TIE CIRCUIT BREAKER; MORE THAN 3 CIRCUITS IN CONDUIT BY SPECIFIC APPROVAL ONLY OR WHERE SHOWN ON THE DRAWINGS.

8.6 CONDUCTORS FOR BRANCH CIRCUIT LIGHTING, RECEPTACLE, POWER AND MISCELLANEOUS SYSTEMS MUST BE A MINIMUM OF #12 AWG. WIRE INDICATED SPECIFICALLY TO BE LARGER THAN #12 AWG MUST BE INCREASED THE ENTIRE LENGTH OF THE CIRCUIT.

8.7 CONDUCTOR SIZES FOR LIGHTING, RECEPTACLES, AND SMALL MOTOR BRANCH CIRCUITS WITH LESS THAN 20A CONNECTED LOAD MAY NOT BE SHOWN. CONDUCTORS FOR SUCH CIRCUITS ARE SIZED AS FOLLOWS: FOR BRANCH CIRCUITS (120/208V) 65 FEET IN LENGTH FROM BRANCH CIRCUIT PANEL TO CENTER OF LOAD, NOT SMALLER THAN #12 AWG, UP TO 100 FEET NOT SMALLER THAN #10 AWG, UP TO 165 FEET NOT SMALLER THAN #8 AWG.

8.8 DRAWINGS, IN GENERAL, INDICATE LOCATION OF MOTOR STARTING EQUIPMENT. EXACT LOCATIONS OF MOTORS AND OTHER DEVICES ARE TO BE DETERMINED IN FIELD BY THE CONTRACTOR. PROVIDE AN ELECTRICAL FEED FOR ALL EQUIPMENT, NOT SMALLER THAN SHOWN OR NOTED HEREIN OR NEC SIZE WHERE SIZE IS NOT INDICATED, TOGETHER WITH A SUITABLE CIRCUIT PROTECTIVE DEVICE. VERIFY PANEL SCHEDULES AND LAYOUT, MAINTAINING NUMBER OF SPARE BRANCHES INDICATED.

8.9 PROVIDE PROPER SIZE AND TYPE OF FEEDS FOR ALL ACCEPTED EQUIPMENT AND PROPER SOURCES FOR ALL SUCH ITEMS INDICATED, CHECKING DRAWINGS OF ALL TRADES TO ENSURE INCLUSION OF ALL ITEMS.

8.10 WHERE MULTIPLE BRANCH CIRCUITS ARE RUN IN THE SAME CONDUIT, EACH SET OF (3) BRANCH CIRCUITS REPRESENTING PHASE A, B, C, SHALL HAVE A SEPARATE NEUTRAL CONDUCTOR OR SUPPLIED FROM A COMMON HANDLE TIE CIRCUIT BREAKER.

8.11 WHERE ISOLATED GROUND BRANCH CIRCUITS ARE TO BE PROVIDED, EACH BRANCH CIRCUIT IS TO HAVE A SEPARATE NEUTRAL CONDUCTOR. ALL BRANCH CIRCUIT OR FEEDER CONDUIT RUNS SHALL BE ROUTED FROM THE SWITCHBOARD OR PANELBOARD (OR EXTENSION CABINET) TO THE LOAD OR OUTLET DEVICE. THE USE OF LARGE JUNCTION BOXES, PULL BOXES OR WIREWAYS AS A COLLECTION POINT FOR CONDUIT RUNS SHALL NOT BE PERMITTED EXCEPT WHERE SHOWN. MULTIPLE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME PULL OR JUNCTION BOX EXCEPT FOR THE MULTIPLE CIRCUIT CONDUIT RUNS NOTED ABOVE (MAXIMUM OF (3) CIRCUITS).

8.12 SYSTEM (ENERGIZED) FURNITURE REQUIRING MULTIPLE BRANCH CIRCUITS AND SHARED NEUTRAL SHALL BE FED FROM A COMMON HANDLE TIE CIRCUIT BREAKER.

9. BOXES

9.1 4" SQUARE OR OCTAGONAL, ZINC COATED SHEET STEEL BOXES.

9.2 PROVIDE 3/8" NO-BOLT FIXTURE STUDS.

9.3 PROVIDE PLASTER RINGS, COVERS AND/OR PLATES SET TO COME FLUSH WITH FINISH WALLS.

9.4 UTILITY OR SECTIONAL SWITCH BOXES ONLY WHERE PERMITTED.

9.5 ALL JUNCTION BOXES AND PULL BOXES SHALL BE CLEARLY LABELED WITH INDELIBLE, BLACK INK TO INDICATE THE PANEL IDENTIFICATION & CIRCUIT NUMBER OR BUS DUCT IDENTIFICATION & SWITCH NUMBER, ETC. IN ADDITION, ALL CONDUCTORS INSIDE THE PULL OR JUNCTION BOXES AND ALL CONDUCTORS BROUGHT TO DEVICE OUTLET BOXES SHALL BE WIRE TAGGED TO INDICATE THE CIRCUIT OR SWITCH NUMBER.

9.6 ALL AUXILIARY CONDUIT AND BOX SYSTEMS, INCLUDING COMMUNICATIONS OR DATA SHALL BE CLEARLY LABELED TO INDICATE FUNCTION AND USE. LABEL ALL CONDUIT SYSTEMS AS INDICATED ABOVE AND LABEL THE COVERS OF ALL JUNCTION OR PULL BOXES USING INDELIBLE, BLACK INK.

10. DEVICES

10.1 ALL WIRING DEVICES SHALL BE UL APPROVED AND OF THE TYPE AND NUMBER SHOWN ON THE DRAWINGS. ALL NEW DEVICES SHALL BE 20A SPECIFICATION GRADE RATED AT 277V OR 120V AS NECESSARY.

10.2 ALL DEVICES SHALL BE WHITE COLOR OR AS OTHERWISE REQUIRED BY THE ARCHITECT OR OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM ALL DEVICE AND PLATE COLORS WITH THE ARCHITECT OR OWNER PRIOR TO PURCHASE AND INSTALLATION.

10.2.1 SPECIFICATION GRADE RECEPTACLES, HUBBELL 5362-W OR EQUAL BY LEVITON.

10.2.2 A.C. QUIET OPERATING TYPE SWITCHES, HUBBELL 1221OR EQUAL BY LEVITON.

10.2.3 RECEPTACLE WITH INTEGRAL USB CHARGER PORTS - DUPLEX POWER OUTLET WITH (2) VERTICAL USB PORTS WITH 3.0A MINIMUM CHARGING CAPACITY. LEVITON #T5832 OR HUBBELL #USB20X2xx OR EQUAL, UNO.

10.3 DEVICE PLATES SHALL BE NYLON OR SATIN STAINLESS STEEL, AS MANUFACTURED BY THE DEVICE MANUFACTURER. COORDINATE WITH ARCHITECT.

10.4 MOUNT DEVICES IN ACCORDANCE WITH THE FOLLOWING SCHEDULE EXCEPT WHERE OTHERWISE NOTED ON THE DRAWINGS, I.E. DEVICE MOUNTING HEIGHTS:

10.4.1 CONVENIENCE RECEPTACLES WITH LONG AXIS VERTICAL MEASURE TO CENTER OF OUTLET 18" A.F.F.*

10.4.2 LIGHT SWITCHES MEASURE TO CENTER OF OUTLET 46" A.F.F.*

10.4.3 TELEPHONE OUTLETS MEASURE TO CENTER OF OUTLET 18" A.F.F.*

*EXCEPT IN AREAS WITH COUNTERS, BASEBOARD HEATERS OR IN AREAS OF BLOCK OR BRICK CONSTRUCTION. IN NO CASE SHALL HEIGHT EXCEED 48" A.F.F. TO CENTER. COORDINATE AND VERIFY THE MOUNTING HEIGHTS OF ALL COUNTER MOUNTED DEVICES WITH THE ARCHITECT OR OWNER.

11. GROUNDING

11.1 FURNISH AND INSTALL GROUNDING AND GROUNDING CONDUCTORS AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS.

11.2 ALL PANELBOARD CABINETS, EQUIPMENT, ENCLOSURES, AND CONDUIT SYSTEMS SHALL BE GROUNDED SECURELY IN ACCORDANCE WITH PERTINENT SECTIONS OF ARTICLE 250 OF NEC, AS AMENDED BY ANY LOCAL CODES. CONDUCTORS SHALL BE COPPER. ALL ELECTRICALLY OPERATED EQUIPMENT SHALL BE BONDED TO THE GROUNDED CONDUIT SYSTEM. ALL NON-CURRENT CARRYING CONDUCTIVE SURFACES THAT ARE LIKELY TO BECOME ENERGIZED AND SUBJECT TO PERSONAL CONTACT SHALL BE GROUNDED BY ONE OR MORE OF THE METHODS DETAILED IN ARTICLE 250 NEC. ALL GROUND CONNECTIONS SHALL HAVE CLEAN CONTACT SURFACES. INSTALL ALL GROUNDING CONDUCTORS IN CONDUIT AND MAKE CONNECTIONS READILY ACCESSIBLE FOR INSPECTION. FURNISH AND INSTALL GROUNDING ELECTRODES AS DESCRIBED ON THE DRAWINGS.

11.3 GROUNDING OF METAL RACEWAYS SHALL BE ASSURED BY MEANS OF GROUNDING BUSHINGS ON FEEDER CONDUIT TERMINATIONS AT THE SERVICE ENTRANCE, DISTRIBUTION SWITCHBOARDS AND PANELBOARDS, AND BY MEANS OF A CONTINUOUS, STRANDED, COPPER GROUNDING WIRE EXTENDED FROM THE GROUND BUS IN THE ENCLOSURE TO THE CONDUIT GROUNDING BUSHINGS.

11.4 A SEPARATE INSULATED GROUNDING CONDUCTOR, SIZED PER NEC 250-122, SHALL BE INSTALLED IN ALL ELECTRICAL METALLIC TUBING (EMT).

11.5 PROVIDE SEPARATE, INSULATED, ISOLATED GROUNDING CONDUCTORS FOR ALL ISOLATED GROUND BRANCH CIRCUITS OR FEEDERS.

12. PANELBOARDS

12.1 FURNISH AND INSTALL BRANCH CIRCUIT PANELBOARDS AS SPECIFIED HEREIN AND AS INDICATED ON THE DRAWINGS.

12.2 ALL BUS BARS SHALL BE COPPER, LOCATED IN THE REAR OF THE PANELBOARD CABINET. CIRCUIT BREAKERS SHALL BE BOLTED INTO SUITABLE SUPPORTING MEMBERS AT THE FRONT OF THE CABINET WHICH ARE CONNECTED WITH SUITABLE LUGS TO THE BUS BARS IN THE REAR OF THE CABINET. INDIVIDUAL CIRCUIT BREAKERS SHALL BE REMOVABLE FROM THE CABINET WITHOUT DISTURBING ADJACENT UNITS OR SUPPORTING MEMBERS.

12.3 LOCKS SHALL BE PROVIDED ON ALL PANELBOARDS. ALL LOCKS SHALL BE KEYED ALIKE. LOCKING HASPS SHALL ALSO BE PROVIDED WITH ALL PANELBOARDS. HASPS SHALL BE INSTALLED USING POP RIVETS.

12.4 PANELBOARDS SHALL BE EQUIPPED WITH FULL NEUTRAL AND GROUND BUSSES. SEPARATE ISOLATED GROUND BUSES SHALL BE PROVIDED FOR ISOLATED GROUND PANELBOARDS, AS NOTED ON SCHEDULES.

12.5 ALL PANELBOARDS SHALL HAVE DOOR-IN-DOOR TRIM TO ALLOW ACCESS TO WIRE WAY AND LINE/LOAD LUGS WITHOUT REMOVING FRONT COVERS. THE HINGES SHALL BE CONTINUOUS PIANO HINGE TYPE.

12.6 ALL PANELBOARD ENCLOSURES SHALL HAVE BLANK END-WALLS. THE USE OF KNOCK-OUT TYPE END-WALLS IS PROHIBITED. PROVIDE NEMA TYPE ENCLOSURES NOTED AN SCHEDULES.

12.7 MINIMUM INTERRUPTING RATING OF CIRCUIT BREAKERS SHALL BE 10,000 AMPS FOR 120/208V PANELBOARDS AND 14,000 AIC FOR 277/480V PANELBOARDS. REFER TO THE DRAWINGS FOR HIGHER INTERRUPTING RATING REQUIREMENTS.

12.8 ACCEPTABLE MANUFACTURERS ARE GENERAL ELECTRIC, WESTINGHOUSE/CUTLER HAMMER, SIEMENS, OR SQUARE D. ELECTRICAL CONTRACTOR SHALL PROVIDE MATCHING MANUFACTURERS OF EXISTING EQUIPEMENT WHEN APPLICABLE.

12.9 APPROVED PANELBOARD TYPES FOR EACH OF THE ABOVE MANUFACTURERS SHALL BE AS FOLLOWS OR OF A TYPE MATCHING THOSE INDICATED BELOW: (PHYSICAL SIZES INDICATED ON DRAWINGS ARE BASED ON SQUARE D, OR CUTLER HAMMER - VERIFY MOUNTING SPACE PRIOR TO SUBMITTING CUT SHEETS AND VERIFY PRIOR TO ORDERING). 200% RATED NEUTRAL BUSSES SHALL BE PROVIDED AS NOTED ON SCHEDULES.

120/240 VAC:
- SQUARE D TYPE NQOD USING PLUG-ON BRANCH CIRCUIT BREAKERS.
- GENERAL ELECTRIC TYPE AQ USING PLUG-ON BRANCH CIRCUIT BREAKERS.
- SIEMENS/ITE TYPE S1 USING PLUG-ON BRANCH CIRCUIT BREAKERS.
- CUTLER-HAMMER TYPE PRL1 USING PLUG-ON BRANCH CIRCUIT BREAKERS.

277/480 VAC:
- SQUARE D TYPE NF USING PLUG-ON BRANCH CIRCUIT BREAKERS.
- GENERAL ELECTRIC TYPE AE USING PLUG-ON BRANCH CIRCUIT BREAKERS.
- SIEMENS/ITE TYPE S2 OR S3, AS APPLICABLE, USING PLUG-ON BRANCH CIRCUIT BREAKERS.
- CUTLER-HAMMER/WESTINGHOUSE TYPE PRL3A USING PLUG-ON BRANCH CIRCUIT BREAKERS.

