### UNBEHAGEN CONSTRUCTION

### 0 N 0 1 N 0 0 1 1 0

# TUC**∜**N, LLC

 Mail:
 2925 Gulf Fwy. South, #B-194 - League City, Texas 77573

 Office:
 2111 Gulf Fwy, La Marque, TX 77568

 Phone:
 409-632-7922

 Web:
 www.tuconllc.com

### CHANGE PROPOSAL

**CP Number:** 08R2 **RFP #:** CPR 03

Date: 7-27-2023

Project: Galveston ISD Weis Middle School Ph 1 Renovation

Description: Central Middle School restrooms 135 & 137 remodel. Excludes Boys restroom by SPED. Excludes HVAC controls Excludes Terrazo floor repair in corridor at Rm 137

Material/Description	Unit	Quantity	Labor	Labor	Material	Material	Equipment	Equipment	Subcontract	Subcontract	Item
	Measure		Unit Cost	Extension	Unit Cost	Extension	Unit Cost	Extension	Unit Cost	Extension	Total
				0.00		0.00		0.00		0.00	0.00
Demolition partitions, walls, floors, ceiling	mh	280.00	17.00	4,760.00		0.00	6.25	1,750.00		0.00	6,510.00
Disposal	ea	2.00		0.00		0.00	1,300.00	2,600.00		0.00	2,600.00
				0.00		0.00		0.00		0.00	0.00
Demolition concrete slab on grade for new plumbing				0.00		0.00		0.00		0.00	0.00
Saw cut	in ft	540.00		0.00		0.00		0.00	1.75	945.00	945.00
Remove & haul out	mh	60.00	17.00	1,020.00		0.00	5.00	300.00		0.00	1,320.00
				0.00		0.00		0.00		0.00	0.00
Concrete repair slab on grade at new plumbing				0.00		0.00		0.00		0.00	0.00
Vapor barrier	ls	1.00	50.00	50.00	250.00	250.00		0.00		0.00	300.00
Dowels #4	ea	125.00	1.20	150.00	2.50	312.50		0.00		0.00	462.50
Ероху	ea	10.00		0.00	22.00	220.00		0.00		0.00	220.00
Rebar #4	lb	340.00	1.41	479.40	0.60	204.00		0.00		0.00	683.40
Concrete	су	4.00		0.00	250.00	1,000.00		0.00		0.00	1,000.00
Place/Finish	mh	50.00	35.00	1,750.00		0.00	8.00	400.00		0.00	2,150.00
				0.00		0.00		0.00		0.00	0.00
Louver wall opening @ EF-01				0.00		0.00		0.00		0.00	0.00
Demo opening	ls	1.00	600.00	600.00		0.00	125.00	125.00		0.00	725.00
Steel angle & install Louver	ls	1.00	180.00	180.00	75.00	75.00		0.00		0.00	255.00
Lift	ls	1.00		0.00		0.00	800.00	800.00		0.00	800.00
				0.00		0.00		0.00		0.00	0.00
Gyp Bd Assemblies	ls	1.00		0.00		0.00		0.00	35,136.00	35,136.00	35,136.00
				0.00		0.00		0.00		0.00	0.00
Tile walls	ls	1.00		0.00		0.00		0.00	23,825.70	23,825.70	23,825.70
Repair floor & walls after tile demo	ls	1.00	3,709.00	3,709.00	5,399.00	5,399.00	100.00	100.00		0.00	9,208.00
				0.00		0.00		0.00		0.00	0.00
Epoxy floor & base	ls	1.00		0.00		0.00		0.00	9,094.00	9,094.00	9,094.00
				0.00	700.00	0.00		0.00		0.00	0.00
Paint Ceilings	ls	1.00	720.00	720.00	700.00	700.00		0.00		0.00	1,420.00
Door frames	ls	1.00	240.00	240.00	150.00	150.00		0.00		0.00	390.00
		1.00		0.00		0.00		0.00	44.454.00	0.00	0.00
Restroom partitions by Accurate Floor Mtd	ls	1.00		0.00		0.00		0.00	11,154.00	11,154.00	11,154.00
		1.00		0.00		0.00		0.00	4 000 00	0.00	0.00
Restroom accessories by ASI	ls	1.00		0.00		0.00 0.00		0.00	1,966.00	1,966.00	1,966.00
Restroom hand dryers	ls	1.00		0.00 0.00				0.00 0.00	953.00	953.00 0.00	953.00
	1-	4.00		0.00		0.00		0.00	2 050 00		0.00
HVAC New grills & duct connections at Rms 135 & 137 only.	ls	1.00				0.00			3,950.00	3,950.00	3,950.00
Excludes the Boys Restroom by SPED area.				0.00 0.00		0.00 0.00		0.00 0.00		0.00 0.00	0.00 0.00
Excludes rerouting duct work or above ceiling obstuctions.											
Fleetrical		1.00		0.00		0.00		0.00	12 020 00	0.00	0.00
Electrical	ls	1.00		0.00		0.00		0.00	13,830.00	13,830.00	13,830.00
		1.00		0.00 0.00		0.00 0.00		0.00 0.00	40 500 00	0.00	0.00 48,528.00
Plumbing	ls	1.00	I I	0.00	I	0.00	I	0.00	48,528.00	48,528.00	48,528.00

7/27/20238:57 AM

### Description: Central Middle School restrooms 135 & 137 remodel. Excludes Boys restroom by SPED. Excludes HVAC controls

Excludes Terrazo floor repair in corridor at Rm 137

Material/Description	Unit	Quantity	Labor	Labor	Material	Material	Equipment	Equipment	Subcontract	Subcontract	Item
	Measure		Unit Cost	Extension	Unit Cost	Extension	Unit Cost	Extension	Unit Cost	Extension	Total
				0.00		0.00		0.00		0.00	0.00
Fire alarm devices remove for construction & reinstall at completion	s	1.00		0.00		0.00		0.00	750.00	750.00	750.00
Fire suppression adjust heads	s	1.00		0.00		0.00		0.00	1,500.00	1,500.00	1,500.00
	.	00.00	400.00	0.00		0.00	10.00	0.00		0.00	0.00
	day	60.00	136.00	8,160.00		0.00	40.00	2,400.00		0.00	10,560.00
	ea dav	3.00 60.00	288.50	0.00 17,310.00		0.00 0.00	1,300.00 96.15	3,900.00 5,769.00		0.00 0.00	3,900.00 23,079.00
Forman	uay	60.00	200.00	0.00		0.00	90.15	5,769.00		0.00	23,079.00
I NOTE: THIS CHANGE PROPOSAL IS VALID FOR 10 DAYS FROM DATE OF PR				0.00		0.00		0.00		0.00	0.00
AFTER 10 DAYS PRICE IS SUBJECT TO CHANGE				0.00		0.00		0.00		0.00	0.00
				0.00		0.00		0.00		0.00	0.00
			•	39,128.40		8,310.50		18,144.00		151,631.70	217,214.60
* CONTRACT TIME EXTENSION THIS CHANGE PROPOSAL	TBD	DAYS				Labor Burden		•		53.00%	\$20,738.05
BASED ON 5 DAYS FOR APPROVAL TO PROCEED						Material Tax				0.00%	\$0.00
						Equipment Tax				8.25%	\$1,496.88
<b>UNBEHAGEN CONSTRUCTION / TUCON, LLC</b>								Total			\$22,234.93
Submitted By: Mike Unbehagen	7-27-2023					Builders Risk Insura					\$0.00
Mike Unbehagen	Dat	•				Bonds					\$5,387.61
	Dai	C				Site & Building Perr	mita	Excluded			\$5,387.01
						Sile & Building Peri		Total			\$0.00
								Iotai			\$5,387.01
						Fee Self Performed				12.00%	\$11,184.65
						Fee Subcontracted	Work			12.00%	\$18,195.80
											\$274,217.60



P.O. Box 925615 → Houston, Texas → 77292-6615 → Office - (713) 681-9410 → axisdrywall@sbcglobal.net

July 18, 2023

Tucon LLC 2925 Gulf Frwy. S Ste B-194 League City, TX 77573

Re: Central Middle School Restrooms 135 & 137

Please accept our bid in the amount of \$35,136.00.

Scope of work includes: Metal Stud framing, Gyp board ceilings and cement board walls, tape and float.

# Pricing for Labor and Materials will be honored for 30 days

Please feel free to contact me if you have any questions.

Sincerely, David Fox



Mike Unbehagen <mike@tuconllc.com>

### **REVISED PROPOSAL - Weis MS, Remodel 2 Restrooms (Central Campus)**

1 message

Paul Patterson <ppatterson.pof@gmail.com> To: Mike Unbehagen <mike@tuconllc.com> Thu, Jul 20, 2023 at 5:04 PM

Demo existing floor and wall tile. Prep CMU walls for new wall tile. Furnish and install Glacier FX21 12" x 24" Porcelain tile at walls only. Included are marble t-holds, schluter metal trim at corners and base.

 Porcelain 1410 sf
 @
 9.23
 =
 13,014.30

 Metals 24 stick
 @
 36.00
 =
 864.00

 T-Holds 2 ea
 @
 24.00
 =
 48.00

 Epoxy Grt 1410 sf
 @
 .70
 =
 987.00

 Frt. 1410 sf
 @
 .64
 =
 902.40

Install W/T - 1410 sf @ 5.70 = 8,037.00 TOTALS \$ 23,852.70

Regards,

Paul Patterson Post Oak Flooring, LLC. 4102 Weslow St. Houston TX. 77087 281-837-9102 Office 346-718-2903 Fax 281-678-7975 Mobil

Fourpoints \$	Services,	Inc.
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6551 Calder Dr Dickinson, TX. 77539

Date:	7/12/2023	Proposal #165-23 Revised due to CPR #3
Name:	Mike Unbehagen	Revised due to CPR #3
	Tucon, LLC.	
	Central Middle School - 2023 Summer	
Location:	Galveston, TX	
	Resinous Flooring	
1	To furnish and install Key Resin's Flowfresh SR 1/4" Decorative Broadcast Cementitious Urethane flooring at all areas indicated to receive resinous flooring as per the finish schedule. System to match resinous flooring previously installed during 2022 Summer work. Color to be a custom blend of quartz to match previously installed system, pending approval from Owner (Approx. 497 Sq. Ft.)	\$6,464.00
2	To furnish and install 4" resinous integral cove base to all areas indicated to receive as per finish schedule. Cove base to match adjacent resinous flooring system. (Approx. 142 LF)	\$2,630.00
		Total: \$9,094.00
	Work to be performed in one mobilization in order to adhere to the time constraints of the project. Due to this, Fourpoints Services request all work areas be released to us as once.	
Includes:	Insurance: W/C G/L, additional insured and waivers of subrogation. Labor and materials to complete the above quote	
Excludes:	Any locations or materials not specified in this quote. Stand alone numbers unless approved.	
Kind Regar Sarah Jone (832) 762-5	IS STATES	

smjones@fourpoints-inc.com

# **Built Rite Specialties**

# PO Box 75

# Richmond, TX 77406

# Office-Admin@BuiltRiteSpecialties.com

832-471-6318 PH.

# **QUOTATION**

TO:	Unbehagen Construction Tucon, LLC	QUOTE #:	20230717
ATTN:	Mike Unbehagen	DATE:	7/17/2023
PHONE:	409-370-9415 / mike@tuconllc.com	JOB: Galveston ISD- C	entral Middle School

WE ARE PLEASED TO QUOTE THE FOLLOWING ITEMS SUBJECT TO CONDITIONS LISTED BELOW.

# **CONSISTING OF THE FOLLOWING:**

# SECTION: 102113 Toilet Compartments by Accurate QTY

6	Color-Thru Phenolic Floor Mounted Toilet	<b>MATERIAL:</b>	\$8,998.00
	Compartments. 58"H Doors/Panels. Standard	TAX:	\$0.00
	Stainless Steel Hardware. 3/4" Material Thickness	FREIGHT:	\$586.00
	for Doors/Pilasters. 1/2" Material Thickness for Panels/	LABOR:	\$1,570.00
	Screens.	TOTAL:	\$11,154.00

2 Color-Thru Phenolic 48" Wall Hung Urinal Screens

# NOTES:

\*No specifications or elevation drawings were provided for restrooms. Pricing out Floor Mounted, Color-Thru Phenolic material per GC's request. Material to be qualified with Architect/Owner. \*ASI Accurate standard color-thru phenolic compartments are 55"H w/

standard

stainless steel hardware.

\*Pricing based on ASI Accurate stock colors.

\*\*Please confirm all items and quantities prior to ordering material.

\*Boys RR 135 and Girls RR 137 ONLY

# SECTION: 102800 Toilet Accessories by ASI

OTY

L L Y			
5	TA-1: Soap Dispenser OFCI	<b>MATERIAL:</b>	\$1,063.00
5	TA-2: Inter-Lok Angle Framed 24"x36" Mirror #10-	TAX:	\$0.00
6	TA-3: Double Roll Toilet Tissue Dispenser #10-0264-	FREIGHT:	\$278.00
2	TA-5: Straight 36" Grab Bar (1-1/2" DIA) #10-3801-36	LABOR:	\$625.00
2	TA-5: Straight 42" Grab Bar (1-1/2" DIA) #10-3801-42	TOTAL:	\$1,966.00
5	$T \land 7 : S = f \land 1 \land 1 \land 2 \land 1 \land 2 \land 2 \land 2 \land 2 \land 2 \land 2$	0.050	

5 TA-7: Surface Mounted Sanitary Napkin Disposal #10-20852

# **OPTIONS FOR HAND DRYERS** (No specifications or model numbers provided)

		Furnish:	Furnish & Install:
2	TA-13: Q-974A2 VerdeDri World Dryer White	\$919.00	\$953.00

# NOTES:

\*Please see options for hand dryers above as no model number was listed for these. GC to qualify with Architect/Owner.

\*Toilet Accessories specs list model numbers for toilet tissue dispensers. However, per Toilet Accessories Legend (Pg. A-102), these items are OFCI. Priced

out per specs. If BRS will not furnish these items, please deduct \$123.00 from material. \*No dimensions were provided for mirrors, priced out standard 24"x36". If a different size is needed, we will re-price.

\*Outside diamenter required for grab bars conflict with model number in specs. Priced out 1-1/2" DIA grab bars (model number B-6806 as specified).

\*All utility room and shower accessories are excluded from pricing.

\*\*Please confirm all items and quantities prior to ordering material.



# HVAC / ENERGY MANAGEMENT / REFRIGERATION / PLUMBING

3514 Pinemont, Houston, Texas 77018713-681-5300 \* Fax: 713-681-6675TACLA44328CEstimator: Jerry HensleyEmail: jerryh@mesamechanical.comMPL38021

# HVAC BID PROPOSAL

# **To: Tucon Construction**

Date: July 27, 2023

# Attn: Mike Unbehagen

Project: GISD Central MS RR's

Subject to prompt acceptance within **15 calendar days**, all conditions of bid proposal stated on pages 1-4 of this form, and approval of Customer's credit by Mesa Mechanical, Inc. which shall not be unreasonably withheld, we propose to furnish materials and labor as specified below at the prices stated below. Acceptance of this bid proposal is expressly limited to the terms herein. We propose furnishing and installing the heating, ventilation, and air conditioning on the above-referenced project.

# I. Items included are as follows:

- 1. Per Plans and Specifications Dated 07/11/2023 CPR 3 and 0 Addenda seen.
- 2. Excludes Exhaust Fan and its Ductwork for boys Restroom at center of building.
- 3. Replace Supply and Exhaust Grilles in (4) Restrooms.
- 4. HVAC Permit
- 5. Warranty on material & labor provided by Mesa Mechanical as specified in Division 23 only.

# II. Items excluded are as follows:

- Replacement of existing equipment.
- DDC/BAS Controls
- Prevailing Wage Rates
- Duct Cleaning
- Repairs or replacement of any HVAC equipment, systems & controls not specifically shown or noted on mechanical drawings or specifications.
- Architectural Louvers
- Electrical or any conduit

- Starters & disconnects not integral with equipment.
- Plumbing
- Fire Proofing & Water Proofing
- Kitchen Equipment & Backsplash
- Any Roofing Work, Roof/Deck Penetrations, Leveling/Blocking of Curbs/Equipment Supports
- Temporary Heating, Ventilation or Air Conditioning

- Cut, Patch, Paint, Any Penetrations
- Any Structural Framing: Structural Steel/Supports, or Structural Reinforcement
- Saw Cutting, Coring, Break Up of Concrete, Removal of Concrete
- Form Concrete, Concrete Slabs, Pour Back of Concrete, Housekeeping Pads, Grouting, Any Concrete Work
- Gas Piping
- Fire Alarm and Fire Alarm Interlocks
- Dumpster or Dumpster Fees
- Excavation, Backfill, Compaction, Removal of Excess Spoils
- Landscaping
- Location of Underground Utilities

- Site Utilities & Temporary Utilities
- Site Security
- Epoxy coat on coils
- Overtime
- Ceiling Removal and Replacement
- Emergency Generator
- Remote Lay Down and Storage, Facilities (on-site storage, fabrication and lay down areas on-site is a basis of bid assumption)
- Provision & Installation of Access Doors in Sheetrock Ceilings or Walls
- Payment & Performance Bonds
- Allowances
- General clean-up crew
- Scaffolding

# III. Base Bid: \$3,950.00 (Three Thousand Nine Hundred Fifty Dollars)

# **BID QUALIFICATIONS:**

- 1. This proposal is based on a mutually agreeable subcontract.
- 2. Monthly invoices are to be paid within thirty (30) days.
- 3. Customer shall not deduct retainage from Mesa Mechanical, Inc.'s payments except to the extent of retainage held by project owner on Mesa Mechanical, Inc.'s work.
- 4. Retention paid within thirty (30) days of acceptance and completion of our work.
- 5. All work and items furnished by others will be in place, ready for installation so as to preclude any delays.
- 6. The warranty on equipment begins after initial start-up and beneficial use.

- IV. TERMS AND CONDITIONS
  - 1. (See Attachment #1)

Submitted By:

Jerry Hensley

Accepted By:

Name

Jerry Hensley

Date

Estimator/Project Manager

Regulated by the Texas Department of Licensing and Regulation, PO Box 12157, Austin, Texas 78711, 1-800-803-9202, 512-463-6599, <u>www.tdlr.texas.gov</u> Regulated by the Texas State Board of Plumbing Examiners, PO Box 4200, Austin, Texas 78765, 1-800-845-6584. 512-936-5200

### Attachment #1 Terms and Conditions of Bid Proposal

1. Allowing the Mesa Mechanical, Inc. to commence work or preparation for work will constitute acceptance by Customer of this bid proposal. Mesa Mechanical, Inc. and Customer will execute an American Institute of Architect's A401-2007 subcontract form to memorialize their agreement, supplemented and modified as provided by this bid proposal which shall be incorporated by reference into the final subcontract. In the event of any conflict between the terms of this bid proposal and any other documents stating terms of the final subcontract, this bid proposal shall govern.

2.A change in the price of an item of material of more than 5% between the date of this bid proposal and the date of installation shall warrant and equitable adjustment in the subcontract price.

3. Mesa Mechanical, Inc. will not be required to name additional insureds to its general liability insurance policy, nor to waive subrogation for claims covered by workers' compensation or commercial general liability insurance. Mesa Mechanical, Inc. shall maintain insurance with coverage and limits only as provided by Mesa Mechanical, Inc.'s existing insurance program evidenced by its certificate of insurance available on request.

4. Mesa Mechanical, Inc.'s schedule of values shall be used to determine progress payments. All sums not paid when due shall bear interest at the rate of 1 ½ % per month from due date until paid or the maximum legal rate permitted by law, whichever is less; and all costs of collection, including a reasonable attorney's fee, shall be paid by Customer. The proper venue to resolve any disputes arising under the subcontract shall be the place where the project is located, and the laws of said place shall govern all such disputes.

5.Mesa Mechanical, Inc. shall be entitled to equitable adjustments of the contract price, including but not limited to any increased costs of labor, supervision, equipment or materials and reasonable overhead profit, for any modification of the project schedule differing from the bid schedule, and for any other delays, acceleration, out-of-sequence work and acts of schedule changes beyond its reasonable control, including but not limited to those caused by labor unrest, fires, floods, acts of nature or government, wars, embargos, vendor priorities and allocations, transportation delays, suspension of work for non-payment or as ordered by Customer, or other delays caused by Customer or others. Should work be delayed by any of the causes for a period exceeding ninety (90) days, Mesa Mechanical, Inc. shall be entitled to terminate the subcontract. Mesa Mechanical, Inc. change proposals must be processed in not more than thirty (30) calendar days or as otherwise indicated on the change proposal.