13. NOT USED.

14. NOT USED.

15. NOT USED.

16. NOT USED.

17. NOT USED.

18 . NOT USED.

19. CLEANUP OF PREMISES

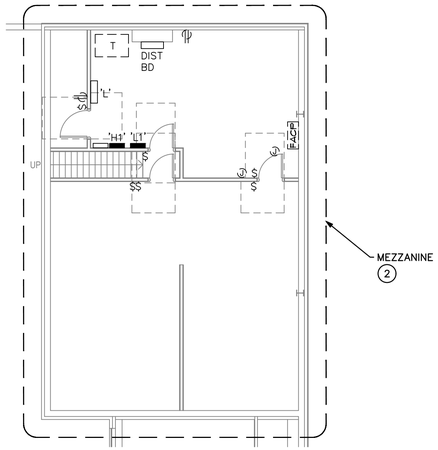
19.1 CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES CLEAR OF WASTE MATERIALS AND DEBRIS CAUSED BY HIS EMPLOYEES AND OPERATION. EQUIPMENT NOT REQUIRED IN THE WORK SHALL BE REMOVED PRIOR TO THE TERMINATION OF THE CONTRACT.

20. TESTS AND INSPECTIONS

20.1 CONTRACTOR SHALL TEST WIRING AND DEVICES AS SECTIONS ARE COMPLETED AND SHALL CORRECT ALL DEFECTS IMMEDIATELY AT HIS OWN EXPENSE, INCLUDING ANY DAMAGE TO WALLS, CEILINGS, FLOOR OR OTHER PORTIONS OF THE BUILDING WHICH MAY RESULT FROM REPLACING DEFECTIVE EQUIPMENT.

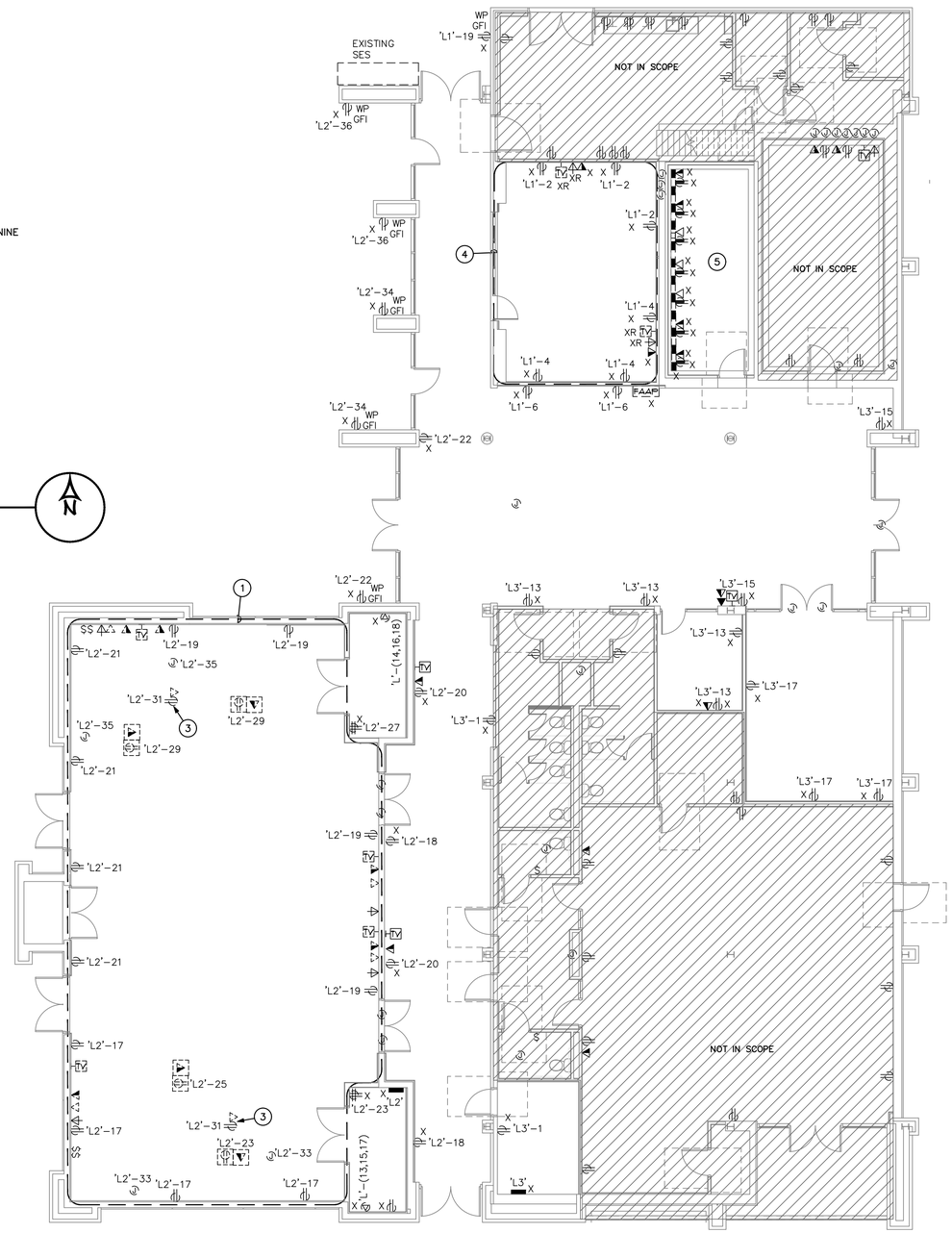
20.2 FURNISH ALL METERS, CABLE, CONNECTIONS AND APPARATUS NECESSARY FOR MAKING TESTS.

1.20.3 TEST SYSTEM FOR SHORTS AND GROUNDS. FAULTY WIRING SHALL BE REMOVED AND REPLACED. ANY DEVICE, APPARATUS OR FIXTURE INSTALLED SHOWING SUBSTANDARD PERFORMANCE SHALL BE REMOVED AND REP



ANNEX EXISTING POWER PLAN - MEZZANINE

SCALE: 1/8"= 1'



ANNEX EXISTING POWER PLAN - 1ST FLOOR

SCALE: 1/8"= 1'

SHEET NOTES

1. THE DRAWINGS REPRESENT ELECTRICAL DESIGN INTENT. THEY ARE SCHEMATIC AND DIAGRAMMATIC AND DO NOT INDICATE CONSTRUCTION DETAILS OR ROUTING UNLESS OTHERWISE NOTED. THE SPECIFICATIONS ESTABLISH MINIMUM PERFORMANCE AND PRODUCT INSTALLATION REQUIREMENTS. PROVIDE PRODUCTS CONSISTENT WITH THE DESIGN INTENT AND NECESSARY FOR A COMPLETE OPERATING ELECTRICAL SYSTEM.

2. ANY ELECTRICAL DEVICE OR EQUIPMENT NOT NOTED TO BE REMOVED OR RELOCATED SHALL REMAIN UNCHANGED. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONTACT THE ARCHITECT/ENGINEER REGARDING ANY ITEM IN QUESTION.

3. EXISTING CONDUITS TO BE REUSED TO THE FULLEST EXTENT POSSIBLE. COORDINATE WITH NEW PLANS.

4. WHERE ITEMS ARE NOTED TO BE REMOVED, ELECTRICAL CONTRACTOR SHALL:
   A) REMOVE INDICATED ITEM
   B) REMOVE ANY ASSOCIATED CONDUIT AND WIRING SURFACE MOUNTED OR ABOVE AN ACCESSIBLE CEILING.
   C) PULL OUT ASSOCIATED WIRING, CUT OFF, CAP, and ABANDON CONDUIT WHERE CONCEALED IN WALLS OR PARTITIONS WHICH ARE REMAINING.
   D) WHERE CONDUIT AND JUNCTION BOXES ARE ABANDONED – COORDINATE WITH ARCHITECT AND OWNER AND PROVIDE BLANK COVER PLATES.
   E) WHERE CONDUIT AND JUNCTION BOXES ARE REMOVED – COORDINATE WITH ARCHITECT AND OWNER FOR PATCH AND REPAIR WORK.
   F) RETURN ALL REMOVED EQUIPMENT TO OWNER OR DISPOSE OF AS DIRECTED BY OWNER.

5. WHERE ELECTRICAL CONTRACTOR REMOVES AN ITEM AND CIRCUITING TO OTHER ITEMS WILL BE INTERRUPTED, ELECTRICAL CONTRACTOR SHALL PROVIDE NEW CONDUIT, WIRE, BOXES, ETC AS REQUIRED AND RECONNECT REMAINING ITEMS SO THEY WILL NOT BE INTERRUPTED..

6. WHERE AN ITEM IS SHOWN TO BE RELOCATED, ELECTRICAL CONTRACTOR SHALL EXTEND WIRING AND CONDUIT TO THE APPROPRIATE NEW LOCATION AND PROVIDE ALL NECESSARY CONDUIT, WIRE, BOXES, ETC AS REQUIRED. RECONNECT TO EXISTING CIRCUIT OR RE-CIRCUIT AS SHOWN. IF DEVICE IS NOT SALVAGEABLE, ELECTRICAL CONTRACTOR SHALL PROVIDE NEW DEVICE.

7. THE FOLLOWING DEMOLITION SYMBOLS MAY BE USED AS WELL AS KEYED NOTES:
   "R" = NEW LOCATION OF RELOCATED ITEM.
   "X" = EXISTING ITEM TO REMAIN.
   "XR" = EXISTING ITEM TO BE REMOVED.
   "XRP" = EXISTING ITEM TO BE REPLACED WITH NEW IN SAME LOCATION AS SHOWN. EXTEND EXISTING CIRCUIT TO MATCH EXISTING U.N.O.

8. SAW-CUT, CORE DRILL, TRENCH, BACKFILL, PATCH AND REPAIR WHERE REQUIRED.

KEYED NOTES

(1) REMOVE AV EQUIPMENT AND WIRING DEVICES, EXCEPT WIRING DEVICES THAT ARE USED FOR LIGHTING CONTROLS. ALL CIRCUITS REUSED IN NEW WORK. VERIFY WIRING THAT CAN BE RE-USED IN NEW WORK AND RE-USE TO FULLEST EXTENT POSSIBLE. COORDINATE WITH NEW PLANS (SHEET E2.0) FOR NEW WORK. EXISTING LIGHT FIXTURES AND ASSOCIATED LIGHT CONTROLS TO REMAIN. COORDINATE WITH ARCHITECT/OWNER FOR EXISTING LIGHTING CONTROLS THAT NEED TO BE RELOCATED.

(2) ALL WIRING DEVICES, DISTRIBUTION EQUIPMENT, AND LIGHT FIXTURES TO REMAIN ON THE MEZZANINE LEVEL. DISTRIBUTION EQUIPMENT INDICATED FOR NEW WORK. REFER TO ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.

(3) LOCATED IN CEILING ABOVE.

(4) EXISTING RECEPTACLES AND DATA OUTLETS TO REMAIN FOR NEW WORK. REMOVE EXISTING TV AND VIDEO OUTLETS.

(5) ALL WIRING DEVICES AND WIRING MANAGEMENT RACEWAYS AND ENCLOSURES SHALL BE EXISTING TO REMAIN IN THE IT ROOM.

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ANNEX RENOVATION

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EXISTING POWER PLAN - ANNEX

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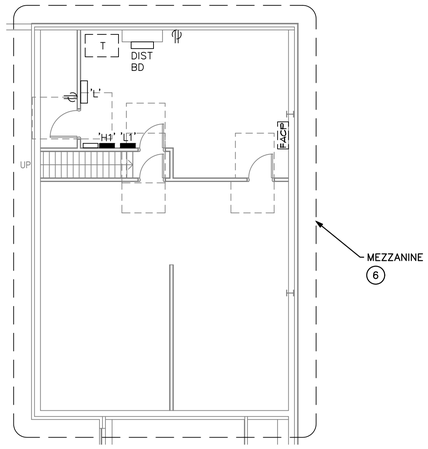
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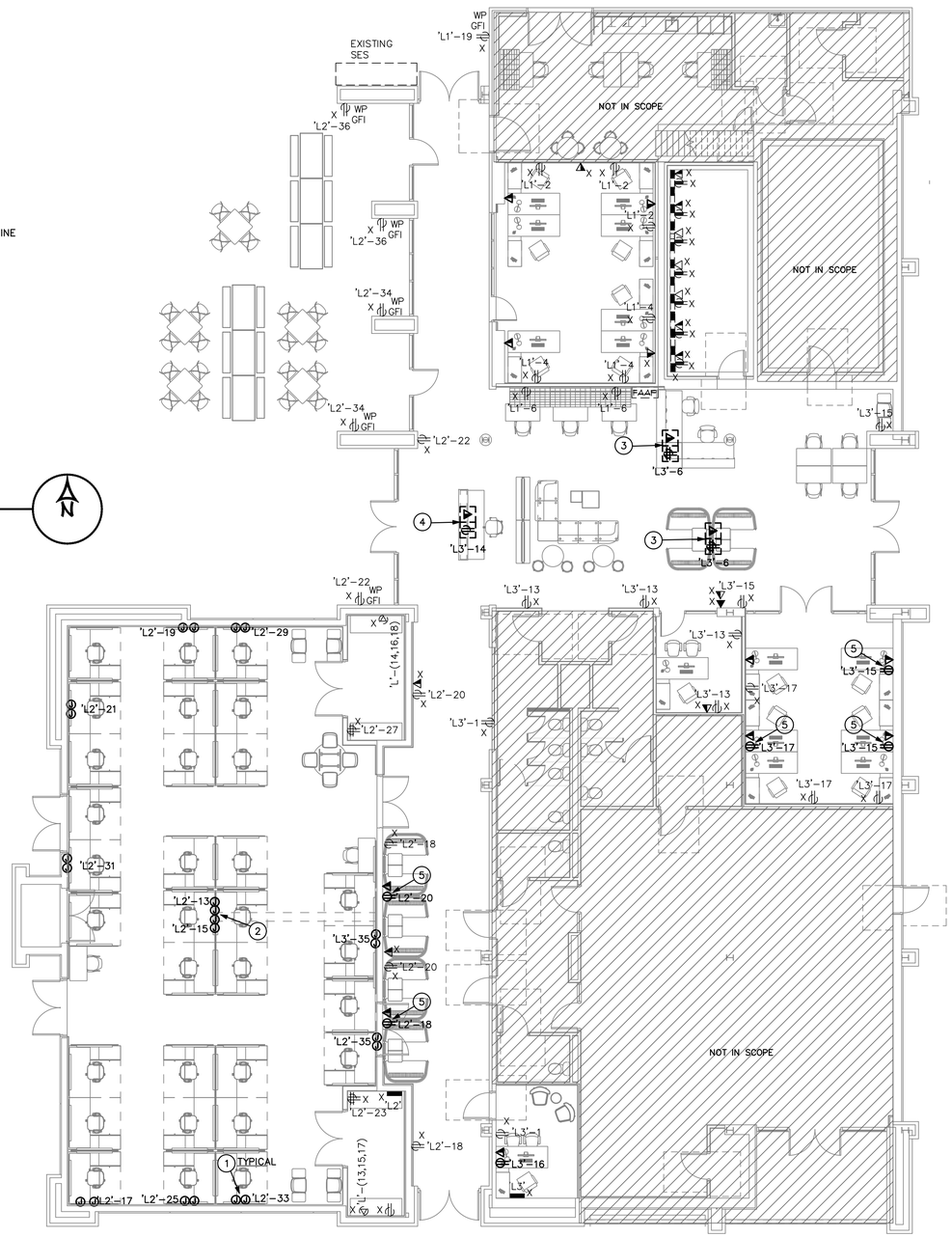
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ANNEX EXISTING POWER PLAN - MEZZANINE