6.THE EXPRESS WARRANTIES SET FORTH IN THE SUBCONTRACT DOCUMENTS ARE PROVIDED IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY MESA MECHANICAL, INC. Mesa Mechanical, Inc. is not responsible for special, incidental, or consequential damages and Mesa Mechanical, Inc.'s liability for delay damages shall not exceed 5% of the original subcontract amount. Mesa Mechanical, Inc. is not responsible for damage to its work by other parties, and any repair work necessitated by such damage is extra work. All materials shall be furnished in accordance with the respective industry tolerance of color variation, thickness, size, finish, texture and performance standards. All warranty claims must be received by Mesa Mechanical, Inc. not more than one (1) year after completion of Mesa Mechanical, Inc.'s work, and Mesa Mechanical, Inc. must be provided a reasonable opportunity to inspect and make corrections, or such warranty claims are barred.

7.Except as specifically required by the work and specifications included in this bid proposal, Customer shall furnish all temporary site facilities, including but not limited to sited access, storage space, hoisting facilities, guard rails, covers for floor, roof and wall opening, security, parking, safety orientation, break and lunch facilities, toilet and wash facilities, drinking water and other water facilities, electrical service, telecommunication service, lighting, heat, ventilation, weather protection, fire protection, and trash and recycling services.
8.To the extent that performance and payment bonds are included in this proposal, the bond forms must be the AGC 606 (2004) and AGC 607 (2004) published by the Associated General Contractors of America.

9. Neither party shall assign the subcontract, in whole or in part, without the written consent of the other.

10. Mesa Mechanical, Inc. shall not participate in a consolidated insurance program (CIP).

11. Waivers of lien or bond rights shall exclude retainage, unbilled changes, and claims which have been asserted in writing or which have not yet become known to Mesa Mechanical, Inc., and shall either apply only through the date of work for which Mesa Mechanical, Inc. has been paid in full, or shall be conditional upon receipt of funds to Mesa Mechanical, Inc.'s account.

Regulated by the Texas Department of Licensing and Regulation, PO Box 12157, Austin, Texas 78711, 1-800-803-9202, 512-463-6599, <u>www.tdlr.texas.gov</u>

Regulated by the Texas State Board of Plumbing Examiners, PO Box 4200, Austin, Texas 78765, 1-800-845-6584. 512-936-5200

# UB Electrical LLC. Proposal for Electrical Work GISD Central Middle School Galveston, Texas

July 12, 2023

Attn:

We propose to furnish the necessary materials, labor, and equipment to complete the electrical portion of the subject job based on upon the following scope of work:

Inclusions:

- 1. Furnish and install wiring devices as shown. (two single pole switches)
- 2. Furnish and install lighting as shown 8 LED 2x4 flat panels with mounting hardware.
- 3. 120v power for electric hand dryers. (nearest 120V power)
- 4. Four week lead time on fixtures.
- 5. Per our vendors, this estimate is only valid for seven days.

Exclusions:

- 1. Asphalt or concrete cutting, patching, and removal. Repair for existing underground conduits.
- 2. All work not shown on plans will be considered extra.
- 3. Access Panels of any kind. Wire supports for light fixtures.
- 4. Utility charges, taxes or bonds.
- 5. HVAC /mechanical starters, VFD's and controls.
- 6. A/V and special systems are by others.
- 7. Telephone and data jacks, cabling and terminations are by others.
- 8. Security, special systems, fire alarm and A/V cabling and terminations are by others.
- 9. Premium time, overtime, weekend work.
- 10. Patching, painting, pitch pockets. Red Concrete.
- 11. Concrete pole bases, Housekeeping, Transformer Pads, Roof Curbs, Generator Pad and Roof Repair.

Base Price: \$13,830.00 Material: \$5,968.70 Labor, Overhead and Profit: \$7,861.30

Respectfully submitted by, Terry Eubanks

Estimator UB Electrical LLC. terrye@ubelectrical.net

Regulated by the Texas Department of Licensing and Regulation, P.O. Box 12157, Austin, TX 78711. (800) 803 9202 or (512)463 6599 <u>www.license</u>.tx.us/complaints

# Innovative Plumbing Solutions Of Pearland, LLC

July 17, 2023

Attn: Mike Unbehagen Tucon, LLC 2111 Gulf Fwy, La Marque, Tx 77568

Re: Central Middle School 3014 Sealy Ave. Galveston, TX. 77550

We propose to furnish all materials and labor required to complete plumbing per your email invite and as shown on drawings PD-101, PD-102, PU-101, P-101, P-101, P-102, P-501, and P-601. as prepared and stamped by Mitchell Lam on 07-7-2023. Our proposed scope of work is as follows:

- 1. Demo all existing fixtures which includes 8 wall hung toilets, 6 wall hung lavatories, and 2 urinals in boys and girl's restroom as shown on drawings AD101.
- 2. Provide new water piping for new plumbing with type "L" copper pipe with copper fittings with lead free solder joints above slab. As indicated in drawings P-102
- 3. Provide above and below slab sanitary waste and vents using no hub cast and fittings with wide body heavy-duty stainless-steel bands. Per drawings PU-1041, P-102. Plumbing flashings/roof penetrations are by others.
- 4. Provide new plumbing fixtures as noted on drawings P-102, P-105.
- 5. Domestic water pipe insulation per specifications or city standards.
- 6. Will provide plumbing permit.

William R. Giese M-14562

2429 Parkview Dr. Pearland TX 77581 832-275-6167 281-520-3061 fax bgiese.ips@gmail.com Texas State Board of Plumbing Examiners 512-936-5200 www.tsbpe.state.tx.us

# Innovative Plumbing Solutions Of Pearland, LLC

**Exclusions:** Trash haul off from site, excavation spoils stocked piled at site, any temporary utilities, any electrical requirements including low voltage, any dumpster fees or cost, any painting, any rerouting of existing utilities, any temporary utilities, any permits or fees other than plumbing permit, any errors or omissions on drawings.

# Our proposed base bid

# \$48,528.00

Pricing is subject to unforeseen manufacturer escalations starting from December 19, 2022, final pricing will be determined when job is awarded, pricing may change if manufacturer/vendors do not honor bid day pricing.

Respectfully Submitted,

William Giese JR

William Giese, Jr.

William R. Giese M-14562

2429 Parkview Dr. Pearland TX 77581 832-275-6167 281-520-3061 fax bgiese.ips@gmail.com Texas State Board of Plumbing Examiners 512-936-5200 www.tsbpe.state.tx.us



# **Change Proposal Request**

Project: Weis Middle School Renovation Galveston Independent School District CPR No.: 03R1

PBK Project No.: 220430

Date: 7/14/23

To: Unbehagen Construction 2111 Gulf Freeway La Marque, TX 77568

Attention: Gabrielle Unbehagen

This is a request for an itemized quotation in the Contract Sum and/or time for the following proposed modifications to the Contract Documents. This request is not an authorization for changes or additional work and it does not revise the contract price.

### **Description of Work:**

# Item No. 1 Renovate existing Boy and Girl Restroom at Central Middle School as shown in attached drawings:

- A. 22 30 00 Plumbing Equipment
- B. 22 40 00 Plumbing Fixtures

Attachment(s): Cover, AD101, AD102, A101, A102, M001, M101, M701, E101, E102, P000, PD101, PD1012, PU101, P101, P102, P501, P601

This change proposal was initiated at the request of the:						
[x] Owner	[] Architect	[] Engineer	[] Contractor			

Mitchell Lam

Mitchell Lam PBK – Project Architect

# **BOARD OF TRUSTEES**

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# **CENTRAL MIDDLE SCHOOL RENOVATIONS** GALVESTON I.S.D.

3014 SEALY AVENUE GALVESTON, TX 77550

# **CPR #3**

07/05/2023

# PRESIDENT VICE PRESIDENT SECRETARY TRUSTEE TRUSTEE TRUSTEE TRUSTEE

SUPERINTENDENT ELECT, EXECUTIVE DIRECTOR OF SECONDARY EDUCATION DISTRICT MAGNET PROJECT COORDINATOR DISTRICT COORDINATOR OF ACADEMIC PROGRAMS & STUDENT OUTCOMES ASSISTANT SUPERINTENDENT FOR TEACHING & LEARNING DIRECTOR OF CHILD NUTRITION GISD DIRECTOR OF FINE ARTS DIRECTOR OF SPECIAL EDUCATION **DIRECTOR OF MARKETING & COMMUNICATIONS** FAMILY & COMMUNITY ENGAGEMENT SPECIALIST DIRECTOR OF MANAGEMENT INFORMATION SYSTEMS (MIS) CHIEF FINANCIAL OFFICER DIRECTOR OF SPECIAL INITIATIVES & INSTRUCTIONAL RESOURCES EXECUTIVE DIRECTOR OF SPECIAL PROGRAMS ECH/HOMELESS & FOSTER CARE LIAISON DISTRICT BILINGUAL/ESL PROGRAM COORDINATOR CHIEF HUMAN CAPITAL MANAGEMENT & STUDENT SERVICES OFFICER EXECUTIVE DIRECTOR OF ELEMENTARY EDUCATION DIRECTOR OF TRANSPORTATION ASSISTANT SUPERINTENDENT FOR STUDENT SUPPORT DISTRICT SEL COORDINATOR EXECUTIVE DIRECTOR GALVESTON ISD EDUCATIONAL FOUNDATION DIRECTOR OF PEIMS

OWNER GALVESTON ISD 3904 AVENUE T GALVESTON, TX 77550 T 409-766-5100

ARCHITECT PBK ARCHITECTS 11 GREENWAY PLAZA, 22ND FL HOUSTON, TX 77046 T 713-965-0608

PROGRAM MANGER ZERO SIX CONSULTING LLC 1027 23RD ST. GALVESTON, TX 77550 T 406-740-0090

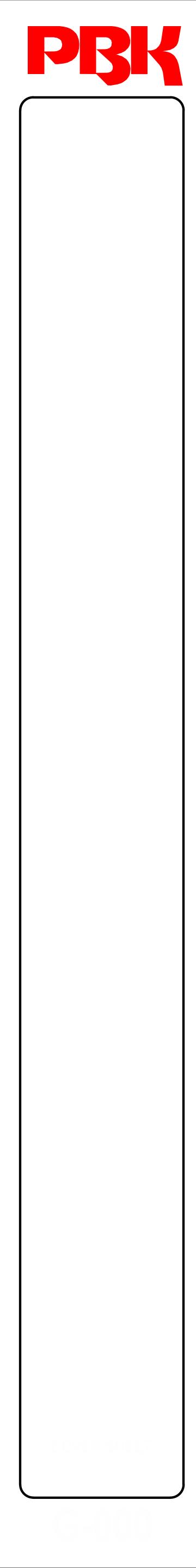
MEPT ENGINEER

LEAF ENGINEERS

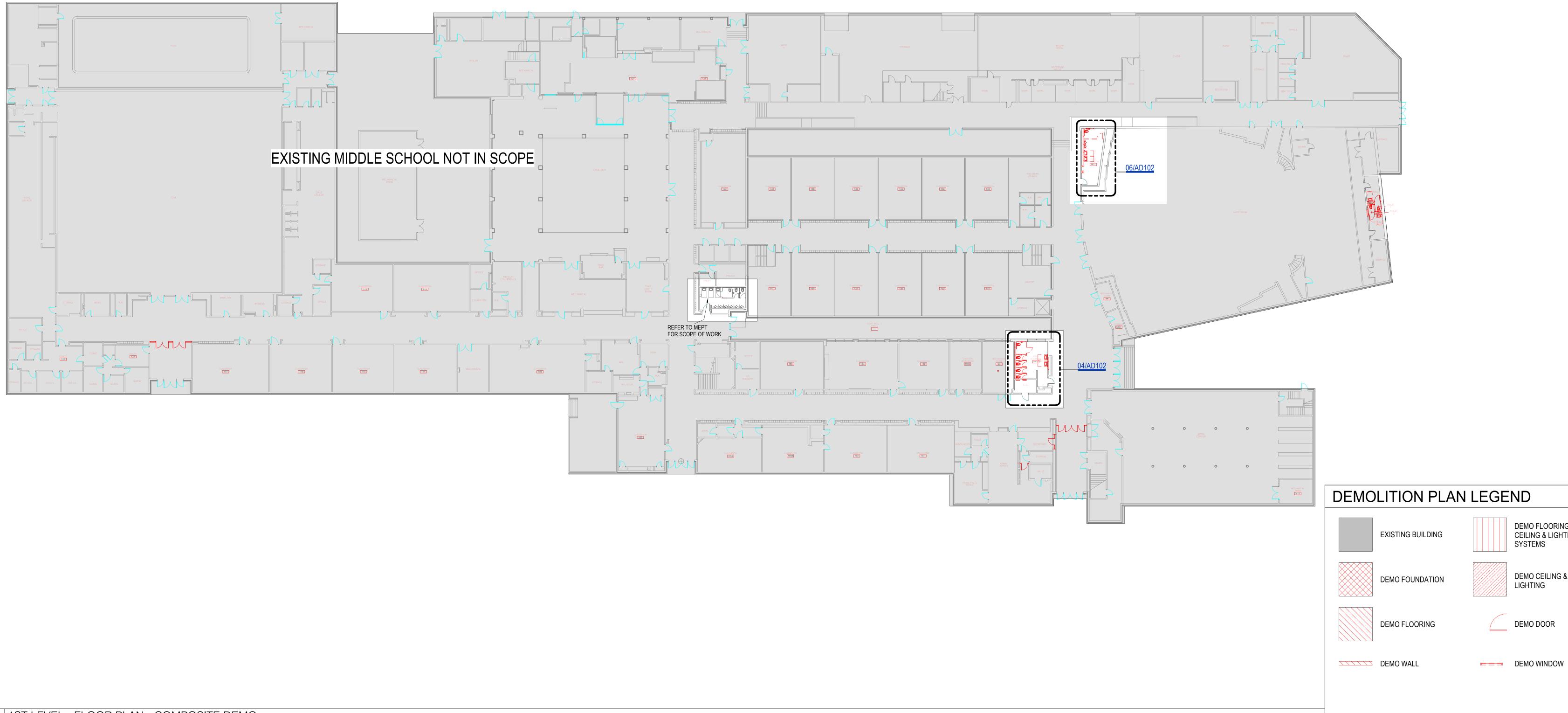
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HOUSTON, TX 77046

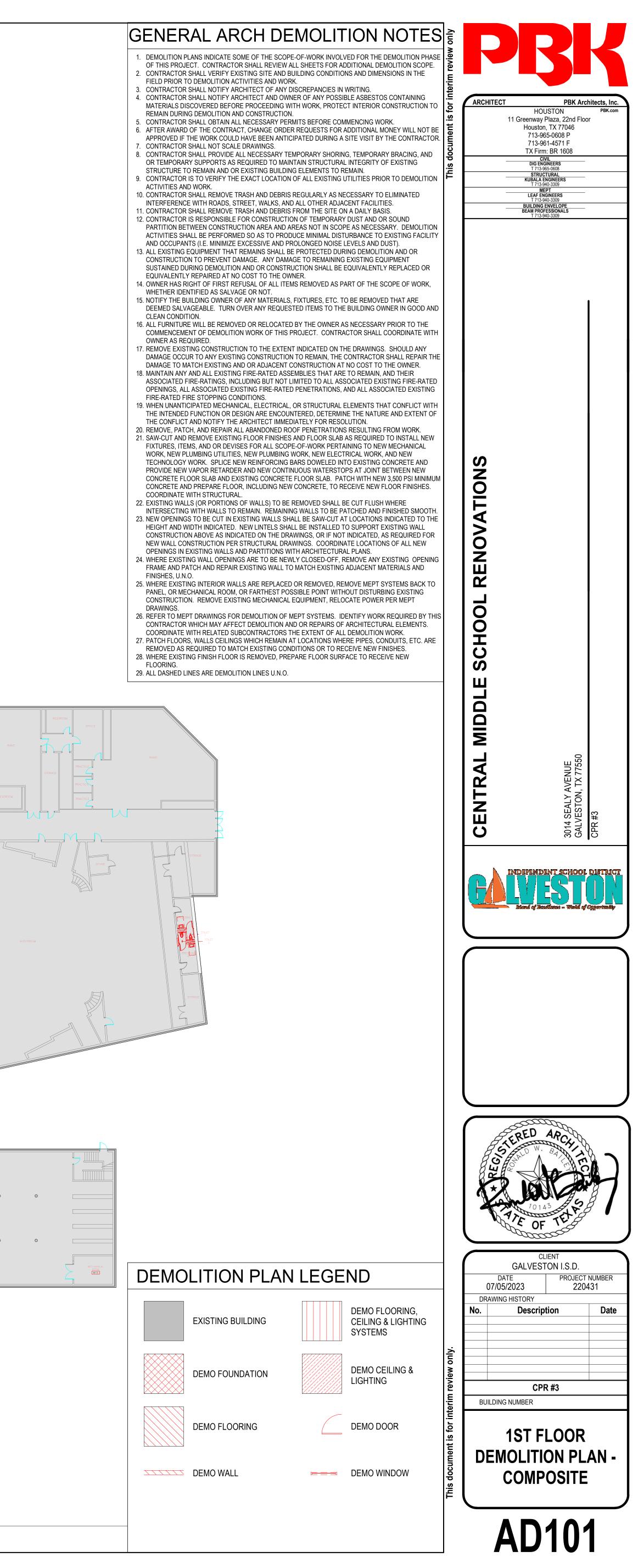
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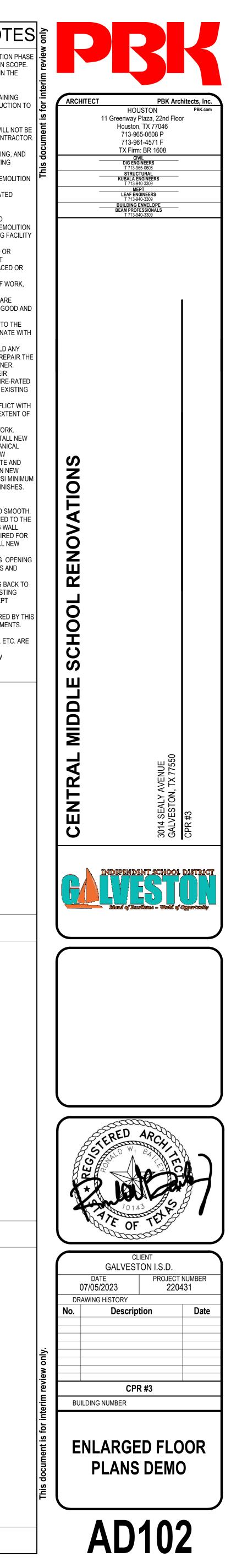
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ENLARGED FLOOR PLANS DEMO	
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PRAWN BY: Juthor Plot Stamp:	<b>06</b> Boys Restroom @ Auditorium Enlarged Demo Plan