SCALE: 1/8"= 1'



ANNEX POWER PLAN

SCALE: 1/8"= 1'

SHEET NOTES

A. THE DRAWINGS REPRESENT ELECTRICAL DESIGN INTENT. THEY ARE SCHEMATIC AND DIAGRAMMATIC AND DO NOT INDICATE CONSTRUCTION DETAILS OR ROUTING. UNLESS OTHERWISE NOTED. THE SPECIFICATIONS ESTABLISH MINIMUM PERFORMANCE AND PRODUCT INSTALLATION REQUIREMENTS. PROVIDE PRODUCTS CONSISTENT WITH THE DESIGN INTENT AND NECESSARY FOR A COMPLETE OPERATING ELECTRICAL SYSTEM.

B. ALL CONDUCTORS SHALL BE COPPER, UNLESS NOTED OTHERWISE.

C. 120/208V BRANCH CIRCUITS 100' OR GREATER IN CONDUCTOR LENGTH SHALL BE #10 AWG, UNLESS OTHERWISE NOTED.

D. BRANCH CIRCUITS SHALL BE CONFIGURED WITH DEDICATED NEUTRALS AND INDEPENDENTLY OPERATED BREAKERS, UNLESS NOTED OTHERWISE.

E. REFER TO ARCHITECTURAL FLOOR PLANS, ELEVATIONS, SECTIONS, MILLWORK DETAILS AND GENERAL DETAILS FOR EXACT PLACEMENT INFORMATION REGARDING ALL ELECTRICAL DEVICE MOUNTING LOCATIONS, INCLUDING CEILING AND FLOOR MOUNTED DEVICES.

F. ALL WALL MOUNTED LOW VOLTAGE DEVICES SHALL BE MOUNTED TO MATCH HEIGHT OF ADJACENT POWER DEVICE, UNLESS NOTED OTHERWISE

G. LABEL ALL RECEPTACLE DEVICE PLATES WITH SOURCE PANEL AND CIRCUIT NUMBER. PROVIDE PERMANENT MACHINE GENERATED LABEL.

H. DIV. 26 CONTRACTOR SHALL COORDINATE AND PROVIDE ALL RECEPTACLE, FLOORBOXES, CONDUIT, RACEWAYS AND J-BOX ROUGH-IN LOCATIONS FOR DIV. 27 AND DIV. 28 CONTRACTORS. REFER TO CONSULTANT PLANS AND SPECIFICATIONS FOR DEVICE LOCATIONS. DIV. 26, 27, AND 28 CONTRACTORS SHALL SCHEDULE A COORDINATION MEETING PRIOR TO DEVICE ROUGH-IN.

I. ALL 20A, 120V RECEPTACLES SHALL BE TAMPER RESISTANT AND MOUNTED GROUND PIN UP.

J. ALL WALL VOICE/DATA DROPS SHOWN ON DRAWINGS SHALL HAVE A MINIMUM 4" SQUARE JUNCTION BOX AND 1" CONDUIT WITH PULL CORD STUBBED INTO CEILING SPACE.

K. PROVIDE CONDUITS FOR VOICE/DATA, SECURITY, EMS, ETC. CABLING BACK TO IDF ROOM IN ALL AREAS WITH HARD CEILINGS.

L. NO MORE THAN 270 DEGREES OF CONDUIT BENDS ARE ALLOWED IN ANY OF THE CONDUIT RUNS. ALL BENDS SHALL BE LONG SWEEP.

M. IDENTIFY ALL CONDUITS WITH MARKER TAPE.

N. MAKE ALL FINAL EQUIPMENT CONNECTIONS AS REQUIRED.

O. ALL TELECOM CONDUIT SHALL BE EMT EXCEPT WHERE EXPOSED AND SUBJECT TO VANDALISM WHERE IT SHALL BE RGS.

P. TV OUTLETS SHALL BE OFFSET FROM CENTER OF TV FOR ACCESSIBILITY. COORDINATE EXACT LOCATION WITH OWNER'S LOW VOLTAGE INSTALLER.

Q. VERIFY FINISHES OF ALL ELECTRICAL DEVICES WITH ARCHITECT OR INTERIOR DESIGNER.

R. PROVIDE GFCI TYPE RECEPTACLE FOR ALL RECEPTACLES WITH-IN 6-FEET OF A SINK.

S. RECEPTACLES AND JUNCTION BOXES SHALL BE LABELED WITH PANEL NUMBER AND CIRCUIT NUMBER USING INDELIBLE INK.

KEYED NOTES

1. PROVIDE (2) JUNCTION BOXES FOR FURNITURE FEED. 1 TO CONSIST OF WIRING FOR POWER, 1 TO CONSIST OF WIRING FOR DATA. PROVIDE (1) 3/4" CONDUIT FOR POWER AND (1) 1" CONDUIT FOR DATA.
2. PROVIDE (4) RECESSED J-BOX, (2) FOR POWER, (2) FOR DATA. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXACT LOCATION BEFORE SAW CUTTING.
3. PROVIDE RECESSED FLOOR BOX (POWER AND DATA) WITH (2) DUPLEX RECEPTACLES. FIELD COORDINATE EXACT LOCATION BEFORE SAW CUTTING. COORDINATE WITH OWNER FOR FLOOR BOX REQUIREMENTS PRIOR TO PURCHASE. PROVIDE (1) 3/4" CONDUIT FOR POWER AND (1) 1" CONDUIT FOR DATA CABLING.
4. PROVIDE RECESSED FLOOR BOX (POWER AND DATA) WITH (1) DUPLEX RECEPTACLE. FIELD COORDINATE EXACT LOCATION BEFORE SAW CUTTING. COORDINATE WITH OWNER FOR FLOOR BOX REQUIREMENTS PRIOR TO PURCHASE. PROVIDE (1) 3/4" CONDUIT FOR POWER AND (1) 1" CONDUIT FOR DATA CABLING.
5. EXTEND EXISTING LOCAL CIRCUIT FOR NEW RECEPTACLE.
6. ALL WIRING DEVICES, DISTRIBUTION EQUIPMENT, AND LIGHT FIXTURES TO REMAIN ON THE MEZZANINE LEVEL. DISTRIBUTION EQUIPMENT INDICATED FOR NEW WORK. REFER TO ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.

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POWER PLAN - ANNEX

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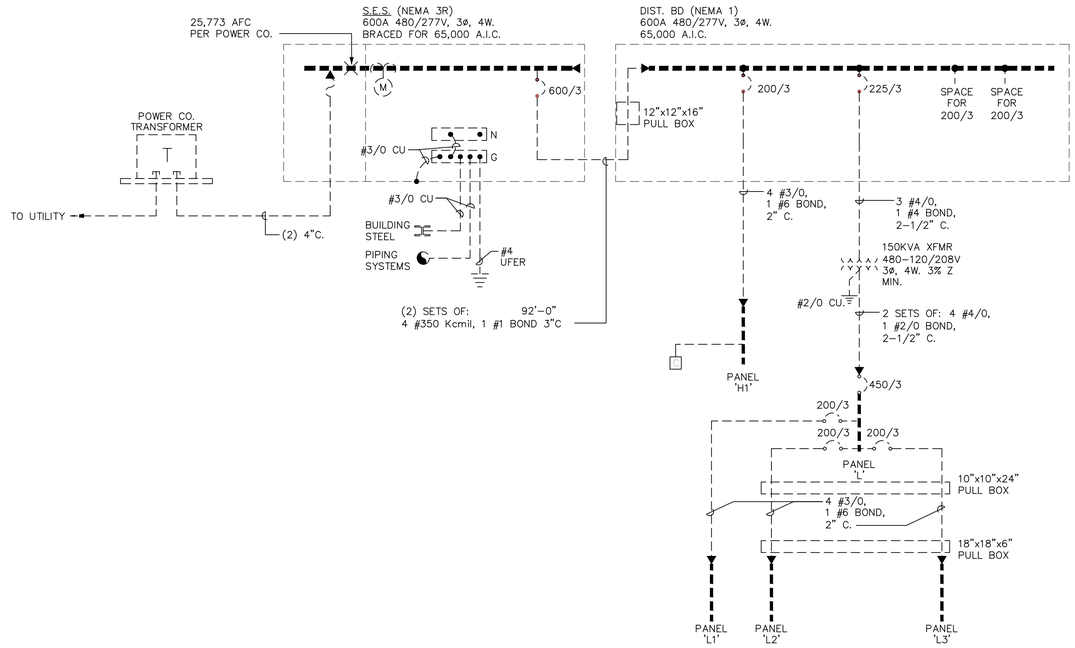
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EXISTING ELECTRICAL ONE-LINE DIAGRAM - ANNEX

N.T.S.

ONE-LINE DIAGRAM NOTE:
ALL EQUIPMENT, RACEWAYS, CONDUCTORS, AND WIRING DEVICES INDICATED ON ONE-LINE DIAGRAM ARE EXISTING TO REMAIN.

SHORT CIRCUIT CALCULATIONS

The following calculations are based on the IEEE standard 141 "Per Unit (PU)" method, and the values provided in Table 9, Chapter 9 of the NEC:

Isc = Isc x M M = 1/(1+f) $f = \frac{1.732 \times L \times Isc}{Y \times E}$ **XFMR:** $Is(sca) = \frac{Vp \times M \times Ip(sca)}{Vs}$ $f = \frac{Ip(sca) \times Vp \times 1.732 \times \%Z}{1{,}000 \times KVA}$

Fault Point	Panel, Transformer, or Motor	Load Type	Source (Fault Point)	Source I (amps)	Motor FLA	Conduit Type	Cable/Wire/Bus Size (Ph)	Sets	Cable Size	Feeder Material CU or AL	Feeder Type C, FB, PB	NEC Ampacity (75 C)	NEC Admittance	Line-to-line Volts E	Circuit Length L	XFMR KVA	XFMR %Z	XFMR Vs	f	M	Motor Isc	Isc	Fault Point
1	SES	S		25773				*						480	n/a							25773	1
2	DB	PB	1	25773		PVC	3	2 Sets of	350KCM	CU	C	620	52631.58	480	62				0.110	0.901		23228	2
3	PANEL 'H1'	PB	2	23228		PVC	3	1 Set of	3/0	CU	C	200	12987.01	480	25				0.161	0.861		20001	3
4	XFMR	TX	2	23228		PVC	3	1 Set of	4/0	CU	C	230	16129.03	480	18	150	5.10%	208	6.566	0.132		7085	4
5	PANEL 'L'	PB	4	7085		PVC	3	1 Set of	4/0	CU	C	230	16129.03	208	20				0.073	0.932		6602	5
6	PANEL 'L1'	PB	5	6602		PVC	3	1 Set of	3/0	CU	C	200	12987.01	208	21				0.089	0.918		6063	6
7	PANEL 'L2'	PB	5	6602		PVC	3	1 Set of	3/0	CU	C	200	12987.01	208	136				0.576	0.635		4190	7
8	PANEL 'L3'	PB	5	6602		PVC	3	1 Set of	3/0	CU	C	200	12987.01	208	145				0.614	0.620		4091	8

* PER APS ELECTRIC SERVICE REQUIREMENTS TABLE 800.2

Load Types:
S - Source
PB - Panel Board
TX - Transformer
M - Motor
L - Lighting

Feeder Types:
C - Conductors
FB - Feeder Busduct
PB - Plug-in Busduct

Abbreviations:
Ip = Primary short circuit current
Is = Secondary short circuit current
Vp = Primary voltage
Vs = Secondary voltage

ONE LINE SHEET NOTES

1. CONTRACTOR SHALL VERIFY DURING SHOP DRAWING PREPARATION THAT ELECTRICAL EQUIPMENT WILL FIT IN FOOT PRINTS SHOWN ON ELECTRICAL PLANS. ENGINEER HAS VERIFIED SIEMENS EQUIPMENT WILL FIT IN SPACES PROVIDED.
2. MANUFACTURER OF ELECTRICAL SWITCHGEAR, PANELS ETC. TO BE THE SAME. THE MANUFACTURER SHALL PROVIDE BREAKERS THAT ARE COORDINATED FROM UPSTREAM C/B'S DOWN TO BRANCH CIRCUIT BREAKERS. CONTRACTOR VIA SWITCHGEAR MANUFACTURER SHALL PROVIDE DOCUMENTATION AND COORDINATED BREAKER SETTINGS WITH SUBMITTAL.
3. ALL PANELS SHALL HAVE DOOR-IN-DOOR COVERS.
4. ALL CONDUCTORS SHOWN ON ONE LINE SHALL BE COPPER UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL HAVE 90° INSULATION. SEE SPECIFICATIONS FOR CONDUCTOR INSTALLATION.
5. CONTRACTOR SHALL VERIFY ALL CIRCUIT BREAKERS ARE SUPPLIED WITH LUGS THAT WILL ACCOMMODATE THE CONDUCTORS SHOWN.

LOAD CALCULATION

EXISTING PANEL 'H1' (225A, 480Y/277V, 3ø, 4W)				
EXISTING LOAD	206	A	171.2	KVA
NO CHANGE IN LOAD				
EXISTING PANEL 'L1' (225A, 208Y/120V, 3ø, 4W)				
EXISTING LOAD	105	A	37.7	KVA
NO CHANGE IN LOAD				
EXISTING PANEL 'L2' (225A, 208Y/120V, 3ø, 4W)				
EXISTING LOAD	86	A	31.2	KVA
REMOVED LOAD	18	A	6.4	KVA
ADDED LOAD	16	A	5.9	KVA
TOTAL LOAD	85	A	30.7	KVA
EXISTING PANEL 'L3' (225A, 208Y/120V, 3ø, 4W)				
EXISTING LOAD	23	A	8.4	KVA
ADDED LOAD	6	A	2.2	KVA
TOTAL LOAD	29	A	10.6	KVA
EXISTING PANEL 'L' (450A, 208Y/120V, 3ø, 4W)				
EXISTING LOAD	283	A	102.0	KVA
ADDED LOAD	5	A	1.7	KVA
TOTAL LOAD	288	A	103.8	KVA
EXISTING 'SES' (600A, 480Y/277V, 3ø, 4W)				
TOTAL CODE LOAD	331	A	275	KVA

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EXISTING L1

PHASE: 3 | VOLTS: 120/208Y | WIRE: 4 | MAIN: LUGS ONLY | 225A BUS SURFACE | 10000 AIC

TYPE	DESCRIPTION	QTY	Q TYP	BKR	CKT	A PH	B PH	C PH	CKT	BKR	Q TYP	QTY	DESCRIPTION	TYPE
N	REC - FOOD/SERVERY			20/1	1	1200								
						720			2	20/1			REC - BREAK OUT RM 11	N
N	REC - FOOD/SERVERY			20/1	3		1200							
							720		4	20/1			REC - BREAK OUT RM 10	N
N	REC - FOOD/SERVERY			20/1	5			1200						
								720	6	20/1			REC - LOBBY 02	N
N	REC - FOOD/SERVERY WARMERS			20/1	7	1200								
						900			8	20/1			REC - DISPOSAL	N
N	REC - FOOD/SERVERY WARMERS			20/1	9		1200							
							53		10	20/1			EF-4, 53W	N
N	REC - FOOD/SERVERY WARMERS			20/1	11			1200						
								400	12	20/1			MAG LOCKS	N
N	REC - FOOD/SERVERY			20/1	13	600								
						1440			14	30/1			LTG - CONF RM	C
N	REC - FOOD/SERVERY			20/1	15		600							
							1440		16	30/1			LTG - CONF RM	C
N	REC - FOOD/SERVERY			20/1	17			600						
								300	18	20/1			LTG - CONF RM	C
N	REC - JANITOR/EXTERIOR/FIRE RISER			20/1	19	720								
						200			20	20/1			LTG - LOBBY	C
N	REC - CONFERENCE			20/1	21		540							
							2250		22	30/2			EFH-1, 4.5KW	N
N	REC - CONFERENCE PLASMA			20/1	23			100						
								2250	24					N
N	REC - INTERNET			20/1	25	720								
						1686			26	30/2			FCU-1, FCU-2 & FCU 7	M
N	REC - INTERNET			20/1	27		720							
							1686		28					M
N	REC - INTERNET			20/1	29			1080						
								1124	30	20/2			FCU-3 & FCU-4	M
N	REC - ELEC / MECH			20/1	31	900								
						1124			32					M
N	REC - CP-1			20/1	33		300							
							1124		34	20/2			FCU-5 & FCU-8	M
N	REC - TMB			20/1	35			360						
								1124	36					M
N	LIGHT POLE, REC, POWR CONT			20/1	37	360								
						562			38	20/2			FCU-6	M
N	REC - IRR CNTRLR			20/1	39		180							
							562		40					M
N	SMOKE FIRE DAMPER			20/1	41			150						
								200	42	20/1			REC - BIRD DETERRENT	N

TOTAL CODE LOAD: 37.68 KVA / (1.73 * 208 V) = 104.60 AMPS
All Phases: CONTINUOUS LOAD = 3380 VA connected * 1.25 = 4.23 KVA code load
A Phase: CONTINUOUS LOAD = 1640 VA connected * 1.25 = 2.05 KVA code load
B Phase: CONTINUOUS LOAD = 1440 VA connected * 1.25 = 1.80 KVA code load
C Phase: CONTINUOUS LOAD = 300 VA connected * 1.25 = 0.38 KVA code load
All Phases: MOTOR LOAD 8992 VA CONNECTED + (4496 * 0.25)
A Phase: MOTOR LOAD 3372 VA CONNECTED + (1686 * 0.25)
B Phase: MOTOR LOAD 3372 VA CONNECTED + (1686 * 0.25)
C Phase: MOTOR LOAD 2248 VA CONNECTED + (1124 * 0.25)
All Phases: NONCONTINUOUS LOAD = 23343 VA connected * 1 = 23.34 KVA code load
A Phase: NONCONTINUOUS LOAD = 7320 VA connected * 1 = 7.32 KVA code load
B Phase: NONCONTINUOUS LOAD = 7763 VA connected * 1 = 7.76 KVA code load
C Phase: NONCONTINUOUS LOAD = 8260 VA connected * 1 = 8.26 KVA code load

http://www.panelschedules.com

EXISTING L2

PHASE: 3 | VOLTS: 120/208Y | WIRE: 4 | MAIN: LUGS ONLY | 225A BUS SURFACE | 10000 AIC

TYPE	DESCRIPTION	QTY	Q TYP	BKR	CKT	A PH	B PH	C PH	CKT	BKR	Q TYP	QTY	DESCRIPTION	TYPE
C	LIGHTING a - BANQUET 18			20/1	1	1000								
						1000			2	20/1			LIGHTING a - BANQUET 17	C
C	LIGHTING b - BANQUET 18			20/1	3		1000							
							1000		4	20/1			LIGHTING b - BANQUET 17	C
C	LIGHTING c - BANQUET 18			20/1	5			1000						
								1000	6	20/1			LIGHTING c - BANQUET 17	C
C	LIGHTING d - BANQUET 18			20/1	7	1000								
						1000			8	20/1			LIGHTING d - BANQUET 17	C
C	LIGHTING e,f - BANQUET 18 - TRACK			20/1	9		1500							
							1500		10	20/1			LIGHTING e,f - BANQUET 17 - TRACK	C
C	LIGHTING g,h - BANQUET 18 - TRACK			20/1	11			1500						
								1500	12	20/1			LIGHTING g,h - BANQUET 17 - TRACK	C
R	REC - FURN FEED, OP.OFF CTR			20/1	13	540								
						0			14	20/1			SPARE	--
R	REC - FURN FEED, OP.OFF CTR			20/1	15		540							
							0		16	20/1			SPARE	--
R	REC - FURN FEED, OPEN OFFICE			20/1	17			540						
								540	18	20/1			REC - CORRIDOR DESKS	R
R	REC - FURN FEED, OPEN OFFICE			20/1	19	540								
						540			20	20/1			REC - CORRIDOR DESKS	R
R	REC - FURN FEED, OPEN OFFICE			20/1	21		540							
							360		22	20/1			REC - EXTERIOR	N
R	REC - A/V CABINET ROOM 20			20/1	23			360						
								0	24	20/1			SPARE	--
R	REC - FURN FEED, OPEN OFFICE			20/1	25	540								
						100			26	20/1			REC - BIRD DETERRENT	N
N	REC - A/V CABINET ROOM 19			20/1	27		720							
							540		28	20/1			REC - EXTERIOR	N
R	REC - FURN FEED, OPEN OFFICE			20/1	29			540						
								540	30	20/1			REC - EXTERIOR	N
R	REC - FURN FEED, OPEN OFFICE			20/1	31	540								
						720			32	20/1			REC - EXTERIOR	N
R	REC - FURN FEED, OPEN OFFICE			20/1	33		540							
							360		34	20/1			REC - EXTERIOR PATIO	N
R	REC - FURN FEED, OPEN OFFICE			20/1	35			540						
								360	36	20/1			REC - EXTERIOR PATIO	N
N	ROOF SERVICE RECEPT			20/1	37	180								
						720			38	20/1			REC - EXTERIOR POLES	N
N	SMOKE FIRE DAMPERS			20/1	39		100							
							900		40	20/1			REC - EXTERIOR POLES	N
--	SPARE			20/1	41			0						
								720	42	20/1			REC - EXTERIOR POLES	N

TOTAL CODE LOAD: 30.66 KVA / (1.73 * 208 V) = 85.10 AMPS
All Phases: CONTINUOUS LOAD = 14000 VA connected * 1.25 = 17.50 KVA code load
A Phase: CONTINUOUS LOAD = 4000 VA connected * 1.25 = 5.00 KVA code load
B Phase: CONTINUOUS LOAD = 5000 VA connected * 1.25 = 6.25 KVA code load
C Phase: CONTINUOUS LOAD = 5000 VA connected * 1.25 = 6.25 KVA code load
All Phases: RECEPTACLE LOAD 6840 VA CONNECTED: (6840 * 1.00) = 6.84 KVA code load.
A Phase: RECEPTACLE LOAD 2700 VA CONNECTED: (2700 * 1.00) = 2.70 KVA code load.
B Phase: RECEPTACLE LOAD 1620 VA CONNECTED: (1620 * 1.00) = 1.62 KVA code load.
C Phase: RECEPTACLE LOAD 2520 VA CONNECTED: (2520 * 1.00) = 2.52 KVA code load.
All Phases: NONCONTINUOUS LOAD = 6320 VA connected * 1 = 6.32 KVA code load
A Phase: NONCONTINUOUS LOAD = 1720 VA connected * 1 = 1.72 KVA code load
B Phase: NONCONTINUOUS LOAD = 2980 VA connected * 1 = 2.98 KVA code load
C Phase: NONCONTINUOUS LOAD = 1620 VA connected * 1 = 1.62 KVA code load

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EXISTING L3

PHASE: 3 | VOLTS: 120/208Y | WIRE: 4 | MAIN: LUGS ONLY | 225A BUS SURFACE | 10000 AIC

TYPE	DESCRIPTION	QTY	Q TYP	BKR	CKT	A PH	B PH	C PH	CKT	BKR	Q TYP	QTY	DESCRIPTION	TYPE
N	REC - RM 4,5,21,22,28			20/1	1	900								
						106			2	15/1			EF=2, EF-3 53W EACH	M
N	EDF RM 22			20/1	3		600							
							696		4	15/1			EF-1 1/4 HP	M
N	EDF RM 3			20/1	5			600						
								720	6	20/1			REC - FLR BX - LOBBY	R
N	REC - MEETING ROOM			20/1	7	900								
						540			8	20/1			REC - EXTERIOR WALL	N
N	REC - MEETING ROOM			20/1	9		900							
							360		10	20/1			REC - EXTERIOR WALL	N
N	MOTORIZED BLINDS			20/1	11			600						
								200	12	20/1			SMOKE FIRE DAMPERS	N
N	REC - RM M60 & LOBBY			20/1	13	720								
						360			14	20/1			REC - FLR BX - LOBBY	R
N	REC - LOBBY			20/1	15		720							
							180		16	20/1			REC - OFFICE	R
N	REC - RM 07			20/1	17			720						
								540	18	20/1			REC - ROOF HOLIDAY	N
N	FACP ANNEX 2ND FLOOR			0/1	19	0								
						0			20	20/1			SPARE	--
--	BUSSED SPACE			0/1	21		0							
							0		22	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	23			0						
								0	24	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	25	0								
						0			26	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	27		0							
							0		28	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	29			0						
								0	30	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	31	0								
						0			32	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	33		0							
							0		34	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	35			0						
								0	36	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	37	0								
						0			38	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	39		0							
							0		40	0/1			BUSSED SPACE	--
--	BUSSED SPACE			0/1	41			0						
								0	42	0/1			BUSSED SPACE	--

TOTAL CODE LOAD: 10.56 KVA / (1.73 * 208 V) = 29.32 AMPS
All Phases: MOTOR LOAD 802 VA CONNECTED + (802 * 0.25)
A Phase: MOTOR LOAD 106 VA CONNECTED + (106 * 0.25)
B Phase: MOTOR LOAD 696 VA CONNECTED + (696 * 0.25)
All Phases: RECEPTACLE LOAD 1260 VA CONNECTED: (1260 * 1.00) = 1.26 KVA code load.
A Phase: RECEPTACLE LOAD 360 VA CONNECTED: (360 * 1.00) = 0.36 KVA code load.
B Phase: RECEPTACLE LOAD 180 VA CONNECTED: (180 * 1.00) = 0.18 KVA code load.
C Phase: RECEPTACLE LOAD 720 VA CONNECTED: (720 * 1.00) = 0.72 KVA code load.
All Phases: NONCONTINUOUS LOAD = 8300 VA connected * 1 = 8.30 KVA code load
A Phase: NONCONTINUOUS LOAD = 3060 VA connected * 1 = 3.06 KVA code load
B Phase: NONCONTINUOUS LOAD = 2580 VA connected * 1 = 2.58 KVA code load
C Phase: NONCONTINUOUS LOAD = 2660 VA connected * 1 = 2.66 KVA code load

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PANELBOARD SYMBOL SCHEDULE

T	INDICATES PROVIDE NEW 'LOCK-DOG' ON CIRCUIT BREAKER, LKH OR LOTO.	▲	CIRCUIT THRU LIGHTING CONTACTOR. SEE WIRING DIAGRAM(S).
●	INDICATES NEW LOAD ADDED TO EXISTING CIRCUIT BREAKER.	{	BREAKERS WITH COMMON HANDLE-TIES OR MULTI-POLE BREAKER WHERE HANDLE-TIES ARE NOT AVAILABLE OR PANELBOARD IS EXISTING. PROVIDE PER NEC 210.4(B).
○	INDICATES NEW LOAD AND NEW CIRCUIT BREAKER ADDED TO EXISTING BUSSED SPACE.	C	INDICATES CONTINUOUS LOAD.
□	INDICATES EXISTING LOAD REMOVED AND BREAKER TO BECOME SPARE.	N	INDICATES NON-CONTINUOUS LOAD.
■	INDICATES EXISTING LOAD AND BREAKER REMOVED AND REPLACED WITH NEW BREAKER AND POSSIBLY NEW LOAD.	SR	INDICATES SPARE CIRCUIT BREAKER.
△	INDICATES EXISTING LOAD & CIRCUIT BREAKER TO REMAIN - NO REVISION. EXISTING LOADS MAY HAVE BEEN ESTIMATED.	BSP	INDICATES BUSSED SPACE FOR FUTURE CIRCUIT BREAKER.
		M	INDICATES MOTOR LOAD.
		R	INDICATES GENERAL PURPOSE RECEPTACLE LOAD.