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		<b>GENERAL ARCH DEMOLITION NOTE</b> 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITION PLANS INDICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITION PHA 1. DEMOLITICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITICATE SOME OF THE SCOPE-OF-WORK INVOLVED FOR THE DEMOLITICATE SOME OF THE SCOPE OF THE S
		<ul> <li>OF THIS PROJECT. CONTRACTOR SHALL REVIEW ALL SHEETS FOR ADDITIONAL DEMOLITION SCOP</li> <li>2. CONTRACTOR SHALL VERIFY EXISTING SITE AND BUILDING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO DEMOLITION ACTIVITIES AND WORK.</li> <li>3. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES IN WRITING.</li> </ul>
		<ol> <li>CONTRACTOR SHALL NOTIFY ARCHITECT AND OWNER OF ANY POSSIBLE ASBESTOS CONTAINING MATERIALS DISCOVERED BEFORE PROCEEDING WITH WORK, PROTECT INTERIOR CONSTRUCTION REMAIN DURING DEMOLITION AND CONSTRUCTION.</li> <li>CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS BEFORE COMMENCING WORK.</li> </ol>
		<ol> <li>AFTER AWARD OF THE CONTRACT, CHANGE ORDER REQUESTS FOR ADDITIONAL MONEY WILL NOT APPROVED IF THE WORK COULD HAVE BEEN ANTICIPATED DURING A SITE VISIT BY THE CONTRACT</li> <li>CONTRACTOR SHALL NOT SCALE DRAWINGS.</li> <li>CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY SHORING, TEMPORARY BRACING, ANI OR TEMPORARY SUPPORTS AS REQUIRED TO MAINTAIN STRUCTURAL INTEGRITY OF EXISTING</li> </ol>
		<ul> <li>9. CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO DEMOLITIC ACTIVITIES AND WORK.</li> <li>10. CONTRACTOR SHALL REMOVE TRASH AND DEBRIS REGULARLY AS NECESSARY TO ELIMINATED</li> </ul>
		<ol> <li>10. CONTRACTOR SHALL REMOVE TRASH AND DEBRIS REGULARLY AS NECESSARY TO ELIMINATED INTERFERENCE WITH ROADS, STREET, WALKS, AND ALL OTHER ADJACENT FACILITIES.</li> <li>11. CONTRACTOR SHALL REMOVE TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.</li> <li>12. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF TEMPORARY DUST AND OR SOUND PARTITION BETWEEN CONSTRUCTION AREA AND AREAS NOT IN SCOPE AS NECESSARY. DEMOLITIC</li> </ol>
		ACTIVITIES SHALL BE PERFORMED SO AS TO PRODUCE MINIMAL DISTURBANCE TO EXISTING FACIL AND OCCUPANTS (I.E. MINIMIZE EXCESSIVE AND PROLONGED NOISE LEVELS AND DUST). 13. ALL EXISTING EQUIPMENT THAT REMAINS SHALL BE PROTECTED DURING DEMOLITION AND OR CONSTRUCTION TO PREVENT DAMAGE. ANY DAMAGE TO REMAINING EXISTING EQUIPMENT
		SUSTAINED DURING DEMOLITION AND OR CONSTRUCTION SHALL BE EQUIVALENTLY REPLACED OR EQUIVALENTLY REPAIRED AT NO COST TO THE OWNER. 14. OWNER HAS RIGHT OF FIRST REFUSAL OF ALL ITEMS REMOVED AS PART OF THE SCOPE OF WORK WHETHER IDENTIFIED AS SALVAGE OR NOT.
		<ul> <li>15. NOTIFY THE BUILDING OWNER OF ANY MATERIALS, FIXTURES, ETC. TO BE REMOVED THAT ARE DEEMED SALVAGEABLE. TURN OVER ANY REQUESTED ITEMS TO THE BUILDING OWNER IN GOOD A CLEAN CONDITION.</li> <li>16. ALL FURNITURE WILL BE REMOVED OR RELOCATED BY THE OWNER AS NECESSARY PRIOR TO THE</li> </ul>
		COMMENCEMENT OF DEMOLITION WORK OF THIS PROJECT. CONTRACTOR SHALL COORDINATE WI OWNER AS REQUIRED. 17. REMOVE EXISTING CONSTRUCTION TO THE EXTENT INDICATED ON THE DRAWINGS. SHOULD ANY DAMAGE OCCUR TO ANY EXISTING CONSTRUCTION TO REMAIN, THE CONTRACTOR SHALL REPAIR
		DAMAGE TO MATCH EXISTING AND OR ADJACENT CONSTRUCTION AT NO COST TO THE OWNER. 18. MAINTAIN ANY AND ALL EXISTING FIRE-RATED ASSEMBLIES THAT ARE TO REMAIN, AND THEIR ASSOCIATED FIRE-RATINGS, INCLUDING BUT NOT LIMITED TO ALL ASSOCIATED EXISTING FIRE-RAT OPENINGS, ALL ASSOCIATED EXISTING FIRE-RATED PENETRATIONS, AND ALL ASSOCIATED EXISTIN
		FIRE-RATED FIRE STOPPING CONDITIONS. 19. WHEN UNANTICIPATED MECHANICAL, ELECTRICAL, OR STRUCTURAL ELEMENTS THAT CONFLICT WI THE INTENDED FUNCTION OR DESIGN ARE ENCOUNTERED, DETERMINE THE NATURE AND EXTENT THE CONFLICT AND NOTIFY THE ARCHITECT IMMEDIATELY FOR RESOLUTION.
		<ol> <li>REMOVE, PATCH, AND REPAIR ALL ABANDONED ROOF PENETRATIONS RESULTING FROM WORK.</li> <li>SAW-CUT AND REMOVE EXISTING FLOOR FINISHES AND FLOOR SLAB AS REQUIRED TO INSTALL NEV FIXTURES, ITEMS, AND OR DEVISES FOR ALL SCOPE-OF-WORK PERTAINING TO NEW MECHANICAL WORK, NEW PLUMBING UTILITIES, NEW PLUMBING WORK, NEW ELECTRICAL WORK, AND NEW</li> </ol>
		TECHNOLOGY WORK. SPLICE NEW REINFORCING BARS DOWELED INTO EXISTING CONCRETE AND PROVIDE NEW VAPOR RETARDER AND NEW CONTINUOUS WATERSTOPS AT JOINT BETWEEN NEW CONCRETE FLOOR SLAB AND EXISTING CONCRETE FLOOR SLAB. PATCH WITH NEW 3,500 PSI MININ CONCRETE AND PREPARE FLOOR, INCLUDING NEW CONCRETE, TO RECEIVE NEW FLOOR FINISHES
		COORDINATE WITH STRUCTURAL. 22. EXISTING WALLS (OR PORTIONS OF WALLS) TO BE REMOVED SHALL BE CUT FLUSH WHERE INTERSECTING WITH WALLS TO REMAIN. REMAINING WALLS TO BE PATCHED AND FINISHED SMOOT 23. NEW OPENINGS TO BE CUT IN EXISTING WALLS SHALL BE SAW-CUT AT LOCATIONS INDICATED TO T
		HEIGHT AND WIDTH INDICATED. NEW LINTELS SHALL BE INSTALLED TO SUPPORT EXISTING WALL CONSTRUCTION ABOVE AS INDICATED ON THE DRAWINGS, OR IF NOT INDICATED, AS REQUIRED FO NEW WALL CONSTRUCTION PER STRUCTURAL DRAWINGS. COORDINATE LOCATIONS OF ALL NEW OPENINGS IN EXISTING WALLS AND PARTITIONS WITH ARCHITECTURAL PLANS.
		<ul> <li>24. WHERE EXISTING WALL OPENINGS ARE TO BE NEWLY CLOSED-OFF, REMOVE ANY EXISTING OPENI FRAME AND PATCH AND REPAIR EXISTING WALL TO MATCH EXISTING ADJACENT MATERIALS AND FINISHES, U.N.O.</li> <li>25. WHERE EXISTING INTERIOR WALLS ARE REPLACED OR REMOVED, REMOVE MEPT SYSTEMS BACK TO MAKE AND MENUAL PROPERTIEST PROPERTIES FOR METHODIA DISTURDANCE SYLVETING</li> </ul>
		<ul> <li>PANEL, OR MECHANICAL ROOM, OR FARTHEST POSSIBLE POINT WITHOUT DISTURBING EXISTING CONSTRUCTION. REMOVE EXISTING MECHANICAL EQUIPMENT, RELOCATE POWER PER MEPT DRAWINGS.</li> <li>26. REFER TO MEPT DRAWINGS FOR DEMOLITION OF MEPT SYSTEMS. IDENTIFY WORK REQUIRED BY TO CONTRACTOR WHICH MAY AFFECT DEMOLITION AND OR REPAIRS OF ARCHITECTURAL ELEMENTS.</li> </ul>
	KEYNOTE LEGEND	COORDINATE WITH RELATED SUBCONTRACTORS THE EXTENT OF ALL DEMOLITION WORK. 27. PATCH FLOORS, WALLS CEILINGS WHICH REMAIN AT LOCATIONS WHERE PIPES, CONDUITS, ETC. AF REMOVED AS REQUIRED TO MATCH EXISTING CONDITIONS OR TO RECEIVE NEW FINISHES. 28. WHERE EXISTING FINISH FLOOR IS REMOVED, PREPARE FLOOR SURFACE TO RECEIVE NEW
	NUMBER     DESCRIPTION       D1     REMOVE EXISTING CEILING TILE, GRID, LIGHTING AND ELECTRICAL DEVICES C       RE: MEP	FLOORING. 29. ALL DASHED LINES ARE DEMOLITION LINES U.N.O. COMPLETELY.
	D2       REMOVE EXISTING FLOORING AND BASE COMPLETELY. PATCH AND REPAI SUINEW SCHEDULED CONSTRUCTION         D3       REMOVE EXISTING PLUBMING FIXTURES, PARTITIONS, AND ACCESSORIES CO         PATCH AND REPAI ADJACENT SURFACE FOR NEW SCHEDULED CONSTRUCTION	MPLETELY.
	D4 REMOVE EXISTING WALL TILE COMPLETELY. PATCH AND REPAIR SURFACE FC SCHEDULED CONSTRUCTION	DR NEW
GIRLS RR 137		
<b>04</b> Girls Restroom @ Auditorium Enlarged Plan DEMO		
<b>  └ ⁻ </b>   1/4" = 1'-0"		



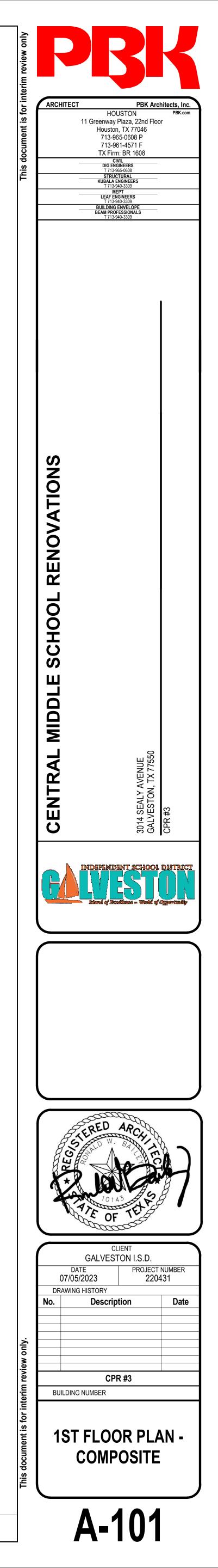
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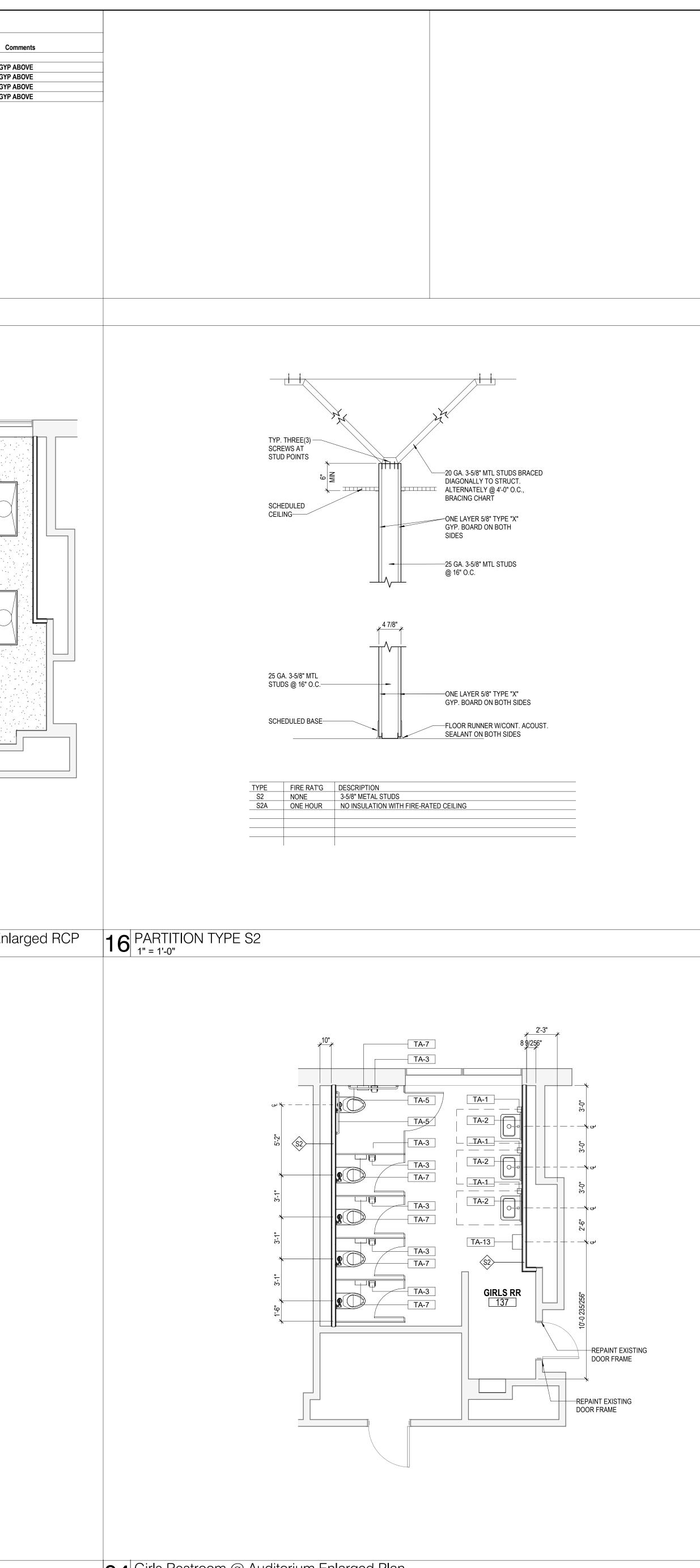


**06** 1ST LEVEL - FLOOR PLAN - COMPOSITE 3/64" = 1'-0"



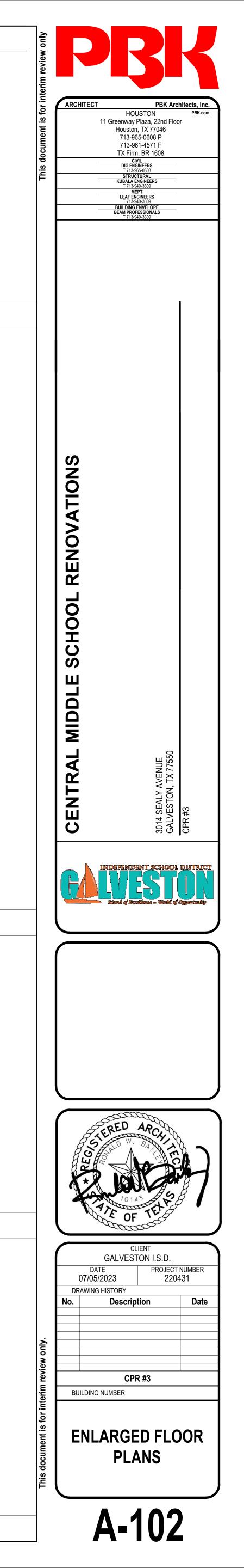
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The second secon	O"	- - - - - - Numbo	ROOM DATA er Name	Base Finis	sh Floor Fini	ish RM North F	V	Room Schedule VALL FINISHES inish   RM South F	- Finish   RM West Fi	inish Ceiling Fir	iish Co
TO COMPACT NOT COM	FLOOR PLANS	137 135	GIRLS RR BOYS RR	EPOXY EPOXY	EPOXY EPOXY	CT-1 CT-1	CT-1 CT-1	CT-1 CT-1	CT-1 CT-1	GYP GYP	CT TO 7' AFF. PAINT GYP / CT TO 7' AFF. PAINT GYP / CT TO 7' AFF. PAINT GYP / CT TO 7' AFF. PAINT GYP /
UEBCKCI PY:											
DRAWN BY: Author Author D6 Boys Restroom @ Auditorium Enlarged Plan	CHECKED BY: Checker DRAWN BY:				REPAINT EXISTING DOOR FRAME REPLACE EXISTING HARDWARE			TA-5 TA-3 TA-3 TA-5 TA-1 TA-2 TA-1 TA-2 TA-1 TA-1 TA-13			



Girls Restroom @ Auditorium Enlarged Plan

<ol> <li>PROVIDE AND INSTALL BULLNOSE</li> <li>REFER TO REFLECTED CEILING PL</li> <li>ALL ELECTRICAL DEVICE COVERS</li> </ol>		
<ol> <li>ALL CARPET PATTERNS TO RUN P</li> <li>PAINT ALL HOLLOW METAL DOOR</li> <li>FLOOR FINISH CHANGES SHALL O</li> <li>GENERAL CONTRACTOR TO SUBM</li> </ol>		
	TOILET ACCESSORIES         LABEL       DESCRIPTION       NOTES	
	TA-1SOAP DISPENSER, WALL-MOUNTED OFCITA-2LAVATORY MIRRORTA-3TOILET PAPER DISPENSER OFCITA-4PAPER TOWEL DISPENSER OFCITA-5GRAB BARS (AT TYPICAL WHEELCHAIR ACCESSIBLE WATER CLOSETS)	
	TA-6SANITARY NAPKIN DISPENSERTA-7SANITARY NAPKIN DISPOSALTA-13ELECTRIC HAND DRYER	
	NOTES: 1. ALL TOILET ACCESSORIES SHALL BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED U.N.O. 2. COORDINATE FINAL LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.	
	<ol> <li>VERIFY ALL HEIGHTS OF ACCESSORIES TO COMPLY WITH ALL APPLICABLE ACCESSIBILITY REQUIREMENTS.</li> <li>REFER TO ALL FINISHES AND COLORS IN FINISH SCHEDULE, VERIFY ALL PATTERNS WITH ARCHITECT.</li> <li>ALIGN MIRROR ON CENTER OF LAVATORY.</li> </ol>	
	6. ONE (1) HOOK SHALL BE INSTALLED INSIDE DOOR AT EACH TOILET PARTITION. ONE HOOK INSIDE DOOR AT SINGLE TOILET ROOMS AND ONE HOOK AT EACH SHOWER.	
<b>14</b> TOILET ACCES	SSORIES LEGEND	
<b>14 TOILET ACCES</b>	SSORIES LEGEND	
<b>14 TOILET ACCES</b>	SSORIES LEGEND	
14 TOILET ACCES	SSORIES LEGEND	
14 TOILET ACCES 1/4" = 1'-0"	SSORIES LEGEND	
14 TOILET ACCES	SSORIES LEGEND	
14 TOILET ACCES 1/4" = 1'-0"	SSORIES LEGEND	
	SSORIES LEGEND	



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MECHANICAL PIPING LEGEND				
DESCRIPTION	ABBV.			
PUMPED CONDENSATE RETURN	PCR			
HOT WATER SUPPLY	HWS			
HOT WATER RETURN	HWR			
CONDENSER WATER SUPPLY	CWS			
CONDENSER WATER RETURN	CWR			
CHILLED WATER SUPPLY	CHS			
CHILLED WATER RETURN	CHR			
GEOTHERMAL WATER SUPPLY	GS			
GEOTHERMAL WATER RETURN	GR			
CONDENSATE DRAIN (INSULATED)	CD			
REFRIGERANT LINE (LIQUID)	RL			
REFRIGERANT LINE (SUCTION)	RS			
REFRIGERANT LINE (HOT GAS)	RHG			
LOW PRESSURE STEAM	LPS			
LOW PRESSURE CONDENSATE	LPC			
MEDIUM PRESSURE STEAM	MPS			
MEDIUM PRESSURE CONDENSATE	MPC			
HIGH PRESSURE STEAM	HPS			
HIGH PRESSURE CONDENSATE	HPC			

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MECHANICAL P	IPING SYN	MBOLS LEGEND
DRAWINGS	DETAILS	DESCRIPTION
	→ <b>→</b> →	DIRECTION OF FLOW
	, → →	DROP IN PIPE
۰	·0	RISE IN PIPE
		GATE VALVE
		BALL VALVE
٤I		CHECK VALVE
	,	SUPERVISED VALVE WITH FLOW SWITCH
	<u>,                                    </u>	PLUG VALVE / GAS COCK
	، ۱	BUTTERFLY VALVE
<u> </u>		HOT WATER BALANCING VALVE
	·	PIPE UNION
	<u>ب</u> گ	PRESSURE CONTROL VALVE
	·	3-WAY VALVE
	، ⊷لا`	SOLENOID VALVE
	, FS	FLOW SWITCH
	, ¥	PRESSURE GAUGE WITH GAUGE COCK
	,	THERMOMETER
	-Å	T & P RELIEF VALVE
	·+>+,	STRAINER
	·	САР
	·	FLEXIBLE CONNECTION
		NEW CONNECTION TO EXISTING PIPING