ENERGY SYSTEMS DESIGN
5910 Courtyard Drive
Suite 100
Austin TX 78731
P: 512.721.1099
www.esdengineers.com
Design Contact: SAM BUHR
Project # 221065

Holly Street Studio
1319 E VanBuren St.
Phoenix, AZ 85006
o: 602.258.8555
hollystreetstudio.com

Registered Professional Engineer (Electrical)
CERTIFICATE NO.
53328
NATHAN A. SHORT
Date Signed 12/09/22
ARIZONA U.S.A.

GLENDALE DCRP C.C ANNEX RENOVATION

5752 W Glenn Drive
Glendale, AZ 85301

revisions

No.	Description	Date

title

PANEL SCHEDULES

phase

CONSTRUCTION DOCUMENTS

date

09 DEC 2022

project no.

202169.3

sheet number

E5.1

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FILE: J:\2022\221065 Glendale Downtown Campus Modernization\-100 Bead and Annex\E5_0.dwg
PLOTTED BY: sam.buhr
PLOTTED: 12.09.2022 - 11:08am

EXHIBIT F
Statement of All Clarifications and Assumptions (if any)

(6 **pages - To be Incorporated by Amendment)**

THIS EXHIBIT COVER PAGE IS FOR REFERENCE ONLY AT TIME OF MAIN AGREEMENT. THE ACTUAL DOCUMENT WILL BE ATTACHED VIA AMENDMENT AT TIME OF GMP. THIS EXHIBIT SHOULD ALSO INCLUDE THE CM@RISK'S HOURLY RATES AND BURDEN CALCULATIONS]

OKLAND

City of Glendale
Bead & Annex – Tenant Improvement
c/o Glendale City Hall
5752 W. Glenn Drive
Glendale, AZ 85301

EXHIBIT B
Assumptions & Clarifications
Guaranteed Maximum Price

January 18th, 2022

DIVISION 00 – PROCUREMENT & CONTRACTING REQUIREMENTS

1. COVID Procedures:
    a. Okland will work to comply with all CDC / Government guidelines regarding COVID procedures.
    b. Okland encourages vaccination but does not currently mandate that those on this project be vaccinated. Okland assumes that this project does not require that those working on it be vaccinated.
    c. If procedures or testing requirements are enforced by CDC, Governing Authority—this would include the enforcement of the CMS rule issued on November 4, 2021–Okland reserves the right to modify contract and pass on terms and/or costs of those requirements.
2. This Exhibit after acceptance by owner, with and including this set of documents, is to supplement or change previous documents.
3. This project is to be completed under the CMAR (Construction Manager at Risk) system and that all pricing presented in this project is in Guaranteed Maximum Price (GMP) with 100% of savings being returned to owner.
4. GMP includes a standard <u>two-year warranty,</u> unless within the specifications extended warranties are specified. If extended warranty is requested, it is only a manufacture standard material warranty and will be included with close-out documents.
    a. Labor for extended warranties is not included.
5. This project is not subject to any wage determinations.
6. No LEED™ or Green Build Certifications are included.
7. "Unit Prices".
    a. Unit prices are hard costs and do not include mark-ups (if applicable).
8. Rates include burden and labor taxes as required by law.
9. Rental rates for equipment will be based on current market rental rates.
10. This proposal is based on standard colors if none specified.
11. The following costs are included in the GMP and will be charged to the project at the fixed rates listed:

a.	Builders Risk Insurance	0.30% of GMP
b.	Payment & Performance Bond	0.90% of GMP
c.	Subcontractor Default Insurance	1.25% of GMP
d.	Contractors Insurance	0.30% of GMP
e.	Contractor Fee	5.50% of GMP
f.	Tax (Break-out Below)	5.98% of GMP
g.	Owner Contingency	10.00% of GMP
h.	Construction Contingency	4.00% of GMP
i.	Design Contingency	None Included

12. Exhibits:
    a. Exhibit A – GMP Detail
    b. Exhibit B – Assumptions & Clarifications – This Document
    c. Exhibit C – Schedule
    d. Exhibit D - Labor Rates & Equipment Rates
    e. Exhibit E – Drawing Log

Permits / Fees and Code Review:

1. The GMP does not include the cost of any permits or fees.
2. Permits and required city inspection are to be paid for by Owner.
3. No development fees, utility surcharges, connection fees or other utility infrastructure costs are included.
4. All fees associated with the utility tie-ins are by Owner.

Temporary Facilities and Utilities:

1. Temporary Power for work is included.
2. Dust control with SWPPP will be limited to areas disturbed by Okland construction activities.
3. No costs were included for LEED™ Certification or other "Green Building Certifications".

Owner Provided Items (Costs not Included in the GMP):

1. The following items are not included:
    a. 3rd-Party Inspection Fees
    b. All permits, impact fees, connection fees, special use permits, etc.
    c. Architect, Engineer, and other Consultant submittal re-review fees.
    d. Design fees (Architectural fees, consultant fees, etc.).
    e. Direct Costs associated with APS/SRP, Century Link and Southwest Gas (if applicable)
    f. Commissioning agent, testing & special inspections, and other related items.
    g. All inspections including special inspections, fire marshal, or private utility.
    h. Water meters (if applicable) and sewer connection fees (if applicable).
        i. All Water & Sewer Development Fees.
    i. All utility public inspections, fees (including design / hook-up) or other items required by public utility provider.
    j. Development Impact Fees.
    k. Environmental studies & reports and hazardous material containment & removal.
    l. Geo-technical / material testing (if applicable).
    m. Archaeological inspections.
    n. Environmental studies and reports.
    o. ALTA Survey / Construction Easements.
    p. Artwork, statue, and pictures.
    q. Telephone / Data terminations, etc.
    r. Low Voltage including and not limited to data drops, racks, head ends, termination plates, cable trays, "J" hooks, etc.
    s. Security System including but limited to cameras, cable drops, computers, monitors, monitoring system, etc.
    t. All furniture / furnishings/System Furniture.
        i. All interior furniture: sofas, furniture, desks, chairs, tables, shelves, trash receptacles, recycle bins, etc.
    u. All equipment:
        i. Server equipment, racks, switches, individual ups / batteries, etc.
        ii. Programming of security or other special systems.
        iii. Phones and fax machines.
        iv. Computers, monitors, copiers, coin machines, fax machines, keyboards, mouse.
        v. Vending equipment & ATM machines.
        vi. All audio-visual equipment, projectors, TV's, VCR/DVD players, etc.
    v. Site Amenities such as trash bins, trash compactors, recycle bins, tables, chairs, sofas, umbrellas, etc. are FF&E. Including FF&E install.
    w. Final Keying

Construction Contingency:

1. Okland has included a Construction Contingency as noted in the GMP (see Exhibit D). Okland Construction is in accordance with Paragraph 7.11 of the Owner/Contractor agreement. Some examples of items Okland Construction can request for contingency use are listed below:
    a. Solve any contractual/buyout issues with subcontractors.
    b. Accelerate construction schedule as needed.
    c. Solve construction issues in field as they present themselves.
    d. To resolve weather conditions and other impacts that negatively affects the execution of the work.
    e. Payment of deductibles or repair to any damage caused by forces outside of the control of the contractor (such as for weather, vandalism or system failures.)
    f. Significant changes in the commodity market supply, escalation, or inflation.
    g. Repair/Replacement of damaged work (in accordance with the Owner/Contractor agreement).
    h. RFI answers that have cost impacts.
    i. The use of contingency will be consulted with the owner and approval given prior to use of contingency funds.

Allowances:

1. Okland has included allowances as noted in the GMP (see Exhibit D). The following item was a late add from the architect and is carried as an allowance until we receive design document in which we will bid out and price accordingly:
    a. Allowance for Secure Counting at Annex at a total of $56,050. Faulkbuilts cost for their scope of work is $37,200 of the above amount. This leaves $18,850 of allowance towards additional framing, drywall, painting, low voltage, data, security, electrical, conduit/pathway, door and frame.

DIVISION 01 – GENERAL REQUIREMENTS

1. GMP is based on standard terms as agreed to per Okland's Contract.
2. Bead Scope:
    a. In General, Bead scope includes total interior renovation of the existing building with new finishes, updated HVAC, Updated Electrical, and adding new exterior window.
3. Annex Scope:
    a. In General, Annex scope is to add electrical and data drops to existing building that is to remain as constructed.
4. GMP documents did not include stand alone specifications. All keynotes and information on drawings is basis of estimate.
5. The drawings are complete, however if there was any minor scope gaps that needed to be filled, we did so based on our experiences as industry professionals.

DIVISION 02 – EXISTING CONDITIONS

1. Not Applicable.

DIVISION 03 – CONCRETE

1. Patching was included as required for new work.
2. 10 Hours carried in the GMP associated with diamond grinding of site sidewalk per keynote 18 on A1.0.

DIVISION 04 - MASONRY

1. No fire rated masonry included.
2. No flashings or other accessories as specified for exterior applications were included.
3. Stem brick wall for backflow preventer per standard detail G-670 as mentioned by keynote 79 on Sheet C.1 is carried as a 4" jumbo brick to match existing building.
4. No masonry work included in the Annex.

DIVISION 05 – METALS

1. No welding.

2. No deferred engineering is included.
3. No Galvanized steel included.
4. All steel is non-painted / primed.
5. AISC fabrication and erection are not included.
6. No steel work included in the Annex.

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

1. Miscellaneous Rough Carpentry:
    a. Non-Rated walls or assemblies will have non-rated material or backing installed.
    b. Fire-retardant backing is only included were required by code.
2. Plastic-Laminate-Faced Architectural Cabinets & Lockers:
    a. "Apple Ply" is not available in the sizes required for this project, the face provided is currently carried as Birch.
    b. AWI premium costs were not included; based on details as shown.
    c. No glazing was included at casework for shelves, doors, etc.
    d. Plastic laminate will be from manufactures full standard, non-premium lines.
    e. No fire ratings were included for casework substrates or laminates.
    f. No locks, unless specifically shown on the drawings were included.
    g. No casework included in the Annex.

DIVISION 07 – THERMAL & MOISTURE PROTECTION

1. Thermal Insulation
    a. No spray foam insulation was included; included all as Batt.
    b. No mineral wool insulation is included at wall cavities; included as fiberglass insulation.
    c. Insulation is bid as unfaced batts in all walls; no mineral fiber insulation is included.
    d. No insulation work included in the Annex.
2. Joint Sealants
    a. No Pick-Proof Caulking included.
    b. Standard colors included.
    c. No custom or premium colors were included.
    d. No sealant work included in the Annex.
3. Roofing
    a. Roofing is included to be existing to remain in place. GMP includes patching as required for new mechanical/electrical penetrations.
    b. No roof work included in the Annex.

DIVISION 08 – OPENINGS

1. Hollow Metal Doors and Frames:
    a. No STC upgrades were included.
    b. No extra heavy-duty frames included.
    c. No work was included for doors at the Annex.
2. Access Doors & Frames:
    a. Panels were included as flush metal in walls.
3. Door Hardware:
    a. Final Keying is by owner.
4. Exterior Glazing:
    a. Exterior Opening 10' x 9' provided as the following:
        i. AG451 2x4.5 storefront framing.
        ii. Dark Bronze Anodized, 1" Insulated Bronze SB60 Glazing.
    b. Auto Operator at Existing Lobby Door carried as Stanley-Magic Force
        i. Dark Bronze Finish.
        ii. Wireless push button on exterior bollard.
    c. Excludes 1/4" glazing per 8.004 remark - NOT recommended for size shown and butt joint conditions per GANA rules and mfgs' deflection comments.
    d. No New Glazing at the Annex.
5. Interior Glazing:

a. See division 12 Below.

DIVISION 09 – FINISHES

1. Gypsum Board Shaft Wall Assemblies
    a. Annex includes patchwork as required per new electrical drawings. No new walls carried.
2. Gypsum Board
    a. No impact resistant drywall was included; none shown.
    b. No STC or code review of wall types included; or testing. Assumed wall types as shown.
    c. No acoustically enhanced drywall was included.
    d. No radius corners, round shapes were indicated on drawings.
    e. No Level 5 drywall was included; none indicated on drawings. Level 4 drywall is currently carried as basis of GMP.
3. Tiling
    a. No Attic Stock included for Ceramic Tile per it not being listed in specifications.
    b. No new tile at the Annex.
4. Acoustical Panel Ceilings
    a. Armstrong 2" Axiom Trim provided as no spec provided.
    b. Annex includes repair and replacement of ACT ceiling as required per new electrical shown. No new ceiling carried.
5. Flooring
    a. No exceptions taken.
    b. Annex includes repair and replacement of carpet flooring in the Banquet room, including the removal and scraping of existing floor and install of new carpet that matches what was existing.
    c. We are not matching the existing, we will be using carpet squared to compliment existing carpeting.
6. Interior Painting
    a. Painting exposed ceilings same color as walls, no cutlines, or detailing at protrusions at walls.
    b. Painting of exterior HM doors and frames is included.
    c. Paint exterior EIFS @ patch around new window
    d. Paint Exposed Ceilings; Includes exposed Utilities at Scrim and Wood Truss.

DIVISION 10 – SPECIALTIES

1. Stainless-Steel Toilet Compartments
    a. No exceptions taken.
2. Wall and Door Protection
    a. No corner guards are included; none indicated on drawings.
3. Fire Protection Specialties
    a. No exceptions taken.
4. All exterior signage excluded from the GMP, other than code compliant.
5. No new accessories at the Annex.

DIVISION 11 – SYSTEM FURNITURE

1. Faulk Walls and Doors included as the base bid for the interior DIRTT wall types.
    a. (2) framed glass sliding doors at offices carried with lockable hardware.
    b. (1) framed glass sliding doors at conference rooms carried with non-lockable hardware.
    c. Glass walls carried as 2 ½" Kai.
    d. Frame finish carried as powder coat black.
    e. Cladding carried as Falkskin Gr 1
2. No system furniture carried at the Annex.

DIVISION 12 – WINDOW TREATMENT

1. Roller Window Shades
    a. Type: Manual Mecho Roller Shades provided as specification do not call for manufacturer.
    b. Fabric: SoHo Series 1%, 3%, or 5% openness in one standard color
    c. No window shades carried in the Annex.

DIVISION 21 – FIRE SUPPRESSION

1. Water Based Fire Suppression System
    a. No vibration controls were included; not typical for construction type.
    b. No custom color sprinkler heads were included.
    c. All heads in exposed ceiling areas are up-turned heads.
    d. No seismic requirements were included.
    e. No fire suppression scope carried in the Annex.
    f. Slurry seal pavement 2’ off of each side of trench for new fire line. Required by City of Glendale.

DIVISION 22 – PLUMBING

1. No seismic requirements were included.
2. No plumbing scope included in the Annex.

DIVISION 23 – HEATING, VENTILATING & AIR CONDITIONING

1. No seismic requirements were included.
2. Testing and balancing is by owner; (GC only coordinates).
3. No HVAC scope included in the Annex.

DIVISION 26 – ELECTRICAL

1. No seismic requirements were included.
2. Bead and Annex include added power, data, security, and pathway associated as required per electrical drawings.

DIVISION 27 – COMMUNICATIONS

1. Low Voltage
    a. All low voltage cabling is excluded. Only pathway is provided.
2. Code compliant fire alarm system is included.
    a. Fire alarm is included in conduit as per City Standards.
3. All Division 27 Scope is not included in the Annex.

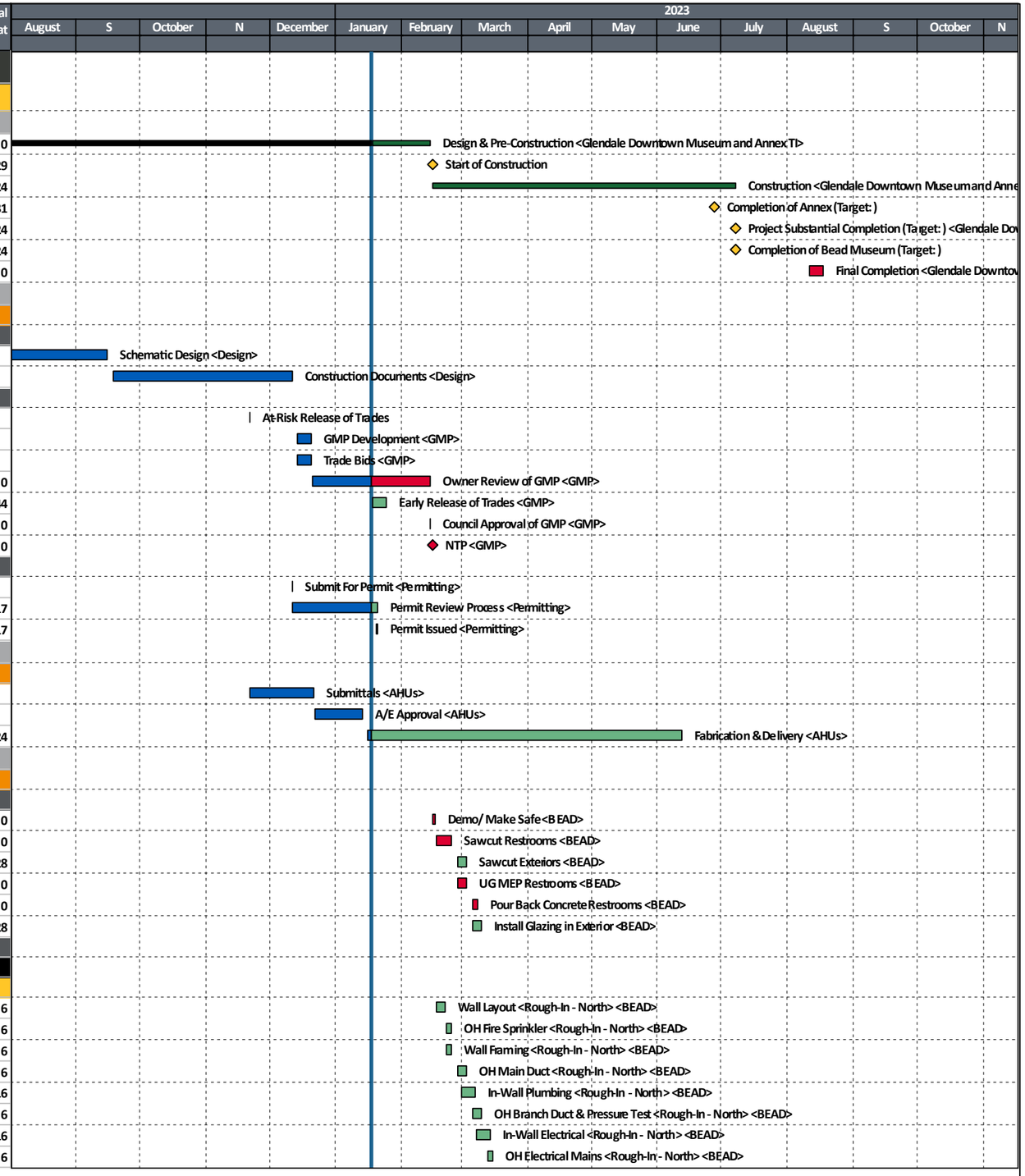
End of Clarification

EXHIBIT G
Schedule of Major Milestones

(4 **pages - To be Incorporated by Amendment)**

[THIS EXHIBIT COVER PAGE IS FOR REFERENCE ONLY AT TIME OF MAIN AGREEMENT. THE ACTUAL DOCUMENT WILL BE ATTACHED VIA AMENDMENT AT TIME OF GMP.]

Activity ID	Activity Name	Rem Dur	Start	Finish	Total Float
Glendale Downtown Bead Museum and Annex TIs					
Glendale Downtown Bead Museum and Annex TIs					
SUMMARY & MILESTONES					
21-0087-M1000	Design & Pre-Construction <Glendale Downtown Museum and Annex TI>	20	01-Aug-22 A	14-Feb-23	0
21-0087-M1020	Start of Construction	0	15-Feb-23*		129
21-0087-M1010	Construction <Glendale Downtown Museum and Annex TI>	100	15-Feb-23	07-Jul-23	24
21-0087-M1060	Completion of Annex (Target:)	0		27-Jun-23	31
21-0087-M1030	Project Substantial Completion (Target:) <Glendale Downtown Museum and Annex TI>	0		07-Jul-23	24
21-0087-M1050	Completion of Bead Museum (Target:)	0		07-Jul-23	24
21-0087-M1040	Final Completion <Glendale Downtown Museum and Annex TI>	5	11-Aug-23	17-Aug-23	0
PRE-CONSTRUCTION					
Design/Permitting/Contracts					
Design					
21-0087-D1000	Schematic Design <Design>	0	01-Aug-22 A	16-Sep-22 A	
21-0087-D1010	Construction Documents <Design>	0	19-Sep-22 A	12-Dec-22 A	
GMP					
21-0087-D1020	At-Risk Release of Trades	0	22-Nov-22 A	22-Nov-22 A	
21-0087-D1050	GMP Development <GMP>	0	14-Dec-22 A	20-Dec-22 A	
21-0087-D1060	Trade Bids <GMP>	0	14-Dec-22 A	20-Dec-22 A	
21-0087-D1070	Owner Review of GMP <GMP>	20	21-Dec-22 A	14-Feb-23	0
21-0087-D1080	Early Release of Trades <GMP>	5	18-Jan-23*	24-Jan-23	144
21-0087-D1110	Council Approval of GMP <GMP>	1	14-Feb-23	14-Feb-23	0
21-0087-D1100	NTP <GMP>	0	15-Feb-23		0
Permitting					
21-0087-D1030	Submit For Permit <Permitting>	0	12-Dec-22 A	12-Dec-22 A	
21-0087-D1040	Permit Review Process <Permitting>	3	12-Dec-22 A	20-Jan-23	17
21-0087-D1090	Permit Issued <Permitting>	1	20-Jan-23	20-Jan-23	17
PROCUREMENT					
AHUs					
21-0087-P1000	Submittals <AHUs>	0	22-Nov-22 A	21-Dec-22 A	
21-0087-P1010	A/E Approval <AHUs>	0	22-Dec-22 A	13-Jan-23 A	
21-0087-P1020	Fabrication & Delivery <AHUs>	102	16-Jan-23 A	12-Jun-23	24
CONSTRUCTION					
BEAD MUSEUEM					
Make Ready - BEAD					
21-0087-BEAD-C1010	Demo/ Make Safe <BEAD>	2	15-Feb-23	16-Feb-23	0
21-0087-BEAD-C1030	Sawcut Restrooms <BEAD>	5	17-Feb-23	24-Feb-23	0
21-0087-BEAD-C1090	Sawcut Exteriors <BEAD>	5	27-Feb-23	03-Mar-23	28
21-0087-BEAD-C1100	UG MEP Restrooms <BEAD>	5	27-Feb-23	03-Mar-23	0
21-0087-BEAD-C1130	Pour Back Concrete Restrooms <BEAD>	3	06-Mar-23	08-Mar-23	0
21-0087-BEAD-C1140	Install Glazing in Exterior <BEAD>	5	06-Mar-23	10-Mar-23	28
Interiors - BEAD					
ROUGH-IN - BEAD					
Rough - In North - BEAD					
21-0087-BEAD-C1020	Wall Layout <Rough-In - North> <BEAD>	2	17-Feb-23	21-Feb-23	6
21-0087-BEAD-C1050	OH Fire Sprinkler <Rough-In - North> <BEAD>	3	22-Feb-23	24-Feb-23	6
21-0087-BEAD-C1060	Wall Framing <Rough-In - North> <BEAD>	3	22-Feb-23	24-Feb-23	6
21-0087-BEAD-C1080	OH Main Duct <Rough-In - North> <BEAD>	5	27-Feb-23	03-Mar-23	6
21-0087-BEAD-C1110	In-Wall Plumbing <Rough-In - North> <BEAD>	5	01-Mar-23	07-Mar-23	16
21-0087-BEAD-C1120	OH Branch Duct & Pressure Test <Rough-In - North> <BEAD>	5	06-Mar-23	10-Mar-23	6
21-0087-BEAD-C1160	In-Wall Electrical <Rough-In - North> <BEAD>	5	08-Mar-23	14-Mar-23	16
21-0087-BEAD-C1180	OH Electrical Mains <Rough-In - North> <BEAD>	3	13-Mar-23	15-Mar-23	6



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Current Milestone
Actual Level of Effort
Remaining Level of Effort

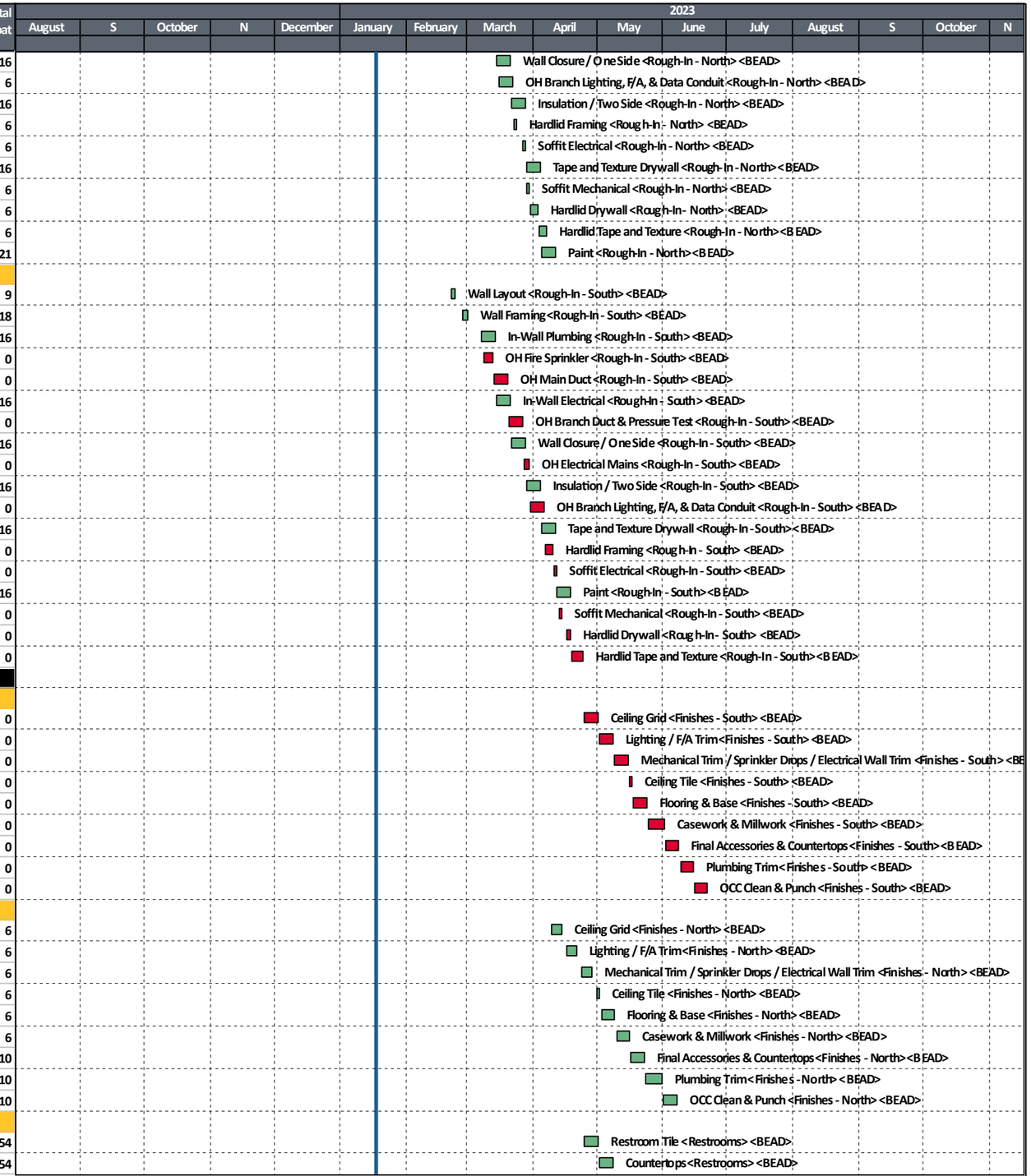
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Glendale Downtown Bead Museum and Annex TIs
21-0087-TIs - Construction Schedule