1. NOT ALL SYMBOLS MAY BE USED ON THESE DRAWINGS.

NOTES:

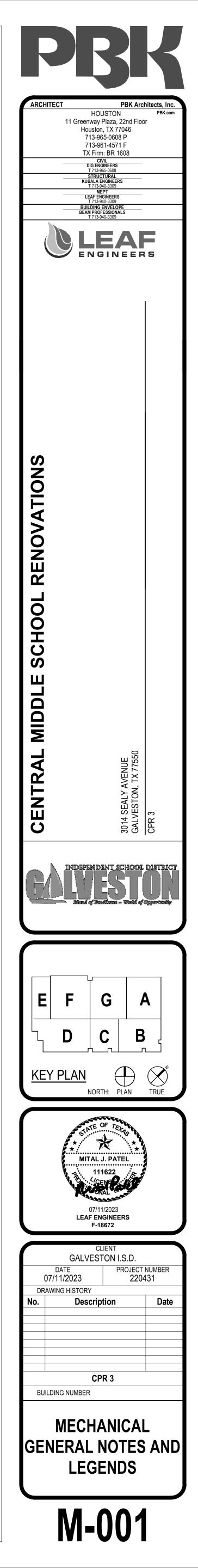
# **MECHANICAL RENOVATIONS NOTES**

- 1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID DATE.
- 2. OWNER RETAINS SALVAGE RIGHTS, PROVIDE A MINIMUM OF 72 HOURS NOTICE PRIOR TO REMOVAL OF EQUIPMENT.
- PATCH AND SEAL ALL SLAB, ROOF AND WALL OPENINGS WITH LIKE 3 MATERIAL WHERE MECHANICAL EQUIPMENT ONCE PENETRATED.
- 4. ALL FLOOR DRAINS EXISTING TO REMAIN. CONTRACTOR SHALL CLEAN
- AND KEEP FLOOR DRAINS UNOBSTRUCTED AND REUSE. UNLESS SHOWN OTHERWISE, CONTRACTOR SHALL UTILIZE EXISTING
- OPENINGS IN WALLS, ROOF AND FLOOR SLABS FOR PIPING ETC. PROVIDE NEW SLEEVES FOR PIPING AND INFILL ANNULAR SPACES. 6. FLUSH AND CLEAN EXISTING CHILLED WATER LOOPS AND PROVIDE
- NEW CHEMICAL TREATMENT.
- 7. CONTRACTOR TO AVOID EXISTING CABLE RUNS DURING CONSTRUCTION.
- PROVIDE ALL NEW PIPE SUPPORTS WHERE PIPING IS SCHEDULED TO 8. BE REPLACED.
- 9. RE-INSTALL ANY CEILING AFTER COMPLETION OF WORK. REPLACE ANY EXISTING DAMAGED CEILING TILES IN THE AREAS OF CONSTRUCTION.
- 10. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN EXISTING BUILDING CLIMATE CONTROLLED DURING CONSTRUCTION. ALL REQUIRED EQUIPMENT AND ASSOCIATED POWER, WIRING SHALL BE PROVIDED BY THE CONTRACTOR.
- 11. CONTRACTOR TO PROVIDE NEW DUCT DETECTOR AS REQUIRED BY CODE ON ALL AIR HANDLING UNITS EQUAL TO OR MORE THAN 2,000 CFM SUPPLY. DETECTOR MANUFACTURER TO MATCH EXISTING DEVICES AND BE COMPATIBLE WITH EXISTING FACP. CONTRACTOR TO PROVIDE AND INSTALL ALL CABLING AND EQUIPMENT/MODULES AS REQUIRED TO CONNECT ADDITIONAL DEVICES TO EXISTING FIRE ALARM CONTROL PANEL.

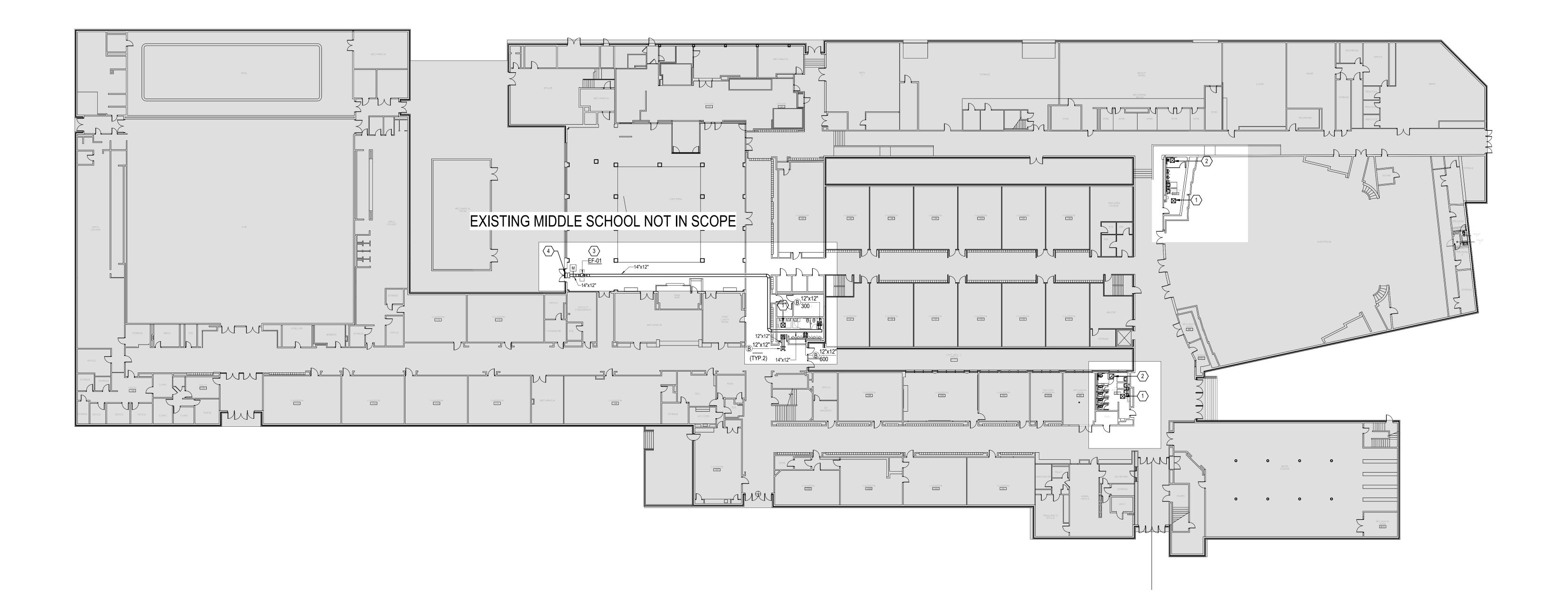
# MECHANICAL DEMOLITION NOTES 1. DEMOLISH EQUIPMENT SCHEDULED FOR REPLACEMENT. EQUIPMENT NOT SCHEDULED FOR REPLACEMENT SHALL REMAIN IN WORKING CONDITIOM. 2. PATCH AND SEAL ALL ROOF AND WALL OPENINGS WHERE MECHANICAL EQUIPMENT ONCE PENETRATED. 3. DEMOLITION DOES NOT INCLUDE PLUMBING EQUIPMENT. 4. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION TO PRIOR TO DEMOLITION. 5. COORDINATE ALL WORK WITH ALL OTHER TRADES.

	MECHANICAL SYMBOLS LEGEND	
SYMBOL	DESCRIPTION	ABBV.
	SUPPLY AIR CEILING DIFFUSER	SAG/SAR
	RETURN AIR GRILLE / REGISTER	RAG / RAR
	EXHAUST GRILLE / REGISTER	EG / ER
	SUPPLY AIR CEILING DIFFUSER	CD
	LINEAR SLOT DIFFUSER	LD
	SIDEWALL SUPPLY AIR GRILLE/REGISTER	SAG/SAR
	SIDEWALL RETURN AIR GRILLE/REGISTER	RAG/RAR
	DUCT MT'D. SIDEWALL SUPPLY AIR GRILLE/REGISTER	SAG/SAR
	EXHAUST DUCT RISE/DROP	
	DOOR GRILLE	DG
UC 3/4"	UNDERCUT DOOR	UC
WxD TD	LINED RETURN TRANSFER DUCT ABOVE CEILING (SIZE AS INDICATED)	TD
	SQUARE ELBOW WITH DOUBLE THICKNESS TURNING VANES	
	FLEXIBLE DUCT	FLEX.CONN.
	NEW DUCTWORK	
	EXISTING DUCTWORK / EQUIPMENT	
(H)		
	COMBINATION TEMPERATURE, HUMIDITY, & CO2 SENSOR	
(13)	COMBINATION TEMPERATURE & HUMIDITY SENSOR	
<u>(</u> )	SMOKE DAMPER	SD
<u>(D)</u>		FD
<u>(5)</u>	COMBINATION FIRE AND SMOKE DAMPER	F/SD
<u>(0)</u>		CO2
0		СО
BD		BD
(3)	SMOKE DETECTOR (BY DIVISION 28)	S
(A)		A
(BDD)		BDD
ÉMŠ Im		FMS
M		M
	AIRFLOW DIRECTION SUPPLY AIR	
	RETURN AIR	SA RA
	OUTSIDE AIR	OA
	EXHAUST AIR	EA
	OWNER-FURNISHED EQUIPMENT	OFE
	ABOVE FINISHED FLOOR	AFF
	BOTTOM OF DUCT	BOD
	NOT IN CONTRACT	NIC
	FURNISHED BY OTHERS	FBO
<b>.</b>	CONNECT TO EXISTING	
	- PLAN SECTION	
1- M.401	<ul> <li>SECTION NUMBER</li> <li>SHEET NUMBER</li> </ul>	
	OIFFUSER SCHEDULE NOTE: DUCT RUNOUT TO	
A 22"x22" 500 - (TYP #)	<ul> <li>DIFFUSER NECK SIZE</li> <li>CFM</li> <li>NECK SAME SIZE UNLESS</li> <li>OTHERWISE NOTED</li> </ul>	
(117 #)	<ul> <li>DRAWING REFERENCE</li> </ul>	
RE:01/M-401 -	<ul> <li>DETAIL NUMBER</li> <li>SHEET NUMBER</li> </ul>	
NOTES:	·	I
1. NOT ALL SYMBOLS MAY BE U	JSED ON THESE DRAWINGS.	

<ul> <li>INCIDENTALS ESSENTIAL FOR A COMPLETE AND OPERATIONAL INSTALLATION OF THE HVAC WORK SHOWN ON THE PLANS.</li> <li>ALL DUCTWORK SHALL BE FABRICATED PER THE LATEST SMACNA STANDARDS.</li> <li>DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL INFO FOR COORDINATION AND POTENTIAL CONFLICTS. THE MECHANICAL SUBCONTRACTOR SHALL, WITHOUT EXTRA COST TO THE PROJECT SHALL MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICTS WITH OTHER TRADES, OR FOR PROPER EXECUTION OF THE WORK.</li> <li>DUCT DIMENSIONS INDICATED ON DRAWINGS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.</li> <li>ALL NEW HVAC EQUIPMENT SHALL BE CLEANED AFTER THE FINISHING OF DRYWALL AND PRIOR TO THE RELEASE OF BUILDING TO THE OWNER. IF THE DUCTWORK AND AIR DEVICES ARE NOT PROPERLY PROTECTED DURING CONSTRUCTION THAN IT SHALL BE CLEANED AS WELL. CONTRACTOR TO PROVIDE DOCUMENTATION WITH DATE AND TIME OF ALL THE PERFORMED SERVICES.</li> <li>PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY MANUFACTURER'S RECOMMENDED AND CODE REQUIRED CLEARANCES ARE AVAILABLE.</li> <li>COORDINATE ALL WORK WITH ALL OTHER TRADES.</li> </ul>	<ol> <li>CODE, TI CONSER</li> <li>PROVIDE INCIDENT INSTALL</li> <li>ALL DUC STANDAI</li> <li>DRAWING COORDII SUBCON SHALL M TO PREV EXECUTI</li> <li>DUCT DII STREAM</li> <li>ALL NEW OF DRYV OWNER. PROTEC WELL. CO TIME OF</li> <li>ALL NEW OF DRYV OWNER. PROTEC</li> <li>ALL NEW OF DRYV OWNER.</li> <li>PROVIDE FIRE/SMG WHICH F FIRE OR CORRIDO STORAG AND WAI AND RAT</li> <li>REFER T FOR EXA IN.</li> <li>PROVIDE TERMINA COORDII</li> <li>REFER T FOR EXA</li> <li>NOT ALL</li> </ol>	HE LOCAL BUILDING CODES AND LOCAL ENERGY XVATION CODE. E ALL MATERIALS, LABOR, EQUIPMENT AND ANY OTHER TALS ESSENTIAL FOR A COMPLETE AND OPERATIONAL ATION OF THE HVAC WORK SHOWN ON THE PLANS. TWORK SHALL BE FABRICATED PER THE LATEST SMACNARDS. GS ARE DIAGRAMMATIC AND INDICATE THE GENERAL INFO NATION AND POTENTIAL CONFLICTS. THE MECHANICAL ITRACTOR SHALL, WITHOUT EXTRA COST TO THE PROJEC TAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NE /ENT CONFLICTS WITH OTHER TRADES, OR FOR PROPER ION OF THE WORK. MENSIONS INDICATED ON DRAWINGS ARE CLEAR INSIDE A I DIMENSIONS. / HVAC EQUIPMENT SHALL BE CLEANED AFTER THE FINISH //ALL AND PRIOR TO THE RELEASE OF BUILDING TO THE . IF THE DUCTWORK AND AIR DEVICES ARE NOT PROPERL ONTRACTOR TO PROVIDE DOCUMENTATION WITH DATE A ALL THE PERFORMED SERVICES. D INSTALLATION OF EQUIPMENT, VERIFY MANUFACTURER //ENDED AND CODE REQUIRED CLEARANCES ARE AVAILARD VATE ALL WORK WITH ALL OTHER TRADES. FIRE DAMPERS, SMOKE DAMPERS, OR COMBINATION OKE DAMPERS IN ALL DUCTWORK AND RETURN AIR OPEN PENETRATE FIRE OR SMOKE RATED WALL OR FLOOR SLABE SMOKE RATED WALLS CAN INCLUDE BUT NOT LIMITED TO OR WALLS, MECHANICAL ROOMS, ELECTRICAL ROOMS, AN 2E ROOMS. REFER TO ARCHITECTURAL PLANS FOR PARTI LL TYPES INDICATING FIRE OR SMOKE RATED WALL LOCATION F ACT SIZE, LOCATION AND ELEVATION. E 24"x24" ACCESS PANEL IN THE GYP BOARD CEILING WHE AL UNITS AND INLINE EXHAUST FANS ARE INSTALLED. NATE ALL AIR DEVICES LOCATIONS WITH FINAL ARCHITECTURAL CONTRACTOR AND INCLUDE BUT NOT LIMITED. NATE ALL AIR DEVICES LOCATIONS WITH FINAL ARCHITECTURAL NATE ALL AIR DEVICES LOCATIONS WITH FINAL ARCHITEC	A O FOR CT EDED AIR HING _Y O AS ND 'S BLE. VINGS 3S. O ND ITION
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<ul> <li>ON TOP OF DEVICES TO PREVENT CONDENSATION. INSULATE DEVICES WITH 1-1/2" WRAPAROUND INSULATION AND TOTALLY COVER ALL SURFACES; SECURE INSULATION IN PLACE AND APPLY INSULATION PRIOR TO MOUNTING AIR DEVICES.</li> <li>14. PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY MANUFACTURER'S RECOMMENDED AND CODE REQUIRED CLEARANCES ARE AVAILABLE.</li> <li>15. PROVIDE TURNING VANES ON ALL RECTANGULAR ELBOWS.</li> <li>16. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE ELECTRICAL AND PLUMBING CHANGES FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.</li> <li>17. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE BETWEEN CONTRACTORS SHALL BE WITHOUT ANY ADDITIONAL COST TO THE PROJECT.</li> <li>18. ALL DUCTWORK (SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR) IN UNCONDITIONED / NON-RETURN PLENUM SHALL BE PROVIDED WITH DUCT WRAP INSULATION.</li> <li>19. NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED ON THESE</li> </ul>	ON TOP WITH 1-1 SURFAC PRIOR TO 14. PRIOR TO RECOMM 15. PROVIDE 16. CONTRA ELECTRI THAT DIF 17. ANY CHA FROM A WITHOU 18. ALL DUC UNCONE DUCT WI		TURAL
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DUCT WRAP INSULATION. 19. NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED ON THESE	DUCT WI	T ANY ADDITIONAL COST TO THE PROJECT. TWORK (SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR) IN	N
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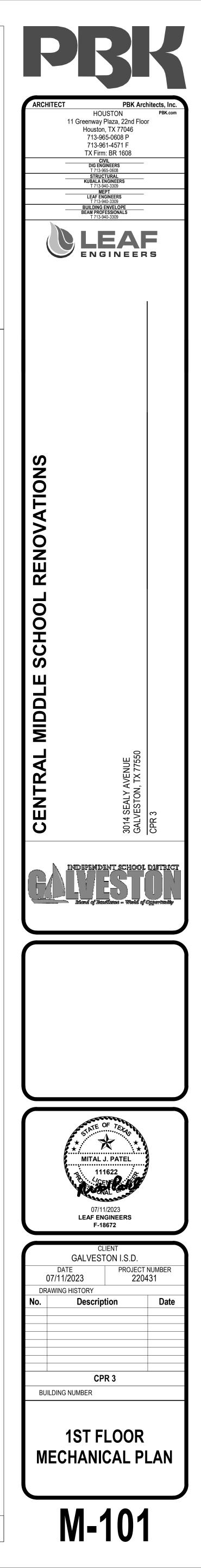
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# **MECHANICAL KEYED NOTES:**

- 1 PROVIDE NEW SUPPLY AIR GRILLE AND CONNECT TO EXISTING SUPPLY DUCT WITH SIMILAR NECKSIZE AND TYPE OF GRILLE OF EXISTING. MATCH NEW AIR DEVICE WITH NEW REFLECTED CEILING PLAN, REFER TO ARCHITECT DRAWING.
- $\langle 2 \rangle$  provide New Exhaust Air Grille and connect to existing exhaust duct with similar Necksize and type of Grille of Existing. Match New Air device with New Reflected
- CEILING PLAN, REFER TO ARCHITECT DRAWING. PROVIDE NEW EXHAUST FAN. FAN SHALL BE MONITORED FOR STATUS AND ENABLE/DISABLE BY EXISTING BUILDING AUTOMATION SYSTEM. INTERLOCK FAN TO RUN WITH ASSOCIATED AIR HANDLING UNIT. INTERLOCK ASSOCIATED MOTORIZED DAMPER WITH FAN TO OPEN/CLOSE WHEN FAN IS ENERGIZED/DE-ENERGIZED.
- 4 28"x16" EXHAUST AIR LOUVER. REFER TO ARCHITECTURAL SPECIFICATION FOR FINAL FINISH AND LOCATION.



				1
	DESIGNATION	LOCATION	SERVICE	MANUFACTURE

DESIGNATION	DESIGNATION LOCATION		MANUFACTURER	MODEL NUMBER	NOTES	WEIGHTS (LBS)		
DESIGNATION	SERVICE	TYPE					DR	
<u>EF-01</u>	PLENUM	BOY'S RESTROOM	GREENHECK	SQ	1-7	250	CENTRIFUGAL	DIRI

FAN SCHEDULE

REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL DATA.

. REFERENCE SPECIFICATIONS FOR SEQUENCE OF OPERATIONS.

. FAN SHALL BE PROVIDED WITH GREENHECK VARI-GREEN® CONTROL AND ECM MOTOR. STARTER SHALL BE PROVIDED BY FAN MANUFACTURER. JUNCTION BOX AND VARI-GREEN TRANSFORMER SHALL BE FACTORY MOUNTED AND WIRED. 4. IN-LINE EXHAUST FAN TO BE INTERLOCKED WITH ASSOCIATED AHU SERVING THE RESTROOM. INTERLOCK ASSOCIATED MOTORIZED DAMPER WITH FAN.