Run Date: 18-Jan-23
Data Date: 18-Jan-23

TASK filter: All Activities

Activity ID	Activity Name	Rem Dur	Start	Finish	Total Float
21-0087-BEAD-C1210	Wall Closure / One Side <Rough-In - North> <BEAD>	5	15-Mar-23	21-Mar-23	16
21-0087-BEAD-C1220	OH Branch Lighting, F/A, & Data Conduit <Rough-In - North> <BEAD>	5	16-Mar-23	22-Mar-23	6
21-0087-BEAD-C1250	Insulation / Two Side <Rough-In - North> <BEAD>	5	22-Mar-23	28-Mar-23	16
21-0087-BEAD-C1260	Hardlid Framing <Rough-In - North> <BEAD>	2	23-Mar-23	24-Mar-23	6
21-0087-BEAD-C1270	Soffit Electrical <Rough-In - North> <BEAD>	2	27-Mar-23	28-Mar-23	6
21-0087-BEAD-C1300	Tape and Texture Drywall <Rough-In - North> <BEAD>	5	29-Mar-23	04-Apr-23	16
21-0087-BEAD-C1310	Soffit Mechanical <Rough-In - North> <BEAD>	2	29-Mar-23	30-Mar-23	6
21-0087-BEAD-C1330	Hardlid Drywall <Rough-In - North> <BEAD>	2	31-Mar-23	03-Apr-23	6
21-0087-BEAD-C1340	Hardlid Tape and Texture <Rough-In - North> <BEAD>	4	04-Apr-23	07-Apr-23	6
21-0087-BEAD-C1360	Paint <Rough-In - North> <BEAD>	5	05-Apr-23	11-Apr-23	21
Rough - In South - BEAD					
21-0087-BEAD-C1040	Wall Layout <Rough-In - South> <BEAD>	2	22-Feb-23	23-Feb-23	9
21-0087-BEAD-C1070	Wall Framing <Rough-In - South> <BEAD>	3	27-Feb-23	01-Mar-23	18
21-0087-BEAD-C1150	In-Wall Plumbing <Rough-In - South> <BEAD>	5	08-Mar-23	14-Mar-23	16
21-0087-BEAD-C1170	OH Fire Sprinkler <Rough-In - South> <BEAD>	3	09-Mar-23	13-Mar-23	0
21-0087-BEAD-C1190	OH Main Duct <Rough-In - South> <BEAD>	5	14-Mar-23	20-Mar-23	0
21-0087-BEAD-C1200	In-Wall Electrical <Rough-In - South> <BEAD>	5	15-Mar-23	21-Mar-23	16
21-0087-BEAD-C1230	OH Branch Duct & Pressure Test <Rough-In - South> <BEAD>	5	21-Mar-23	27-Mar-23	0
21-0087-BEAD-C1240	Wall Closure / One Side <Rough-In - South> <BEAD>	5	22-Mar-23	28-Mar-23	16
21-0087-BEAD-C1280	OH Electrical Mains <Rough-In - South> <BEAD>	3	28-Mar-23	30-Mar-23	0
21-0087-BEAD-C1290	Insulation / Two Side <Rough-In - South> <BEAD>	5	29-Mar-23	04-Apr-23	16
21-0087-BEAD-C1320	OH Branch Lighting, F/A, & Data Conduit <Rough-In - South> <BEAD>	5	31-Mar-23	06-Apr-23	0
21-0087-BEAD-C1350	Tape and Texture Drywall <Rough-In - South> <BEAD>	5	05-Apr-23	11-Apr-23	16
21-0087-BEAD-C1370	Hardlid Framing <Rough-In - South> <BEAD>	2	07-Apr-23	10-Apr-23	0
21-0087-BEAD-C1390	Soffit Electrical <Rough-In - South> <BEAD>	2	11-Apr-23	12-Apr-23	0
21-0087-BEAD-C1400	Paint <Rough-In - South> <BEAD>	5	12-Apr-23	18-Apr-23	16
21-0087-BEAD-C1410	Soffit Mechanical <Rough-In - South> <BEAD>	2	13-Apr-23	14-Apr-23	0
21-0087-BEAD-C1420	Hardlid Drywall <Rough-In - South> <BEAD>	2	17-Apr-23	18-Apr-23	0
21-0087-BEAD-C1440	Hardlid Tape and Texture <Rough-In - South> <BEAD>	4	19-Apr-23	24-Apr-23	0
FINISHES - BEAD					
Finishes - South - BEAD					
21-0087-BEAD-C1460	Ceiling Grid <Finishes - South> <BEAD>	5	25-Apr-23	01-May-23	0
21-0087-BEAD-C1490	Lighting / F/A Trim <Finishes - South> <BEAD>	5	02-May-23	08-May-23	0
21-0087-BEAD-C1520	Mechanical Trim / Sprinkler Drops / Electrical Wall Trim <Finishes - South> <BEAD>	5	09-May-23	15-May-23	0
21-0087-BEAD-C1550	Ceiling Tile <Finishes - South> <BEAD>	2	16-May-23	17-May-23	0
21-0087-BEAD-C1570	Flooring & Base <Finishes - South> <BEAD>	5	18-May-23	24-May-23	0
21-0087-BEAD-C1590	Casework & Millwork <Finishes - South> <BEAD>	5	25-May-23	01-Jun-23	0
21-0087-BEAD-C1610	Final Accessories & Countertops <Finishes - South> <BEAD>	5	02-Jun-23	08-Jun-23	0
21-0087-BEAD-C1620	Plumbing Trim <Finishes - South> <BEAD>	5	09-Jun-23	15-Jun-23	0
21-0087-BEAD-C1630	OCC Clean & Punch <Finishes - South> <BEAD>	4	16-Jun-23	21-Jun-23	0
Finishes - North - BEAD					
21-0087-BEAD-C1380	Ceiling Grid <Finishes - North> <BEAD>	5	10-Apr-23	14-Apr-23	6
21-0087-BEAD-C1430	Lighting / F/A Trim <Finishes - North> <BEAD>	5	17-Apr-23	21-Apr-23	6
21-0087-BEAD-C1450	Mechanical Trim / Sprinkler Drops / Electrical Wall Trim <Finishes - North> <BEAD>	5	24-Apr-23	28-Apr-23	6
21-0087-BEAD-C1480	Ceiling Tile <Finishes - North> <BEAD>	2	01-May-23	02-May-23	6
21-0087-BEAD-C1510	Flooring & Base <Finishes - North> <BEAD>	5	03-May-23	09-May-23	6
21-0087-BEAD-C1540	Casework & Millwork <Finishes - North> <BEAD>	5	10-May-23	16-May-23	6
21-0087-BEAD-C1560	Final Accessories & Countertops <Finishes - North> <BEAD>	5	17-May-23	23-May-23	10
21-0087-BEAD-C1580	Plumbing Trim <Finishes - North> <BEAD>	5	24-May-23	31-May-23	10
21-0087-BEAD-C1600	OCC Clean & Punch <Finishes - North> <BEAD>	5	01-Jun-23	07-Jun-23	10
Restrooms - BEAD					
21-0087-BEAD-C1470	Restroom Tile <Restrooms> <BEAD>	5	25-Apr-23	01-May-23	54
21-0087-BEAD-C1500	Countertops <Restrooms> <BEAD>	5	02-May-23	08-May-23	54



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Current Milestone
Actual Level of Effort
Remaining Level of Effort

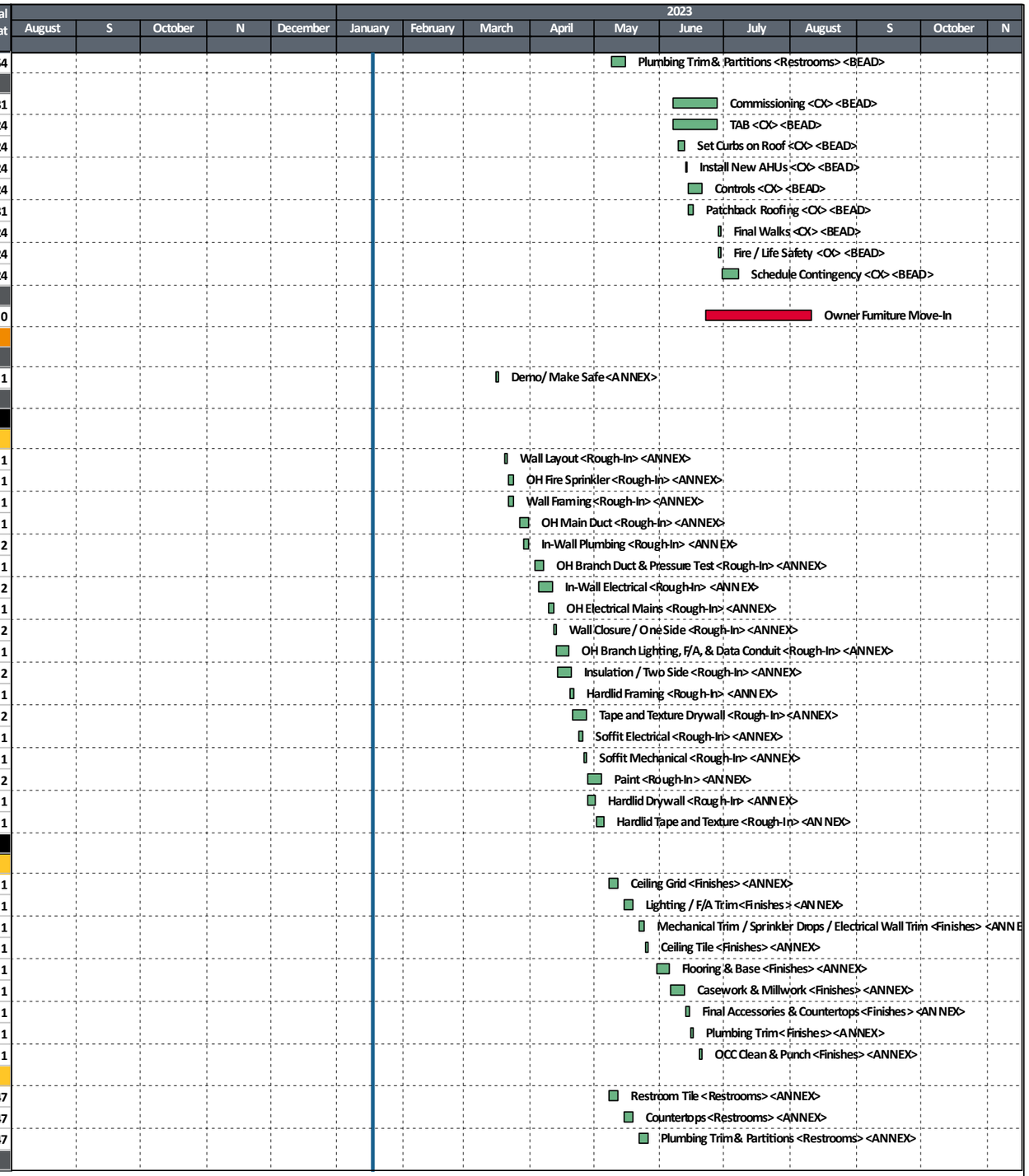
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Glendale Downtown Bead Museum and Annex TIs
21-0087-TIs - Construction Schedule