			DIFFUSERS, REGISTERS & GRILLES SC
DESIGNATION M	IODEL NUMBER	NOISE CRITERIA (NC)	
A	TITUS TDCA	25	24x24 MODULE SIZE, LAY-IN BORDER TYPE, 18"x18" NECK SIZE WITH ROUND DUCT CONNECTION SIZED AS INDICATED ON PLANS. NO OPPOSED
В	TITUS PAR	25	24x24 MODULE SIZE, LAY-IN BORDER TYPE, 22"x22" NECK SIZE UNLESS NOTED OTHERWISE. NO OPPOSED BLADE DAMPER, ALL STEEL CONSTRU
С	TITUS 300RS	25	DOUBLE DEFLECTION, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO SHORT DIMENSION, NO OPPOSED BLADE DAMPER, SURFACE MOUNT
D	TITUS 350RL	25	3/4" BLADE SPACING, FRONT BLADES PARALLEL TO LONG DIMENSION, 35° FIXED DEFLECTION, NO OPPOSED BLADE DAMPER, SURFACE MOUNT
E	TITUS TDCA	25	12x12 MODULE SIZE, LAY-IN BORDER TYPE, 9"x9" NECK SIZE WITH ROUND DUCT CONNECTION SIZED AS INDICATED ON PLANS. NO OPPOSED BL
F	TITUS PAR	25	12x12 MODULE SIZE, LAY-IN BORDER TYPE, 10"x10" NECK SIZE UNLESS NOTED OTHERWISE. NO OPPOSED BLADE DAMPER, ALL STEEL CONSTRU

. ALL DIFFUSER DESIGNATIONS MAY NOT BE USED ON PROJECT.

2. DIFFUSERS IN NATATORIUMS, SHOWER ROOMS, ADJACENT DRESSING ROOMS, DISHWASH ROOMS, AND THERAPY POOL ROOMS SHALL BE ALL ALUMINUM CONSTRUCTION.

HOT DIPPED GALVANIZED ALL

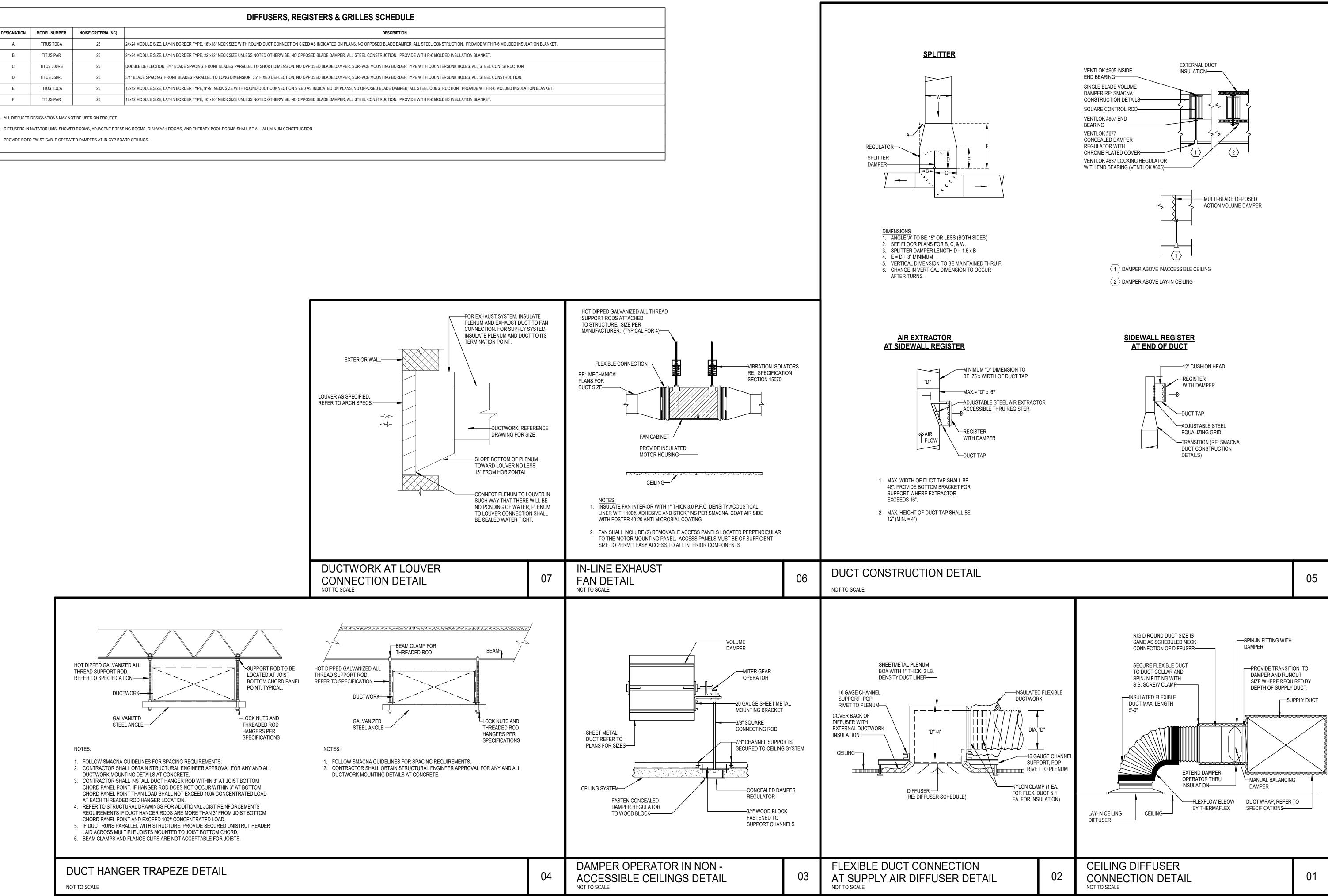
DUCTWORK-

GALVANIZED

THREAD SUPPORT ROD.

NOTES:

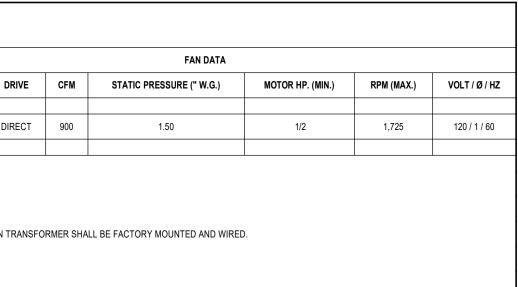
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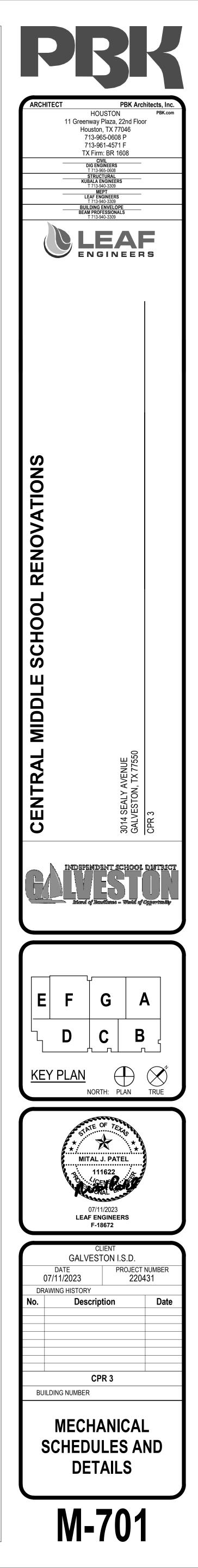


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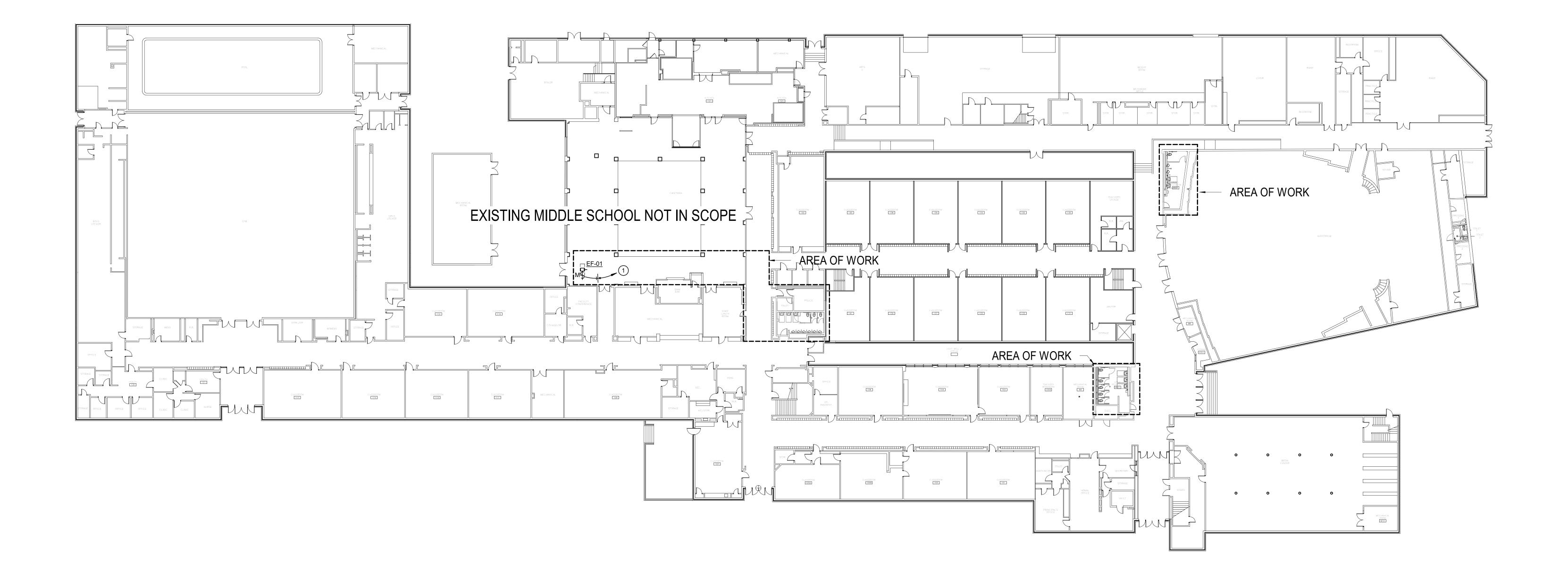
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**1ST FLOOR ELECTRICAL PLAN** SCALE: 3/64" = 1'-0"

# POWER PLAN GENERAL NOTES:

- POWER AND NOT IDENTIFIED ON ELECTRICAL PLANS, ASSUME AT A MINIMUM A DUPELX OUTLET, A DEDICATED CIRCUIT WITH 2#12,1#12G,3/4"C. WITH HOMERUN TO NEAREST 120/208V PANEL. ITEMS SUCH AS BUT NOT LIMITED TO ROLL DOWN DOORS, COUNTER DOORS, OVERHEAD GRILLES, DISPLAY CASES, HAND DRYERS, WATER COOLERS, ICE MAKERS, GARBAGE DISPOSALS, OSCILLATING FANS, LCD's, PROJECTORS, DISHWASHERS, MOTORIZED PROJECTION SCREENS, ETC.
- 2. DATA/COMMUNICATION OUTLETS ARE SHOWN ON THIS DRAWING FOR COORDINATION PURPOSES ONLY. PROVIDE AND INSTALL ALL CONDUITS AND BACK BOXES REQUIRED BY LOW VOLTAGE SYSTEMS. COORDINATE WITH 'TS' DRAWINGS, DETAILS, ETC. AND ARCHITECTURAL DRAWINGS FOR EXACT QUANTITIES, LOCATIONS, AND REQUIREMENTS PRIOR TO ROUGH-IN.
- 3. CONTRACTOR TO PROVIDE CONNECTION FROM EXHAUST FANS TO ALL MOTORIZED BACKDRAFT DAMPERS AS REQUIRED, COORDINATE WITH MECHANICAL.
- IF ANY DEVICES ARE FOUND TO BE FAULTY, CONTRACTOR SHALL PROVIDE PRICING TO REPLACE WITH A COMPARABLE, COMPATIBLE DEVICE. 5. CONTRACTOR SHALL REMOVE ALL EXISTING DIVISION 27 AND 28 DEVICES AND STORE IN A
- CONSTRUCTION. PROTECT EXISTING CABLING THROUGHOUT CONSTRUCTION. REPLACE EXISTING DEVICES IN THE SAME LOCATIONS AFTER UPGRADES TO THE ROOMS HAVE BEEN COMPLETED. TEST ALL DEVICES UPON REINSTALLATION TO ENSURE FUNCTIONALITY.

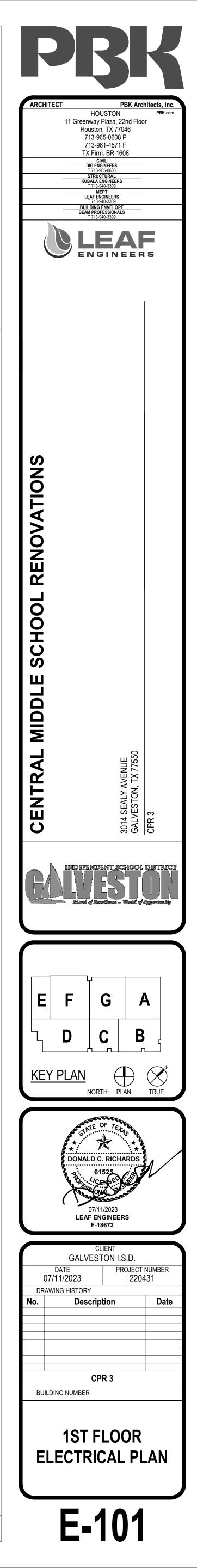
# 1. FOR EQUIPMENT OR DEVICES SHOWN ON ARCHITECTURAL DRAWINGS THAT REQUIRE

# 4. CONTRACTOR SHALL TEST ALL EXISTING DIVISION 27 AND 28 DEVICES FOR FUNCTIONALITY.

# SECURE, CLEAN, AIR-CONDITIONED ENVIRONMENT, OR PROTECT IN-PLACE, THROUGHOUT

POWER PLAN KEYED NOTES:

(1) PROVIDE NEW 20A/1P CIRCUIT BREAKER IN SPACE OF NEAREST 120 VOLT PANEL AND CIRCUIT WITH 2#12,1#12G,3/4"C.



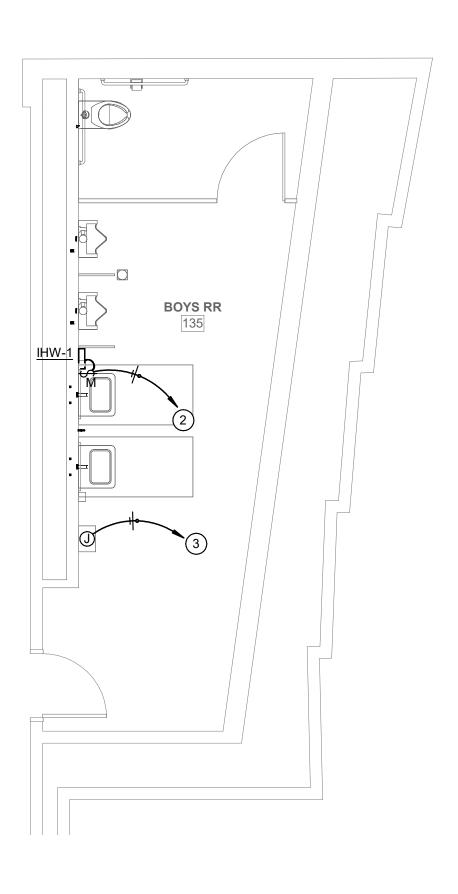
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POWER PLAN GENERAL NOTES:

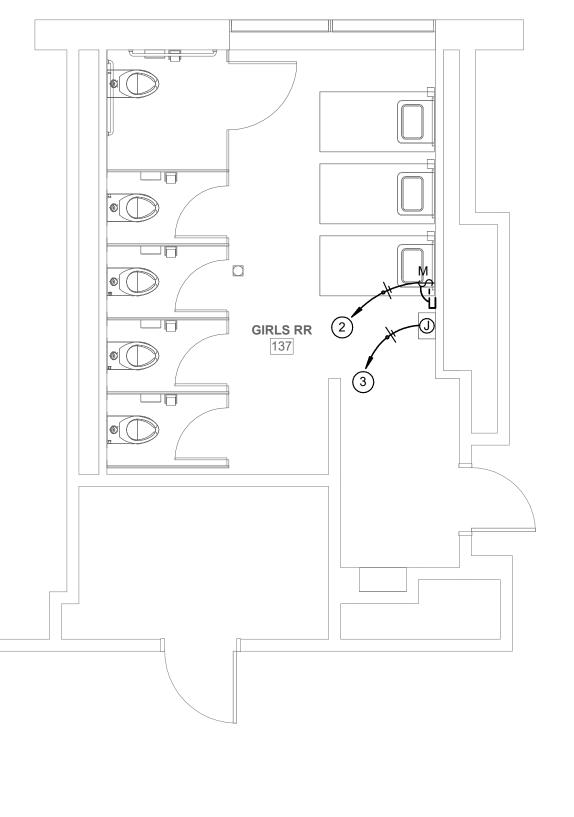
- 1. FOR EQUIPMENT OR DEVICES SHOWN ON ARCHITECTURAL DRAWINGS THAT REQUIRE POWER AND NOT IDENTIFIED ON ELECTRICAL PLANS, ASSUME AT A MINIMUM A DUPELX OUTLET, A DEDICATED CIRCUIT WITH 2#12,1#12G,3/4"C. WITH HOMERUN TO NEAREST 120/208V PANEL. ITEMS SUCH AS BUT NOT LIMITED TO ROLL DOWN DOORS, COUNTER DOORS, OVERHEAD GRILLES, DISPLAY CASES, HAND DRYERS, WATER COOLERS, ICE MAKERS, GARBAGE DISPOSALS, OSCILLATING FANS, LCD's, PROJECTORS, DISHWASHERS, MOTORIZED PROJECTION SCREENS, ETC.
- 2. DATA/COMMUNICATION OUTLETS ARE SHOWN ON THIS DRAWING FOR COORDINATION PURPOSES ONLY. PROVIDE AND INSTALL ALL CONDUITS AND BACK BOXES REQUIRED BY LOW VOLTAGE SYSTEMS. COORDINATE WITH 'TS' DRAWINGS, DETAILS, ETC. AND ARCHITECTURAL DRAWINGS FOR EXACT QUANTITIES, LOCATIONS, AND REQUIREMENTS PRIOR TO ROUGH-IN.
- 3. CONTRACTOR TO PROVIDE CONNECTION FROM EXHAUST FANS TO ALL MOTORIZED BACKDRAFT DAMPERS AS REQUIRED, COORDINATE WITH MECHANICAL.

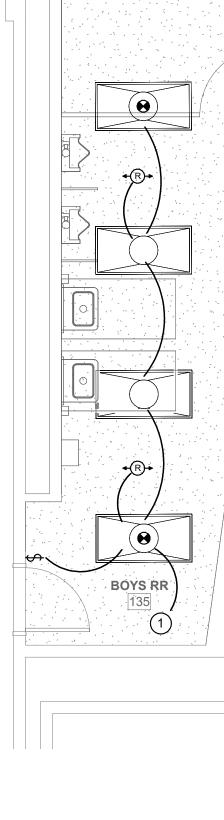
# POWER PLAN KEYED NOTES:

- (1) PROVIDE NEW 30A/1P CIRCUIT BREAKER IN SPACE OF NEAREST 277 VOLT PANEL AND CIRCUIT WITH 2#10,1#10G,3/4"C.
- PROVIDE NEW 20A/1P CIRCUIT BREAKER IN SPACE OF NEAREST 277 VOLT PANEL AND CIRCUIT WITH 2#12,1#12G,3/4"C.
- (3) WIRE AND CONNECT TO EXISTING HAND DRYER CIRCUIT IN THIS ROOM. PROVIDE NEW 30A/1P CIRCUIT BREAKER IN SPACE OF NEAREST 120 VOLT PANEL AND CIRCUIT WITH 2#10,1# 10G,3/4"C.