Run Date: 18-Jan-23
Data Date: 18-Jan-23

TASK filter: All Activities

Activity ID	Activity Name	Rem Dur	Start	Finish	Total Float
21-0087-BEAD-C1530	Plumbing Trim & Partitions <Restrooms> <BEAD>	5	09-May-23	15-May-23	54
Commissioning - BEAD					
21-0087-BEAD-C1640	Commissioning <CX> <BEAD>	15	07-Jun-23	27-Jun-23	31
21-0087-BEAD-C1650	TAB <CX> <BEAD>	15	07-Jun-23	27-Jun-23	24
21-0087-BEAD-C1660	Set Curbs on Roof <CX> <BEAD>	2	09-Jun-23	12-Jun-23	24
21-0087-BEAD-C1670	Install New AHUs <CX> <BEAD>	1	13-Jun-23	13-Jun-23	24
21-0087-BEAD-C1680	Controls <CX> <BEAD>	5	14-Jun-23	20-Jun-23	24
21-0087-BEAD-C1690	Patchback Roofing <CX> <BEAD>	3	14-Jun-23	16-Jun-23	31
21-0087-BEAD-C1700	Final Walks <CX> <BEAD>	2	28-Jun-23	29-Jun-23	24
21-0087-BEAD-C1710	Fire / Life Safety <CX> <BEAD>	2	28-Jun-23	29-Jun-23	24
21-0087-BEAD-C1720	Schedule Contingency <CX> <BEAD>	5	30-Jun-23	07-Jul-23	24
Owner Furniture Move-In - BEAD					
21-0087-BEAD-C1000	Owner Furniture Move-In	35	22-Jun-23	10-Aug-23	0
ANNEX BUILDING					
Make Ready - ANNEX					
21-0087-ANNEX-C1000	Demo/ Make Safe <ANNEX>	2	16-Mar-23	17-Mar-23	1
Interiors - ANNEX					
ROUGH-IN - ANNEX					
Rough - In - ANNEX					
21-0087-ANNEX-C1010	Wall Layout <Rough-In> <ANNEX>	2	20-Mar-23	21-Mar-23	1
21-0087-ANNEX-C1020	OH Fire Sprinkler <Rough-In> <ANNEX>	3	22-Mar-23	24-Mar-23	1
21-0087-ANNEX-C1030	Wall Framing <Rough-In> <ANNEX>	3	22-Mar-23	24-Mar-23	1
21-0087-ANNEX-C1040	OH Main Duct <Rough-In> <ANNEX>	5	27-Mar-23	31-Mar-23	1
21-0087-ANNEX-C1050	In-Wall Plumbing <Rough-In> <ANNEX>	3	29-Mar-23	31-Mar-23	2
21-0087-ANNEX-C1060	OH Branch Duct & Pressure Test <Rough-In> <ANNEX>	5	03-Apr-23	07-Apr-23	1
21-0087-ANNEX-C1070	In-Wall Electrical <Rough-In> <ANNEX>	5	05-Apr-23	11-Apr-23	2
21-0087-ANNEX-C1090	OH Electrical Mains <Rough-In> <ANNEX>	3	10-Apr-23	12-Apr-23	1
21-0087-ANNEX-C1100	Wall Closure / One Side <Rough-In> <ANNEX>	2	12-Apr-23	13-Apr-23	2
21-0087-ANNEX-C1110	OH Branch Lighting, F/A, & Data Conduit <Rough-In> <ANNEX>	5	13-Apr-23	19-Apr-23	1
21-0087-ANNEX-C1120	Insulation / Two Side <Rough-In> <ANNEX>	5	14-Apr-23	20-Apr-23	2
21-0087-ANNEX-C1130	Hardlid Framing <Rough-In> <ANNEX>	2	20-Apr-23	21-Apr-23	1
21-0087-ANNEX-C1140	Tape and Texture Drywall <Rough-In> <ANNEX>	5	21-Apr-23	27-Apr-23	2
21-0087-ANNEX-C1150	Soffit Electrical <Rough-In> <ANNEX>	2	24-Apr-23	25-Apr-23	1
21-0087-ANNEX-C1160	Soffit Mechanical <Rough-In> <ANNEX>	2	26-Apr-23	27-Apr-23	1
21-0087-ANNEX-C1170	Paint <Rough-In> <ANNEX>	5	28-Apr-23	04-May-23	2
21-0087-ANNEX-C1180	Hardlid Drywall <Rough-In> <ANNEX>	2	28-Apr-23	01-May-23	1
21-0087-ANNEX-C1190	Hardlid Tape and Texture <Rough-In> <ANNEX>	4	02-May-23	05-May-23	1
FINISHES - ANNEX					
Finishes - ANNEX					
21-0087-ANNEX-C1200	Ceiling Grid <Finishes> <ANNEX>	5	08-May-23	12-May-23	1
21-0087-ANNEX-C1220	Lighting / F/A Trim <Finishes> <ANNEX>	5	15-May-23	19-May-23	1
21-0087-ANNEX-C1240	Mechanical Trim / Sprinkler Drops / Electrical Wall Trim <Finishes> <ANNEX>	3	22-May-23	24-May-23	1
21-0087-ANNEX-C1260	Ceiling Tile <Finishes> <ANNEX>	2	25-May-23	26-May-23	1
21-0087-ANNEX-C1270	Flooring & Base <Finishes> <ANNEX>	5	30-May-23	05-Jun-23	1
21-0087-ANNEX-C1300	Casework & Millwork <Finishes> <ANNEX>	5	06-Jun-23	12-Jun-23	1
21-0087-ANNEX-C1320	Final Accessories & Countertops <Finishes> <ANNEX>	2	13-Jun-23	14-Jun-23	1
21-0087-ANNEX-C1330	Plumbing Trim <Finishes> <ANNEX>	2	15-Jun-23	16-Jun-23	1
21-0087-ANNEX-C1340	OCC Clean & Punch <Finishes> <ANNEX>	2	19-Jun-23	20-Jun-23	1
Restrooms - ANNEX					
21-0087-ANNEX-C1210	Restroom Tile <Restrooms> <ANNEX>	5	08-May-23	12-May-23	47
21-0087-ANNEX-C1230	Countertops <Restrooms> <ANNEX>	5	15-May-23	19-May-23	47
21-0087-ANNEX-C1250	Plumbing Trim & Partitions <Restrooms> <ANNEX>	5	22-May-23	26-May-23	47
Commissioning - ANNEX					



Activity ID	Activity Name	Rem Dur	Start	Finish	Total Float
21-0087-ANNEX-C1080	Controls <CX> <ANNEX>	5	10-Apr-23	14-Apr-23	72
21-0087-ANNEX-C1280	Commissioning <CX> <ANNEX>	5	06-Jun-23	12-Jun-23	42
21-0087-ANNEX-C1290	TAB <CX> <ANNEX>	5	06-Jun-23	12-Jun-23	37
21-0087-ANNEX-C1310	Fire / Life Safety <CX> <ANNEX>	2	13-Jun-23	14-Jun-23	37
21-0087-ANNEX-C1360	Final Walks <CX> <ANNEX>	1	21-Jun-23	21-Jun-23	31
21-0087-ANNEX-C1370	Schedule Contingency <CX> <ANNEX>	4	22-Jun-23	27-Jun-23	31
Owner Furniture Move-In - ANNEX					
21-0087-ANNEX-C1350	Owner Furniture Move-In	35	21-Jun-23	09-Aug-23	1

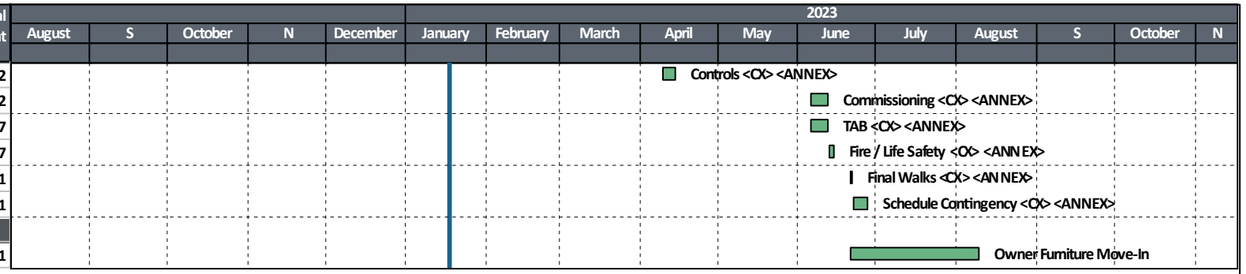


EXHIBIT H

Dispute Resolution Procedures

1. Disputes.

1.1 Each Dispute arising out of or related to this Agreement (including Disputes regarding any alleged breaches of this Agreement) shall be initiated and decided under the provisions of this Exhibit.

1.2 CMAR and City shall each designate in writing to the other party, from time to time, a member of senior management who shall be authorized to attempt to expeditiously resolve any Dispute relating to the subject matter of this Agreement in an equitable manner.

1.3 A party shall initiate a Dispute by delivery of written notice to the members of management designated by the respective parties under Section 1.2 of this Exhibit.

1.4 The parties must:

(A) Attempt to resolve all Disputes promptly, equitably and in a good faith manner; and

(B) Provide each other with reasonable access during normal business hours to any and all non-privileged records, information and data pertaining to any such Dispute.

1.5 With respect to matters concerning modification of the GMP or any schedule, CMAR must first follow the provisions of any Claim procedure established by the Design-Build Agreement before seeking relief under these Procedures.

2. Emergency Arbitration.

2.1 If the parties are unable to accomplish resolution of a Dispute, the expedited resolution of which either party considers necessary to prevent or mitigate a material delay to the critical path of the Services (a "Time Sensitive Dispute") within two days after the Time Sensitive Dispute has been initiated by a party, either party may thereafter seek emergency relief before an emergency arbitrator (the "Emergency Arbitrator") appointed as follows:

(A) The parties will exercise best efforts to pre-select an Emergency Arbitrator within 20 days after entering into this Agreement;

(B) If the Emergency Arbitrator has not been selected at the time a party delivers Notice of a Time Sensitive Dispute, the parties will each select a representative within one day after the Notice is delivered and the two representatives will then select the Emergency Arbitrator by the third day following delivery of the Notice.

(C) The Emergency Arbitrator shall be an attorney with at least ten (10) years' experience with commercial construction legal matters in Maricopa County, Arizona, be independent, impartial, and not have engaged in any business for or adverse to either party for at least ten (10) years.

2.2 The Emergency Arbitrator will conduct a hearing and render a written determination on the Dispute to both parties within five business days of the matter being referred to him or her, all in accordance with Rules O-1 to O-8 of the

American Arbitration Association ("AAA") Commercial Rules-Optional Rules for Emergency Protection Commercial Rules ("AAA Emergency Rules").

2.3 Although the hearing will be conducted using AAA rules, unless both parties agree otherwise, this dispute process will not be administered by the AAA but will be conducted by the parties in accordance with these procedures.

2.4 If, however, an Emergency Arbitrator has not selected within three days after delivery of the Notice, either party may upon three days additional notice, thereafter seek emergency relief before the AAA, in accordance with the AAA Emergency Rules, provided that the Emergency Arbitrator meets the qualifications set forth above.

2.5 All proceedings to arbitrate Time Sensitive Disputes shall be conducted in Glendale, Arizona.

2.6 Presentation, request for determination (i.e., a party's prayer), and the Emergency Arbitrators decision will adhere to the procedures required in Section 3.6 of this Exhibit.

2.7 The finding of the Emergency Arbitrator with respect to any Time Sensitive Dispute will be binding upon the parties on an interim basis during progress of the Services, subject to review de novo by arbitration after the Project Substantial Completion Date.

2.8 The time and extent of discovery will be as determined by the Emergency Arbitrator.

(A) Discovery orders of the Emergency Arbitrator will consider the time sensitivity of the matter and the parties desire to resolve the issue in the most time and costs efficient manner;

(B) The parties are obligated to cooperate fully and completely in the provision of documents and other information, including joint interviews of individuals with knowledge such that the matter moves toward resolution in the most time and costs efficient manner and the Emergency Arbitrator is empowered to fashion any equitable penalty against a party that fail to meet this obligation.

3. Non-Emergency Arbitration.

3.1 Except as provided in Section 5 of this Exhibit, any Dispute that is either a non-emergency Dispute that has not been resolved by negotiation, or a de novo review of an AAA emergency arbitration will be decided by binding arbitration by a panel of three arbitrators in accordance with, but not necessarily administered by, the Construction Industry Rules of the AAA.

(A) The parties shall each select an arbitrator within 15 days after notice that a party desires to resolve a dispute by arbitration.

(B) The two arbitrators shall then each select a third arbitrator. If an arbitrator is not selected within any such 15 day period, then the arbitrator shall be appointed by the AAA.

3.2 The arbitrator(s) shall meet the qualifications of Emergency Arbitrators as provided in Section 2 of this Exhibit.

3.3 The arbitrators do not have the authority to consider or award punitive damages as part of the arbitrators' award.

3.4 In connection with such arbitration, each party shall be entitled to conduct up to five depositions, and, no less than 90 days prior to the date of the arbitration hearing, each party shall deliver to the other party copies of all documents in the delivering party's possession that are relevant to the dispute.

3.5 The arbitration hearing shall be held within 150 days of the appointment of the arbitrators.

3.6 At the arbitration hearing, each party will argue its position to the arbitrators in support of one proposed resolution to the dispute (a "Proposed Resolution").

(A) Each party's Proposed Resolution must be fully dispositive of the dispute.

(B) The arbitrators must select one Proposed Resolution by majority consent and are not free to fashion any alternative resolutions.

(C) The parties must submit their proposed resolution of the matter to the arbitrators and the other party 15 days prior to the date set for commencement of the arbitration proceeding.

(D) The decision of the arbitrators will be forwarded to the parties within 15 days after the conclusion of the arbitration hearing.

(E) The decision of the arbitration panel is final and binding on the parties and may be entered in any court of competent jurisdiction for the purpose of securing an enforceable judgment.

(F) All costs and expenses associated with the arbitration, including the reasonable legal fees and costs incurred by the prevailing party, must be paid by the party whose position was not selected by the arbitrators.

4. Continuing Work. Unless otherwise agreed to in writing, CMAR must continue to perform and maintain progress of the Work during any Dispute Resolution or arbitration proceedings, and City will continue to make payment to CMAR in accordance with the Agreement.

5. Exceptions.

5.1 Neither City nor CMAR are required to arbitrate any third-party claim, cross-claim, counter claim, or other claim or defenses in any action that is commenced by a third-party who is not obligated by contract to arbitrate disputes with City and CMAR.

5.2 City or CMAR may commence and prosecute a civil action to contest a lien or stop notice, or enforce any lien or stop notice (but only to the extent the lien or stop notice the party seeks to enforce is enforceable under Arizona law), including, without limitation, an action under A.R.S. § 33-420, without the necessity of initiating or exhausting the procedures of this Exhibit.

5.3 This Exhibit does not apply to, and may not be construed to require arbitration of, any claims, actions or other process undertaken, filed, or issued by the City of Glendale Building Safety Department, Code Compliance Department, Police Department, Fire Department, or any other agency of City acting in its

governmental permitting, for the benefit of public health, safety, and welfare, or other regulatory capacity.

5.4 In connection with any arbitration, the arbitrators do not have the authority to, and may not enforce, any provision of the Federal or Arizona Rules of Civil Procedure.