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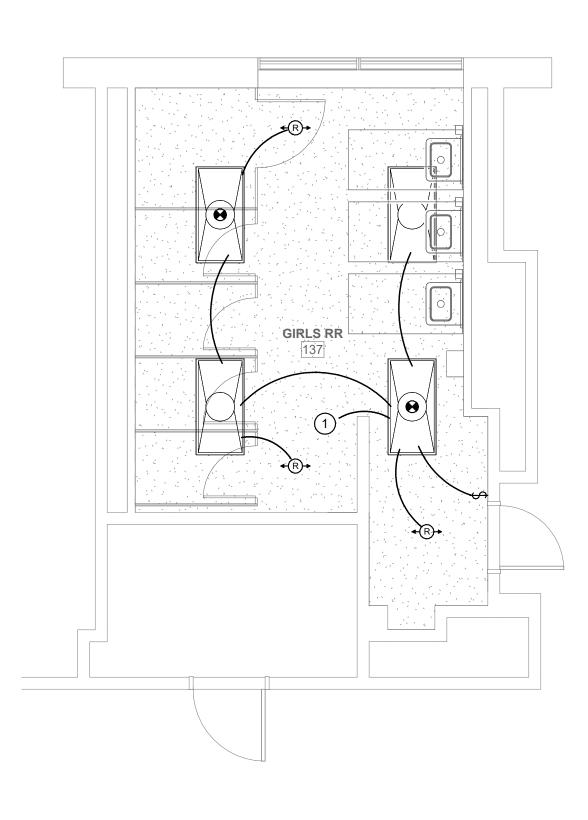


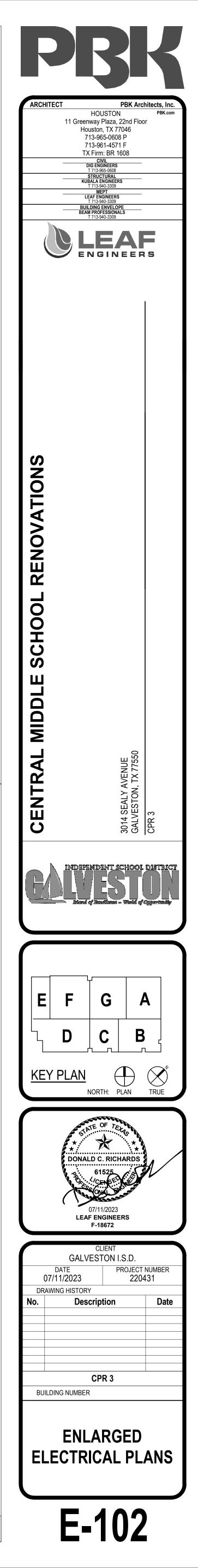
# LIGHTING PLAN GENERAL NOTES:

- 1. REFER TO ARCHITECT'S REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES.
- 2. UNLESS OTHERWISE NOTED, ALL 2X4'S ARE TYPE "A".
- 3. PROVIDE A COMPLETE AND OPERATIONAL TITLE24 COMPLIANT SYSTEM OF OCCUPANCY SENSORS FOR ON/OFF CONTROL OF ALL LIGHT FIXTURES INCLUDING BUT NOT LIMITED TO POWER PACKS, DAYLIGHT SENSORS, LINE VOLTAGE AND LOW VOLTAGE WIRING PER MANUFACTURER'S REQUIREMENTS, ETC. RE: DIVISION 26 SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 4. PROVIDE EMERGENCY BATTERY PACKS FOR ALL LIGHTING FIXTURES DESIGNATED TO BE ON EMERGENCY POWER AND EXIT SIGNS. PROVIDE UNSWITCHED HOT TO BATTERY SO THAT LIGHT FIXTURES CAN BE SWITCHED OFF AND ON WITHOUT DRAINING BATTERY. RE: DIVISION 26 SPECIFICATIONS FOR ADDITIONAL INFORMATION.

# LIGHTING PLAN KEYED NOTES:

(1) WIRE AND CONNECT TO EXISTING LIGHTING CIRCUIT IN THIS AREA.





# Lighting Fixture Schedule

Manufacturer

DAYBRITE

Fixture

Catalog Number

2FPZ42B840-4-DS-UNV-DIM

Lamp Type 40W 4000K 4200 LM Mounting RECESSED

# LIGHTING FIXTURE NOTES

KEY TO NOTE PREFIXES: "G" NOTES ARE "GENERAL" LIGHTING NOTES THAT APPLY TO THE ENTIRE PROJECT. "S" NOTES ARE "SCHEDULE" NOTES THAT APPLY TO SPECIFIC LUMINAIRES.

- G.1 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS, ELEVATIONS, SECTIONS, AND DETAILS FOR THE EXACT LOCATION OF ALL LUMINAIRES. ARCHITECTURAL PLANS SHALL GOVERN FOR LOCATION AND LAYOUT. IF ARCHITECTURAL AND ELECTRICAL DRAWINGS CONFLICT IN EXACT COUNT ( FIXTURE TYPE, PROVIDE THE GREATER QUANTITY OR COST TYPE UNLESS OTHERWISE INSTRUCTED.
- G2. REFER TO DIVISION 26 ELECTRICAL SPECIFICATIONS FOR ADDITIONAL LUMINAIRE AND ELECTRICAL REQUIREMENTS (LENS, AIR HANDLING CHARACTERISTICS, T-BAR CLIPS, BALLAST, LAMPS, TIME FRAME FOR SUBMITTAL OF SUBSTITUTE LIGHT FIXTURES FOR PRIOR APPROVAL, ETC.).
- G3. FOR EACH SCHEDULED LUMINAIRE, PROVIDE ALL REQUIRED APPURTENANC FOR INSTALLATION IN APPLICABLE STRUCTURE OR SPECIFIED ARCHITECTU EILING. ALL LUMINAIRES SHALL HAVE THE APPROPRIATE NEMA TYPE FRAME THAT IS COMPATIBLE WITH THE CEILING SYSTEM SPECIFIED BY THE ARCHITECT. ELECTRICAL DRAWINGS DO NOT INDICATE CEILING TYPES, CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS TO DETERMINE CEILING TYPE (GRID, FLANGE, SPLINE, SCREW SLOT, ETC.) AND PROVIDE APPROPRIATE FRAME.
- G4. EXIT SIGNS AND OTHER LUMINAIRES SHALL NOT BE SUPPORTED BY CEILING TILE. PROVIDE MOUNTING FRAME OR HANGERS TO SECURELY FASTEN IN PLACE ALL LUMINAIRES MOUNTED IN CEILING TILE. FRAMING MEMBERS OF A SUSPENDED CEILING SYSTEM MAY BE USED WHERE DESIGNED FOR THE PURPOSE AND INSTALLED PER NEC 410-16(c).
- G5. WHERE A SURFACE-MOUNTED LUMINAIRE CONTAINING A BALLAST IS TO BE INSTALLED ON COMBUSTIBLE LOW-DENSITY CELLULOSE FIBERBOARD, IT SH BE LISTED FOR THIS CONDITION OR SHALL BE SPACED NOT LESS THAN 1 1/2 INCHES FROM THE SURFACE OF THE FIBERBOARD (NEC 410-76(b)). G6. REQUEST FOR SUBSTITUTION SHALL FOLLOW SPECIFIED PROCEDURES AND
- SHALL INCLUDE A WORKING SAMPLE SUITABLE FOR TABLE TOP EXAMINATION S1. UNLESS OTHERWISE NOTED, MOUNT EXIT SIGN DIRECTLY ABOVE EGRESS DOOR (MAXIMUM 24" ABOVE DOOR), PROVIDE WALL MOUNT EXIT SIGNS IN H CEILING AREAS, PROVIDE WINDOW MULLION MOUNTING WITH CONCEALED WIRING WHERE REQUIRED. COORDINATE EXACT ELEVATION WITH ARCHITE

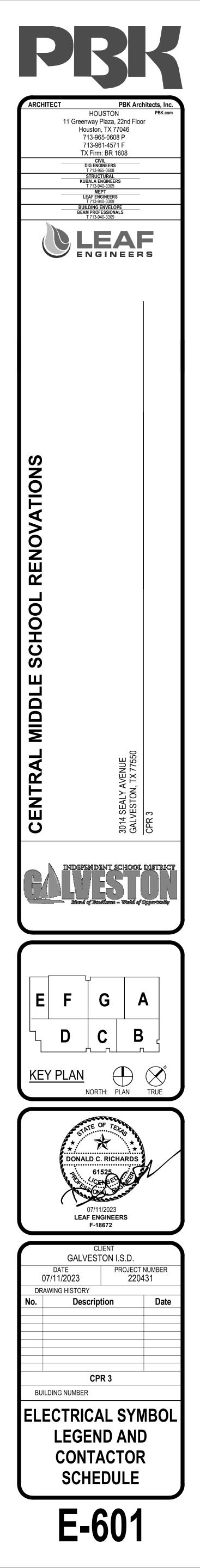
PRIOR TO ROUGH-IN.

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	GENERAL ELECTRICAL REMODEL NOTES	ELECTRICAL SYMBOL LEGEND
Voltage Dimming Description Type	1. UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR OTHERWISE INSTRUCTED BY THE ARCHITECT, ELECTRICAL OUTLETS SHALL HAVE THE FOLLOWING MOUNTING HEIGHTS. DIMENSIONS ARE TO CENTER OF BOX UNLESS OTHERWISE NOTED:	<ol> <li>EVERY SYMBOL SHOWN ON LEGEND MAY NOT APPEAR ON DRAWINGS.</li> <li>DASHED ELEECTRICAL EQUIPMENT GENERALLY INDICATES EXISTING EQUIPMENT.</li> <li>LONG-SHORT-SHORT-LONG DASHING GENERALLY INDICATES MATCH LINE OR DEFINES AREA FOR</li> </ol>
UNV 0-10V RECESSED LED 2X4 FLAT PANEL	WALL SWITCHES       •         WALL CONVENIENCE RECEPTACLES       15" AFF TO BOTTOM OF BOX         WALL DATA/VOICE OUTLETS       15" AFF TO BOTTOM OF BOX         WALL OUTLETS FOR WALL MTD. TELEPHONE       •         WALL CLOCK OUTLETS       7'-0" AFF (OR ABOVE CHALKBOARDS WHERE REQUIRED)*	
	MANUAL FIRE ALARM PULL STATIONS       •         FIRE ALARM SPEAKER/HORN       1'-0" BELOW CEILING, OR IN CEILING, AS REQUIRED*         INTERIOR BELLS, BUZZERS, HORNS       1'-0" BELOW CEILING, OR IN CEILING, AS REQUIRED*         SPECIAL PURPOSE WALL OUTLETS       15" AFF TO BOTTOM OF BOX (OR HIGHER AS REQUIRED TO SERVE EQUIPMENT)	LIGHTING OR POWER CIRCUIT(S). ARROW INDICATES HOME RUN, LONGER TICK(S) INDICATE NEUTRAL WIRE(S), SHORTER STRAIGHT TICK(S) INDICATE PHASE WIRE(S), SLANTED SHORTER TICK(S) INDICATE SWITCH LEG(S), DOT(S) INDICATE GROUNDING CONDUCTOR(S), DASHED WIRING (LONG-SHORT-LONG
ES THAT ES THAT	PUSH BUTTONS ADA VISUAL ALARM 80" AFF TO BOTTOM OF LENS OR 6" BELOW CEILING, WHICHEVER IS LOWER. ENTIRE LENS TO BE WITHIN 80" TO 96" AFF*	DASHES) INDICATES WIRING BELOW SLAB OR GRADE, DASHED WIRING (SERIES OF SHORT DASHES) INDICATES EXISTING WIRING, SLASH THROUGH ARROW INDICATES PARTIAL CIRCUIT, "D" ON HOMERUN ARROW INDICATES DEDICATED CIRCUIT: PROVIDE A SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR FOR ENTIRE LENGTH OF CIRCUIT FROM PANEL TO OUTLET; COUNT EACH NEUTRAL AS CURRENT-CARRYING AND GROUP A MAXIMUM OF SIX THHN/THWN CONDUCTORS IN A SINGLE RACEWAY; GROUNDING
NS, AIRES.	• TOP OF BOX SHALL BE 42" AFF MAX. FOR WHEELCHAIR FRONTAL APPROACH AND 48" AFF MAX. FOR SIDE APPROACH. VERIFY EXACT HEIGHT WITH ARCHITECT	O       JUNCTION BOX         ↓       GROUNDING FIXTURE
UT. IF COUNT OR UNLESS	* 7'-0" AFF TO BOTTOM OF DEVICE IF DEVICE PROTRUDES MORE THAN 4" FROM WALL (PER ADA)	
NAL	AFF = ABOVE FINISHED FLOOR AFG = ABOVE FINISHED GRADE	LIGHTING:
G DR L, ETC.).	<ol> <li>UNLESS SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS, OUTLETS LOCATED AT COUNTERS AND CABINETS SHALL BE MOUNTED AS SHOWN ON ARCHITECTURAL DETAILS AND ELEVATIONS, OR AS DIRECTED BY ARCHITECT.</li> </ol>	LED LIGHTING FIXTURE. LETTER INDICATES TYPE, SMALL LETTER INDICATES SWITCH CONTROL, NUMBER INDICATES CIRCUIT, CROSS HATCHING INDICATES FIXTURE ON EMERGENCY SYSTEM, FOR SOLID CIRCLE WITHIN FIXTURE REFERENCE APPROPRIATE CATEGORY "A" CIRCUIT RELATED SYMBOL
RTENANCES CHITECTURAL PE FRAME	3. COORDINATE MOUNTING HEIGHTS AND DETAILS OF ALL OUTLETS (POWER, SIGNAL, ETC.) WITH ARCHITECTURAL CASEWORK DRAWINGS PRIOR TO DIVISION 26 ROUGH-IN. PROVIDE COORDINATION DRAWINGS IN ACCORDANCE WITH DIVISION 26 SPECIFICATIONS WHERE CONFLICTS EXIST. OBTAIN APPROVAL FROM ARCHITECT BEFORE ELECTRICAL ROUGH-IN WHEN CONFLICTS ARISE.	STRIP TYPE LED LIGHTING FIXTURE. LETTER INDICATES TYPE, SMALL LETTER INDICATES SWITCH CONTROL, NUMBER INDICATES CIRCUIT, FOR SOLID CIRCLE ATTACHED TO FIXTURE REFERENCE APPROPRIATE CATEGORY "A" CIRCUIT RELATED SYMBOL
E PES, RMINE OVIDE	<ol> <li>REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF ALL HVAC AND PLUMBING EQUIPMENT.</li> <li>CIRCUITING</li> <li>BRANCH CIRCUITING IS SCHEMATIC IN NATURE AND IS INTENDED TO INDICATE CIRCUIT LOADING AND CONTROL, NOT METHODS OF INSTALLATION, REFER TO SPECIFICATIONS FOR METHODS OF</li> </ol>	O LED LIGHTING FIXTURE. LETTER INDICATES TYPE, SMALL LETTER INDICATES SWITCH CONTROL, NUMBER INDICATES CIRCUIT, FOR SOLID CIRCLE REFERENCE APPROPRIATE CATEGORY "A" CIRCUIT RELATED SYMBOL
Y CEILING STEN IN	INSTALLATION AND MATERIALS, INCLUDING WHETHER OR NOT BX IS ALLOWED AND WHETHER "THROUGH-FIXTURE" OR "OCTOPUS (EMT WITH FLEXIBLE WHIPS)" TYPE LIGHTING BRANCH CIRCUITING IS REQUIRED.	DESIGNATES FIXTURE ON EMERGENCY POWER. RE: LIGHTING PLAN NOTES AND FIXTURE SCHEDULE NOTES FOR ADDITIONAL INFORMATION
BERS OF A DR THE	<ul> <li>B. WHERE WIRE SIZE AND CONDUIT SIZE IS NOT INDICATED ON THE DRAWINGS AND/OR PANEL SCHEDULES, REFER TO SPECIFICATIONS FOR MINIMUM SIZE REQUIRED.</li> <li>C. BRANCH CIRCUITS ON THE DRAWINGS ARE GENERALLY NOT SHOWN GROUPED IN SINGLE RACEWAYS. HOWEVER, GROUPING IS ALLOWED UNDER CERTAIN</li> </ul>	<ul> <li>WALL OR BRACKET MOUNTED FIXTURE OR DEVICE</li> <li>EXIT LIGHT FIXTURE. LETTER INDICATES TYPE, NUMBER INDICATES CIRCUIT, NUMBER AND LOCATION OF SUBJECTION OF FACILIES OF EXIT SIGN FACES AND DIPECTION OF FACILIES OF EXIT.</li> </ul>
IS TO BE ARD, IT SHALL THAN 1 1/2	CONDITIONS. REFER TO DIVISION 26 SPECIFICATIONS UNDER SECTION ENTITLED "ELECTRICAL WIRING" FOR REQUIREMENTS. D. THE DRAWINGS GENERALLY INDICATE QUANTITY OF CONDUCTORS ON BRANCH CIRCUIT HOME RUNS ONLY. ELSEWHERE WITHIN CIRCUITS, PROVIDE QUANTITY OF CONDUCTORS AS NEEDED TO	SHADED TRIANGLE SECTIONS INDICATE NUMBER OF EXIT SIGN FACES AND DIRECTION OF EACH FACE. PROVIDE CHEVRON DIRECTIONAL INDICATORS AS SHOWN ON DRAWINGS
URES AND AMINATION.	ACCOMPLISH CIRCUITING AND SWITCHING REQUIREMENTS SHOWN. 6. WHEN REMOVING EXISTING ELECTRICAL WORK WHERE OTHER ITEMS REMAIN ON THE SAME CIRCUIT, THE CONTRACTOR SHALL TAKE WHATEVER STEPS ARE NECESSARY TO MAINTAIN CIRCUIT CONTINUITY.	SWITCH. SMALL LETTER INDICATES FIXTURES CONTROLLED, "P" INDICATES PILOT LIGHT, "WP" INDICATES
EGRESS IGNS IN HIGH ICEALED	<ol> <li>ALL ITEMS NOTED TO BE REMOVED ARE TO REMAIN THE PROPERTY OF THE OWNER; HOWEVER, CONTRACTOR SHALL REMOVE FROM JOB SITE ALL MATERIAL NOT RETAINED BY OWNER.</li> <li>FIELD VERIFY CONDITION OF, AND MODIFICATIONS AND ADDITIONS TO, ALL EXISTING ELECTRICAL FIXTURES, PANELS, WIRING, ETC.</li> </ol>	WEATHERPROOF, "K" INDICATES KEY POERATED, "MO" INDICATES SPDT MOMENTARY CONTACT, "2" INDICATES DPDT, "3" INDICATES 3-WAY, "4" INDICATES 4-WAY, "M" INDICATES MANUAL MOTOR STARTER, CIRCUIT DESIGNATION NEXT TO SWITCH INDICATES BRANCH CIRCUIT NUMBER
ARCHITECT	9. WHERE DOORS ARE ADDED, OR PORTIONS OF WALLS REMOVED, CONTRACTOR SHALL REMOVE OR RELOCATE ALL ELECTRICAL WORK NECESSARY FOR THE REMODELING MODIFICATION, WHETHER OR NOT THIS WORK IS NOTED ON PLANS.	\$ <sup>D</sup> WALL BOX DIMMER SWITCH. "MARK" INDICATES WATTAGE IF OTHER THAN 600, "3D" INDICATES 3-WAY DIMMER
	<ol> <li>WHERE EXISTING JUNCTION BOXES ARE COVERED OR REMOVED, CONTRACTOR SHALL TAKE WHATEVER STEPS ARE NECESSARY TO COMPLY WITH NEC 314-19.</li> <li>EXISTING ELECTRICAL BOXES TO REMAIN IN AREAS WHERE NEW WALL FINISHES ARE TO BE APPLIED SHALL</li> </ol>	<ul> <li>\$\$ MULTI-LEVEL SWITCH. CIRCUIT DESIGNATION NEXT TO SWITCH INDICATES BRANCH CIRCUIT NUMBER</li> <li>\$<sup>T</sup> DIGITAL TIME SWITCH</li> </ul>
	BE RESET AS NECESSARY TO PROVIDE FLUSH MOUNTING FOR BOXES. 12. CONTRACTOR SHALL FIELD VERIFY EXISTING BRANCH CIRCUIT LOADING WHEN MAKING MODIFICATIONS	PHOTOELECTRIC CONTROL
	AND/OR ADDITIONS TO THAT CIRCUIT. IF NEW WORK WOULD OVERLOAD EXISTING CIRCUIT, CONTRACTOR SHALL LOCATE ANOTHER EXISTING CIRCUIT (THE CLOSEST), WHICH WOULD NOT BE OVERLOADED UPON ADDING NEW LOAD, AND SHALL TIE NEW LOAD INTO THAT CIRCUIT.	EMERGENCY POWER OFF (EPO) PUSHBUTTON
	13. WHEN EXISTING ELECTRICAL WORK IS REMOVED, ALL EXPOSED CONDUIT, WIRING, CONTROL AND JUNCTION BOXES ALONG WALLS, FLOOR, AND CEILING SHALL BE REMOVED. BRANCH CIRCUIT WIRES SHALL BE	<ul> <li>PUSH BUTTON</li> <li>\$<sup>°°</sup> WALL MOUNT OCCUPANCY SENSOR</li> </ul>
	REMOVED BACK TO CIRCUIT BREAKER(S). BLANK COVER PLATES SHALL BE PROVIDED FOR RECESSED BOXES. WHERE THIS WORK IS DONE, THE WALLS, FLOOR, AND CEILING SHALL BE PATCHES AS NECESSARY UNDER WORK COVERED IN OTHER SECTIONS.	→ DUAL TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR
	14. EXISTING RECESSED INCANDESCENT AND HID LUMINAIRES DESIGNATED FOR TEMPORARY REMOVAL AND RE-USE SHALL BE STORED. ALL SUCH LUMINAIRES NOT THERMALLY PROTECTED PER NEC 410-118 AND 410-	<ul> <li>↓</li> <li>◆ R → CEILING MOUNTED RESTROOM OCCUPANCY SENSOR</li> </ul>
	130(F) ARE NOT SUITABLE FOR RE-USE AND SHALL BE GIVEN TO THE OWNER. PROVIDE NEW REPLACEMENT LUMINAIRES WITH UL THERMAL PROTECTION, IDENTICAL APERTURE, EQUIVALENT PHOTOMETRICS AND NEW	← CEILING MOUNTED CORRIDOR OCCUPANCY SENSOR
	LAMPS. 15. CONTRACTOR TO REFER TO ARCHITECTURAL DEMOLITION PLANS AND PHASING PLANS AND HAVE A GOOD UNDERSTANDING OF SCOPE OF PROJECT PRIOR TO COMMENCEMENT OF WORK. 16. LUMINAIRE SUPPORT IN SUSPENDED CEILINGS:	B CEILING MOUNTED HIGH CEILING OCCUPANCY SENSOR
	<ul> <li>A. PROVIDE MEANS OF SUPPORT FOR LUMINAIRES PER NEC 410-16. T BAR CLIPS SHALL BE INSTALLED ON THE LUMINAIRE</li> <li>AND SHALL BE FIELD SECURED TO THE INVERTED CEILINGS TEES SO THAT THE LUMINAIRE IS SECURELY FASTENED TO THE</li> <li>CEILING SYSTEM FRAMING MEMBERS</li> <li>B. CEILING TILES SHALL NOT BEAR THE WEIGHT OF LUMINAIRES. SURFACE MOUNT LUMINAIRES. RECESSED DOWNLIGHTS.</li> </ul>	POWER OUTLETS:
	LIGHT TRACK, EXIT SIGNS, ETC. SHALL BE SUPPORTED BY PROPER FRAMES OR OTHER ATTACHMENT TO MAIN CEILING SYSTEM GRID OR BUILDING STRUCTURE ABOVE CEILING.	<ul> <li>         → 20A-125V DUPLEX RECEPTACLE     </li> <li>         → 20A-125V GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE. "WP" INDICATES WEATHER PROOF DEVICE     </li> </ul>
	<ul> <li>C. LUMINAIRES SHALL BE CENTERED IN CEILING TILE.</li> <li>D. LUMINAIRE SHALL HAVE FLANGE OR TRIM RING FOR CLOSURE OF CEILING CUTOUT OR OPENING.</li> <li>E. FIRE-RATED CEILING ASSEMBLY: FOR LUMINAIRES TO BE FLUSH-MOUNTED INTO A FIRE-RATED CEILING OR SURFACE</li> </ul>	<ul> <li>20A-125V DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER TOP. REFER TO ARCHITECT FOR EXACT HEIGHT ABOVE COUNTER</li> </ul>
	MOUNTED TO A FIRE-RATED CEILING, INSTALL WITH INDEPENDENT, SECURE SUPPORT, RACEWAY, CABLE ASSEMBLIES BOXES AND FITTINGS LOCATED ABOVE A FIRE-RATED FLOOR/CEILING OR ROOF CEILING ASSEMBLY SHALL NOT BE SECURED TO, OR SUPPORTED BY, THE CEILING ASSEMBLY INCLUDING CEILING SUPPORT WIRES. PROVIDE AN INDEPENDENT MEANS OF	⊕ 20A-125V CONTROLLED DUPLEX RECEPTACLE
	SECURE SUPPORT. INDEPENDENT SUPPORT WIRES SHALL BE DISTINGUISHABLE BY COLOR, TAGGING, OR OTHER EFFECTIVE MEANS FROM THOSE THAT ARE PART OF THE FIRE-RATED DESIGN.	20A-125V ISOLATED GROUND TYPE DUPLEX RECEPTACLE
	<ul> <li>17. CONTRACTOR SHALL FIELD VERIFY ANY EXISTING UNDERGROUND PIPING, WIRING, OR OTHER FACILITIES PRIOR TO TRENCHING,</li> <li>AND SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY INSTALLATION OF NEW WORK.</li> <li>18. THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH ALL AUTHORITIES HAVING JURISDICTION,</li> </ul>	CH 20A-125V DUPLEX TAMPER RESISTANT RECEPTACLE WITH (2) USB CHARGING PORTS
	NEC, AND STATE AND LOCAL CODES AND AMENDMENTS.	<ul> <li>20A-125V FOURPLEX RECEPTACLE. SAME SYMBOLOGY AS DUPLEX RECEPTACLE</li> <li>SPECIAL PURPOSE SINGLE POWER RECEPTACLE. RATED AS INDICATED (IF NO RATING INDICATED, RECEPTACLE RATING SHALL MATCH BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE AND SHALL MEET</li> </ul>
		<ul> <li>REQUIREMENTS OF EQUIPMENT BEING CONNECTED), "C" INDICATES CLOCK OUTLET</li> <li>20A-125V FLUSH FLOOR DUPLEX RECEPTACLE. 20A WHEN INDICATED OR IF BRANCH CIRCUIT SERVES ONLY SINGLE DUPLEX. PROVIDE CARPED FLANGE WHERE APPLICABLE</li> </ul>
		LC1-X CIRCUIT DESIGNATION NEXT TO RECEPTACLE DEVICES INDICATES BRANCH CIRCUIT NUMBER. RE: PANEL SCHEDULES FOR INFORMATION.
		TELEPHONE/DATA:
		<ul> <li>FLUSH FLOOR TELEPHONE OUTLET WITH CARPET FLANGE WHERE APPLICABLE</li> <li>WALL COMMUNICATIONS OR DATA OUTLET. REFER TO 'TS' SERIES SHEETS FOR EXACT BOX / CONDUIT REQUIREMENTS</li> </ul>
		<ul> <li>FLUSH FLOOR COMMUNICATIONS OR DATA OUTLET. REFER TO 'TS' SERIES SHEETS FOR EXACT BOX / CONDUIT REQUIREMENTS. PROVIDE CARPET FLANGE WHERE APPLICABLE</li> </ul>
		SURFACE FLOOR COMMUNICATIONS OR DATA OUTLET. REFER TO 'TS' SERIES SHEETS FOR EXACT BOX / CONDUIT REQUIREMENTS. PROVIDE CARPET FLANGE WHERE APPLICABLE
		EQUIPMENT:
		+42" A NOTATION INDICATING THE MOUNTING HEIGHT OF A DEVICE AS MEASURED FROM FINISHED FLOOR OR GRADE TO CENTER LINE OF DEVICE
		MOTOR DISCONNECT SWITCH. FRAME SIZE/FUSE SIZE/POLES AS INDICATED, "NF" INDICATES NON-FUSIBLE. NEMA 1 ENCLOSURE UNLESS OTHERWISE NOTED. PROVIDE FUSED BUSWAY PLUG WHEN SWITCH IS INDICATED ON BUSWAY. ALL DISCONNECT SWITCHES SHALL BE 30/NF/3 UNLESS OTHERWISE NOTED
		SINGLE CIRCUIT BREAKER IN INDIVIDUAL ENCLOSURE
		MAGNETIC MOTOR CONTROLLER. NUMBER INDICATES NEMA SIZE. STARTER NEMA SIZE SHALL BE "NEMA 1" UNLESS OTHERWISE NOTED COMBINATION DISCONNECT SWITCH / MOTOR CONTROLLER
		CONTACTOR
		PANELBOARD SWITCHBOARD / DP

- TRANSFORMER
- GROUNDING CONNECTION TO GROUNDING ELECTRODE AS DEFINED IN NEC ARTICLE 250 B BELL. "WP" INDICATED OUTDOOR RATED



CHECKED BY: RC

DRAWN BY: RC Plot Stamp: 7/11/2023 6:09:58 PM

(A)	ITEM NOTED TO BE ABANDONED	KW	KILOWATTS
(D)	ITEM NOTED TO BE DEMOLISHED	L	LAVATORY
(E)	EXISTING ITEM	MAP	MASTER ALARM PANEL
(N)	NEW ITEM	MECH	MECHANICAL
(R)	ITEM NOTED TO BE RELOCATED	MH	MANHOLE
AAP	AREA ALARM PANEL	MS	MOP SINK
AAV	AUTOMATIC AIR VENT	NC	NORMALLY CLOSED
AFF	ABOVE FINISHED FLOOR	NIC	NOT IN CONTRACT
AP	ACCESS PANEL	NO	NORMALLY OPEN
BFF	BELOW FINISHED FLOOR	OF / CI	OWNER FURNISHED / CONTRACTOR INSTALLED
BFP	BACKFLOW PREVENTER	OF / OI	OWNER FURNISHED / OWNER INSTALLED
BOB	BOTTOM OF BEAM	OD	OVERFLOW DRAIN
BOP	BOTTOM OF PIPE	PIV	POST INDICATOR VALVE
BTUH	BRITISH THERMAL UNITS PER HOUR	PRV	PRESSURE REDUCING VALVE
C/C	CUT AND CAP	RD	ROOF DRAIN
CFH	CUBIC FEET PER HOUR	RE:	REFER TO
CFS	CUBIC FEET PER SECOND	RIC	ROUGH-IN AND CONNECT
CI	CAST IRON	RO	REVERSE OSMOSIS
CLG	CEILING	RP BFP	REDUCED PRESSURE BACKFLOW PREVENTER
CO	CLEANOUT	RPM	REVOLUTIONS PER MINUTE
CONN	CONNECTION	RVB	REFRIGERATOR VALVE BOX
CONT	CONTINUATION	SD	STORM DRAIN
DF	DRINKING FOUNTAIN	SF	SQUARE FEET
DPV	DRY PIPE VALVE	SIA	SERVICE SINK
DWG	DRAWING	SK	SINK
EA	EACH	TMV	THERMOSTATIC MIXING VALVE
EDF	ELECTRIC DRINKING FOUNTAIN	ТОР	TOP OF PIPE
FCO	FLOOR CLEANOUT	ТР	TRAP PRIMER
FD	FLOOR DRAIN	ТҮР	TYPICAL
FDV	FIRE DEPARTMENT VALVE	U	URINAL
FF	FINISHED FLOOR	U/F	UNDERFLOOR
FHC	FIRE HOSE CABINET	U/S	UNDERSLAB
FL	FLOW LINE	VB	VACUUM BREAKER
FS	FLOOR SINK	VCT	VITRIFIED CLAY TILE
FT	FET	VTR	VENT THRU ROOF
FU	FIXTURE UNIT	WC	WATER CLOSET
GC	GENERAL CONTRACTOR	WCO	WALL CLEANOUT
GPH	GALLONS PER HOUR	WH	WALL HYDRANT
GPM	GALLONS PER MINUTE	WMB	WASHING MACHINE BOX
HB	HOSE BIBB	YH	YARD HYDRANT
	-		ZONE VALVE

NOTES:

1. NOT ALL ABBREVIATIONS MAY BE USED ON THESE DRAWINGS.

# PLUMBING FIXTURE CONNECTION SCHEDULE

DESCRIPTION			TRAD	VENT	DEU	BRANC	H CONN	FIXTUR	E CONN	FIXTUR	E UNITS	DEMADIZO
DESCRIPTION	WASTE	TRAP	VENT	DFU	CW	HW	CW	HW	CW	HW	REMARKS	
VATER CLOSET (FV)	4"	-	2"	4	1-1/4"	-	1"	-	10.00	-	INTEGRAL TRAP	
VATER CLOSET (FT)	4"	-	2"	3	3/4"	-	1/2"	-	2.50	-	INTEGRAL TRAP	
AVATORY	2"	1-1/4"	2"	1	3/4"	3/4"	1/2"	1/2"	0.75	0.75	PROVIDE TMV	
SHOWER	2"	2"	2"	2	3/4"	3/4"	1/2"	1/2"	1.50	1.50	PROVIDE TMV	
BATH TUB	2"	1-1/2"	2"	3	3/4"	3/4"	1/2"	1/2"	3.00	3.00	PROVIDE TMV	
KITCHEN SINK	2"	1-1/2"	2"	2	3/4"	3/4"	1/2"	1/2"	1.13	1.13	PROVIDE TMV	
WASHING MACHINE	2"	2"	2"	3	3/4"	3/4"	1/2"	1/2"	3.00	3.00	-	
AUNDRY SINK	2"	1-1/2"	2"	3	3/4"	3/4"	1/2"	1/2"	1.50	1.50	PROVIDE TMV	
HOSE BIBB	-	-	-	-	3/4"	-	3/4"	-	2.50	-	-	
LOOR SINK	2"	2"	2"	2	-	-	-	-	-	-	RE: DRAWINGS FOR S	
LOOR DRAIN	3"	3"	2"	4	-	-	-	-	-	-	RE: DRAWINGS FOR S	
CE MACHINE	-	-	-	-	3/4"	-	1/2"	-	1.00	-	-	

NOTES:

1. ROUGH-IN SUPPLY WASTE AND VENT PIPE SIZES INDICATED ABOVE ARE MINIMUM SIZES SHOWN FOR ROUGH-IN ONLY.

2. COORDINATE WITH PLUMBING FIXTURE MANUFACTURER'S INSTALLATION DRAWINGS FOR PROPER AND CORRECT INSTALLATION OF ALL FIXTURES.

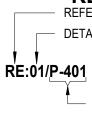
3. ALL PLUMBING FIXTURES SHALL BE COMPLETELY ROUGHED-IN BY THE PLUMBING CONTRACTOR AND SHALL MEET ALL CODES HAVING JURISDICTION.

4. ALL FIXTURES SHALL BE COMMERCIAL GRADE UNLESS OTHERWISE NOTED.

5. PROVIDE AND INSTALL A WATER HAMMER ARRESTOR IN PIPING TO ALL FIXTURES AND/OR FIXTURE BANKS.

DRAWINGS	DETAILS	ABV.	DESCRIPTION
	⊢–AV–→	AV	ACID VENT
} 	i—W—i	AW	ACID WASTE
	i—CA—i	CA	COMPRESSED AIR
	·	CW	COLD WATER
	+ <del>x x x v</del>	(D)	DEMOLISHED PIPING OR EQUIPMENT
	،—_D،	D	CONDENSATE
	⊢DSPi	DSP	DRY SPRINKLER
	·	(E)	EXISTING PIPING OR EQUIPMENT
	F→	F	FIRE
	G'	G	NATURAL GAS
]	GW⊸	GW	GREASE WASTE
	·	HW	HOT WATER
	·	HWR	HOT WATER RETURN
		OD	OVERFLOW DRAIN
	→	SD	STORM DRAIN
]	SP`	SP	SPRINKLER
	SS	SS	SANITARY SEWER
	→	V	
	· · · · · · · · · · · · · · · · · · ·		DIRECTION OF FLOW
			DROP IN PIPE
	→_O		RISE IN PIPE
			GATE VALVE
			BALL VALVE
 ₹			CHECK VALVE
£∐₽3			SUPERVISED VALVE WITH FLOW SWITCH
<u> </u>	⊷+√+→		PLUG VALVE / GAS COCK
			BUTTERFLY VALVE
			HOT WATER BALANCING VALVE
	·		PIPE UNION
			PRESSURE CONTROL VALVE
	, <u> </u>		3-WAY VALVE
			SOLENOID VALVE
[]  			FLOW SWITCH
	, <u> </u>		PRESSURE GAUGE WITH GAUGE COCK
	,,		THERMOMETER
	•	RD / ORD	ROOF DRAIN / OVERFLOW DRAIN
$\bigcirc$	$\square$	FD	FLOOR DRAIN
		FS	FLOOR SINK
	·坏		T & P RELIEF VALVE
	·-+		STRAINER END OF LINE CLEANOUT
Ľ		CO	
		FCO WCO	FLOOR CLEANOUT WALL CLEANOUT
<u>۱</u>			CAP
U			FLEXIBLE CONNECTION
			NEW CONNECTION TO EXISTING PIPING

SCHEDULE							
PIPING SYSTEM	BELOW GRADE	ABOVE GRADE					
SANITARY WASTE	SCH 40 PVC	CAST IRON					
DOMESTIC WATER	TYPE 'K' COPPER	TYPE 'L' COPPER					
FIRE PROTECTION	SCH 40 BLACK STEEL	SCH 40 BLACK STEEL					



# PLUMBING PIPE MATERIAL

# DRAWING REFERENCE KEY

- REFER TO — DETAIL NUMBER

SHEET NUMBER

# WATER HAMMER ARRESTER

SCHEDULE					
PIPE SIZE	CROSS FIXTURE UNITS	PDI STD.			
1/2"	1-11	"A"			
3/4"	12-32	"B"			
1"	33-60	"C"			
1-1/4"	61-113	"D"			
1-1/2"	114-154	"E"			
2"	155-330	"F"			
NOTES:					

1. AIR CHAMBERS OR SHOCK ARRESTORS SHALL BE PROVIDED TO ALL FIXTURE RUNOUT AND SHALL BE SIZED ACCORDING TO LOCAL PLUMBING CODE (AHJ) & PDI. AIR CHAMBERS OR SHOCK ARRESTORS SHALL BE SIZED AND INSTALLED PER MANUFACTURER'S REQUIREMENTS. THE DEVICE SHALL HAVE LIFETIME WARRANTY AND BE INSTALLED WITHOUT REQUIRING ACCESS DOORS AND PANELS.

# SLOPE OF HORIZONTAL DRAINAGE PIPE

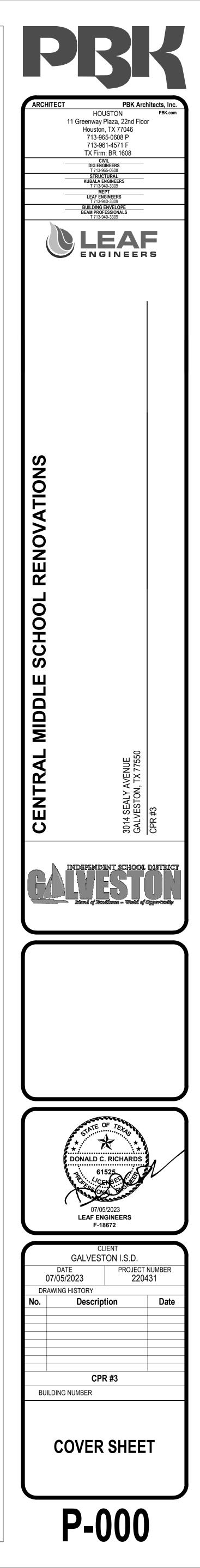
PIPE SIZE	MINIMUM SLOPE					
2-1/2" OR LESS	1/4" PER FOOT					
3" TO 6"	1/8" PER FOOT					
8" OR LARGER	1/16" PER FOOT					

# PROJECT GENERAL NOTES

- A. ALL EQUIPMENT AND/OR SYSTEMS NOTED ON THE DRAWINGS "TO REMAIN" SHALL BE INSPECTED AND TESTED ON SITE TO CERTIFY WORKING CONDITION. A WRITTEN REPORT ON THE CONDITION OF ALL EQUIPMENT TO REMAIN, INCLUDING A COPY OF THE TEST RESULTS WITH RECOMMENDED REMEDIAL ACTIONS AND COSTS SHALL BE MADE BY THIS CONTRACTOR TO THE ARCHITECT/ENGINEER FOR REVIEW.
- B. THE PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE APPLICABLE CODES AS WELL AS ALL LOCAL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE, THE MORE STRINGENT STANDARD SHALL APPLY.
- C. ALL PLUMBING WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE PROCEEDING WITH THE INSTALLATION.
- D. INVERT ELEVATIONS AND EXACT LOCATIONS OF ALL EXISTING UTILITIES SHALL BE CHECKED BEFORE PROCEEDING WITH NEW WORK.
- E. NO CHANGES ARE TO BE MADE IN PLUMBING LAYOUT WITHOUT WRITTEN PERMISSION BY THE ARCHITECT OR ENGINEER.
- F. NO PIPING SHALL RUN EXPOSED IN FINISHED AREAS.
- G. ROUGH-IN DIMENSIONS OF TOILET FIXTURES MUST BE COORDINATED WITH THE GENERAL CONTRACTOR.
- H. PROVIDE SHUT-OFF VALVES FOR WATER HEATER BRANCH. PROVIDE DIELECTRIC FITTINGS OR COUPLINGS WHEREVER DISSIMILAR METALS ARE IN CONTACT.
- I. PROVIDE SHUT-OFF VALVES AT EACH FIXTURE AND AT EACH FLOOR (IF FIXTURES ARE STACKED) ON HOT AND COLD WATER SUPPLY PIPES.
- J. ALL ACCESS PANELS SHALL BE BY GENERAL CONTRACTOR. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR LOCATION.
- K. INSTALL ALL REQUIRED CLEANOUTS TO CLEAR EQUIPMENT AND FIXTURES.
- L. ALL WORK SHALL BE PROPERLY TESTED, BALANCED, CLEANED AND DISINFECTED. PROVIDE A ONE YEAR WARRANTY FROM DATE OF FINAL INSPECTION ON ALL PARTS AND LABOR.
- M. ALL PLUMBING FIXTURES SPECIFIED ARE FOR INFORMATION ONLY. EQUAL EQUIPMENT MAY BE INSTALLED SECURING FIRST THE ENGINEER'S APPROVAL.
- N. PITCH ALL WASTE AND SOIL PIPING AT MAXIMUM SLOPE POSSIBLE, BUT NOT LESS THAN 1/4" PER FOOT FOR PIPING UNDER 3" AND NO LESS THAN 1/8" PER FOOT FOR PIPING 3" AND GREATER. 8" AND LARGER PIPING CAN BE SLOPED AT 1/16" PER FOOT.
- O. PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES. WHERE PENETRATING FIRE RATED PARTITIONS, THE SPACE BETWEEN THE PIPE AND THE SLEEVE SHALL BE SEALED WITH FIRE STOPPING MATERIAL. P. ANY UNAUTHORIZED CHANGES TO THE EQUIPMENT, DESIGN OR INSTALLATION
- OF THE PLUMBING SYSTEMS WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE ENGINEER IS UNACCEPTABLE AND GROUNDS FOR REMOVAL OF ALL LIABILITY OF THE ARCHITECT/ENGINEER FOR THE REVISED DESIGN.
- Q. PROVIDE CONDENSATE DRAIN FROM ROOF MOUNTED EQUIPMENT TO OPEN SITE DRAIN OR AS SHOWN ON DRAWINGS.
- R. ALL PIPING MATERIAL SHALL BE OF DOMESTIC MANUFACTURE AND SHALL COMPLY WITH THE BUY AMERICAN ACT.

# PLUMBING TESTING NOTES

- 1. ALL EQUIPMENT AND/OR SYSTEMS NOTED ON THE DRAWINGS "TO REMAIN" SHALL BE INSPECTED AND TESTED ON SITE TO CERTIFY WORKING CONDITION. A WRITTEN REPORT ON THE CONDITION OF ALL EQUIPMENT TO REMAIN, INCLUDING A COPY OF THE TEST RESULTS WITH RECOMMENDED REMEDIAL ACTIONS AND COSTS SHALL BE MADE BY THIS CONTRACTOR TO THE ARCHITECT/ENGINEER FOR REVIEW.
- 2. PIPE COVER AND BACKFILLING: A. AFTER HYDROSTATIC TEST, EVENLY BACKFILL ENTIRE TRENCH WIDTH BY HAND PLACING BACKFILL MATERIAL AND HAND TAMPING IN FOUR (4) INCHES COMPACTED LAYERS TO TWELVE (12) INCHES MINIMUM COVER OVER TOP OF JACKET. COMPACT TO 95 PERCENT MAXIMUM DENSITY.
- B. EVENLY AND CONTINUOUSLY BACKFILL REMAINING TRENCH DEPTH IN UNIFORM LAYERS WITH BACKFILL MATERIAL.
- C. DO NOT USE WHEELED OR TRACKED VEHICLES FOR TAMPING. 3. PRESSURE TEST ALL DOMESTIC WATER PIPING. AFTER INSTALLATION AND PRIOR TO BACKFILL OR COVER-UP, RINSE PIPING SYSTEM OF PARTICULATE CONTAMINANTS, CAP AND SUBJECT TO STATIC WATER PRESSURE OF 125 PSIG FOR FOUR (4) HOURS. REPAIR LEAKS AND DEFECTS AND RE-TEST ANY PORTION OF PIPING SYSTEM THAT FAILS. PROVIDE WRITTEN TEST REPORT INCLUDING DATE AND TIME OF TEST, PASS OR FAIL INDICATION, SUMMARY OF REMEDIAL WORK REQUIRED AND DATE AND TIME OF EACH RE-TEST.
- 4. PRIOR TO COVER UP, WATER PIPE, SANITARY PIPE, AND GAS PIPING SHALL BE PRESSURE TESTED. TESTS SHALL BE WITNESSED BY CONSULTANT AND OWNER. NOTIFY OWNER 48 HOURS PRIOR TO TEST. TEST SHALL BE WITNESSED BY CLIENT PLUMBING TECHNICIAN.
- 5. UPON COMPLETION OF THE SANITARY PIPING SYSTEM, THE CONTRACTOR SHALL NOTIFY ENGINEER AND OWNER TO OBSERVE A SMOKE TEST OF THE SYSTEM. SMOKE TESTING SHALL BE PERFORMED ON SANITARY PIPING SYSTEM TWICE DURING CONSTRUCTION.
- 6. WASTE PIPING SYSTEMS: A. WATER TEST SHALL BE APPLIED TO THESE DRAINAGE SYSTEMS EITHER IN THEIR ENTIRETY OR IN SECTIONS AS REQUIRED, AFTER ROUGH PIPING HAS BEEN INSTALLED. IF THE SYSTEM IS TESTED IN SECTIONS, EACH OPENING SHALL BE TIGHTLY CLOSED EXCEPT THE HIGHEST OPENING IN THE SECTION UNDER TEST. ALL SECTIONS SHALL BE TESTED WITH A MINIMUM OF 10 FEET HEAD OF WATER. IN TESTING SUCCESSIVE SECTIONS AT LEAST THE UPPER 10 FEET OF THE NEXT PRECEDING SECTION SHALL BE TESTED SO THAT NO JOINT OF PIPING IN THE BUILDING EXCEPT THE UPPERMOST 10 FEET OF THE SYSTEM SHALL BE SUBMITTED TO A TEST OF LESS THAN 10 FOOT OF HEAD OF WATER. THE WATER SHALL BE KEPT IN THE SYSTEM FOR AT LEAST 30 MINUTES BEFORE INSPECTION STARTS; THE SYSTEM SHALL THEN BE MADE TIGHT AT ALL POINTS.
- B. ANY POINTS OF THE DRAINAGE SYSTEMS TO BE TESTED WITH AIR INSTEAD OF WATER SHALL BE MADE BY ATTACHING AN AIR COMPRESSOR TESTING APPARATUS TO ANY SUITABLE OPENING AND AFTER CLOSING ALL OTHER INLETS OR OUTLETS, FORCING AIR INTO THE SYSTEM UNTIL THERE IS A MINIMUM GAUGE PRESSURE OF 5 PSI. THIS PRESSURE SHALL BE HELD WITHOUT THE INTRODUCTION OF ADDITIONAL AIR FOR A PERIOD OF AT LEAST 30 MINUTES.
- C. EXTERIOR CONNECTIONS SHALL BE TESTED AS PART OF THE INTERIOR SYSTEMS.
- D. ADDITIONAL TESTS: a. PROVIDE ALL ADDITIONAL TESTS SUCH AS SMOKE OR PRESSURE TESTS AS REQUIRED BY THE REGULATIONS OR AS DIRECTED BY AUTHORITIES MAKING THE INSPECTION.
- b. PROVIDE FOR ANY REPEATED TEST AS DIRECTED BY THE OWNER'S REPRESENTATIVE, TO MAKE ALL SYSTEMS TIGHT AS REQUIRED.
- c. VISUAL INSPECTIONS OF JOINTS, VALVES, ETC. SHALL BE MADE AS DIRECTED BY THE ENGINEER
- d. PRESSURE TEST NATURAL GAS PIPING IN ACCORDANCE WITH NFPA 54. PRESSURE TEST PRIOR TO BACKFILL, MINIMUM 50 PSI FOR 24 HOURS.



FOR BLU	PD101		)"							
FOR BLUEBEAM LABELING/OCR:	151 FLOOR PLOMBING DEMO PLAN PD101	1	"							
-ING/OCR:	DEMO PLAN									
		0								
		う キ								
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1 NO PLUMBING DEMO SCOPE.

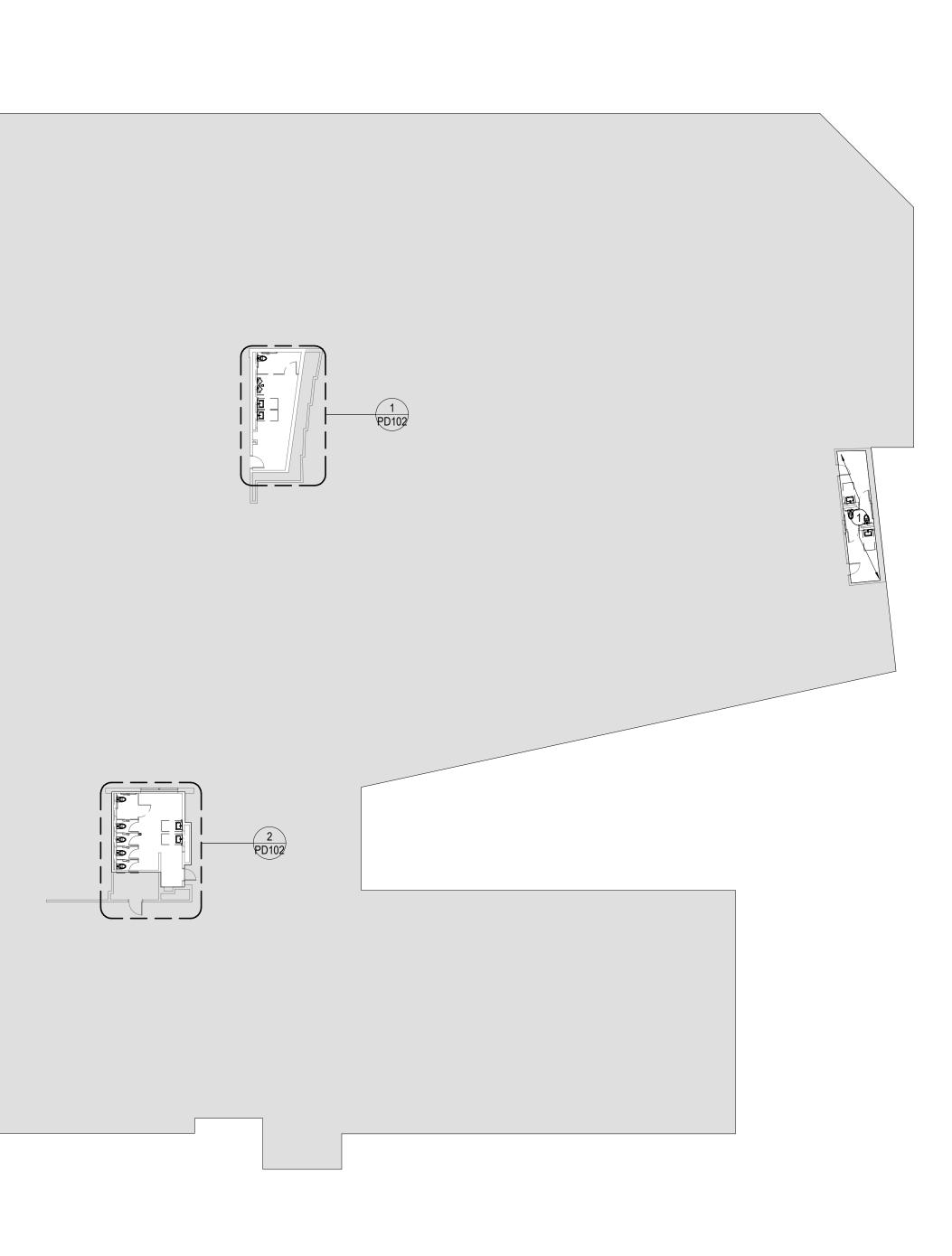
# EXISTING MIDDLE SCHOOL NOT IN SCOPE

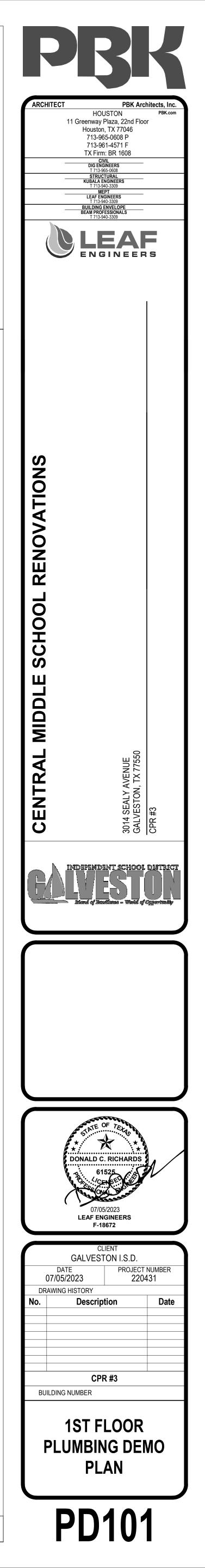
# **GENERAL NOTES - PLUMBING PLAN**

- A. THE CONTRACTOR SHALL COMPLY WITH ALL AUTHORITIES HAVING JURISDICTION.
- B. ALL FINAL CONNECTIONS TO FIXTURES AND EQUIPMENT SHALL BE MADE BY THE PLUMBING CONTRACTOR.
- C. ALL PLUMBING PIPING SHALL BE COORDINATED WITH ALL OTHER TRADES PRIOR TO ANY INSTALLATION OF ALL PLUMBING FIXTURES AND EQUIPMENT BY THE PLUMBING CONTRACTOR.
- D. ALL FLOOR DRAINS AND FLOOR SINKS SHOWN ON THIS DRAWING SHALL BE COORDINATED WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
- E. REFER TO ARCHITECTURAL DRAWING FOR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. DO NOT SCALE FROM PLUMBING DRAWINGS.
- F. ALL WALL CLEAN-OUTS SHALL BE ACCESSIBLE BY AN ACCESS PANEL.
- G. PROVIDE AND INSTALL A DOUBLE EXTERIOR CLEAN-OUT (DFCO) ON ALL SANITARY LINES EXITING THE BUILDING.
- H. ALL FLOOR DRAINS AND FLOOR SINKS SHALL BE PROVIDED WITH A TRAP PRIMER AND INSTALLED BY THE PLUMBING CONTRACTOR.
- FIXTURES DESIGNATED AS ADA ACCESSIBLE BY ARCHITECT SHALL BE INSTALLED AT ADA ACCESSIBLE HEIGHT PER ARCHITECTURAL DETAILS.

# **GENERAL NOTES - PLUMBING PLAN**

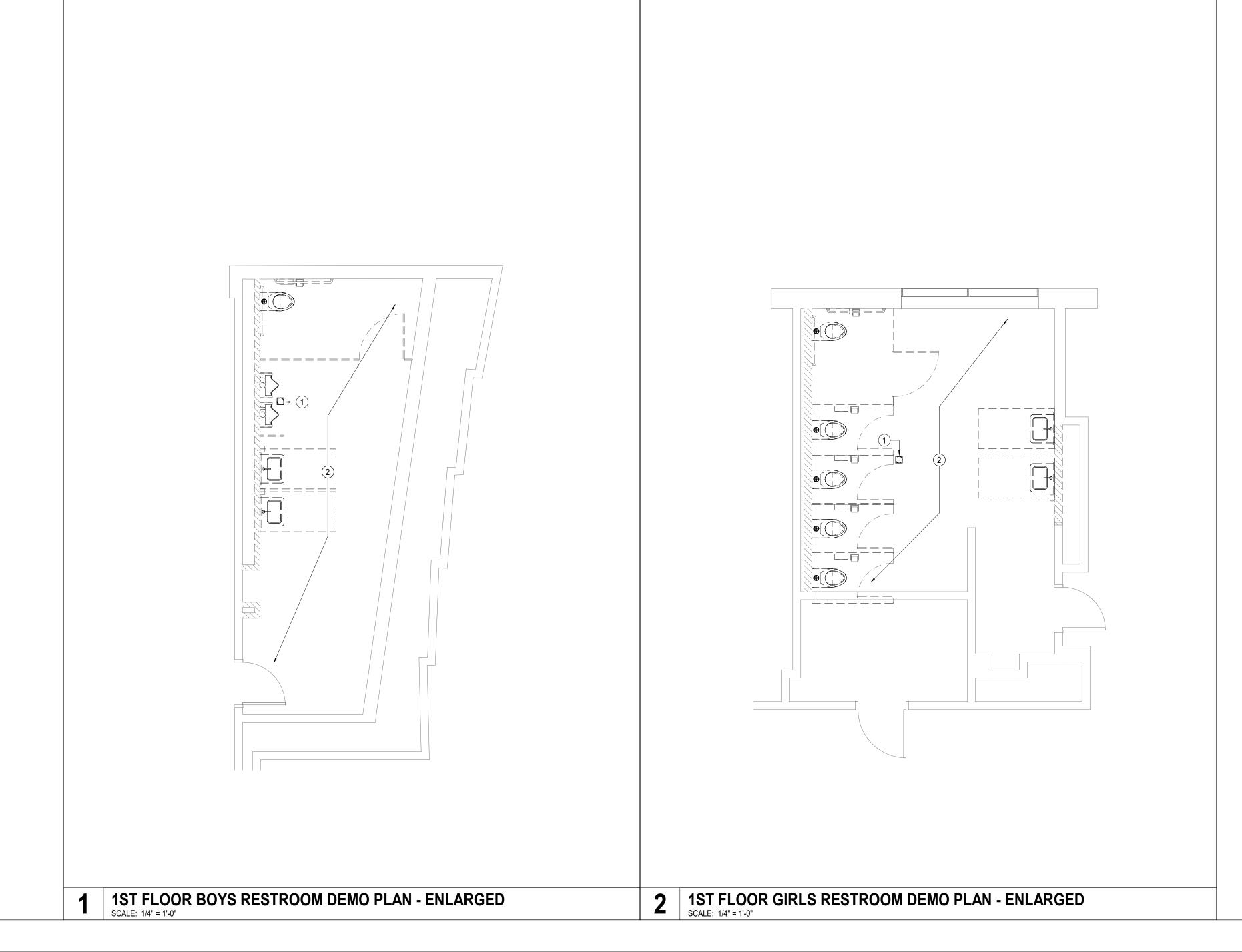
- J. ALL DOMESTIC COLD AND HOT WATER TAKE-OFFS SHALL HAVE AN ISOLATION SHUT-OFF VALVE.
- K. FLOOR DRAINS AND FLOOR SINKS IN MECHANICAL ROOMS SHALL BE SET NOT LESS THAN 6" FROM HOUSEKEEPING PADS. RE: MECHANICAL DRAWINGS. DO NOT PLACE ON, OR IN, HOUSEKEEPING PAD, OR UNDERNEATH EQUIPMENT.
- L. CONTRACTOR SHALL DEWATER ANY AREA AT OR BELOW GRADE PRIOR TO SETTING EQUIPMENT.
- M. CONTRACTOR SHALL PROVIDE AND INSTALL A TRAP PRIMER, TP-1, AND A HOSE BIBB, HB-3, IN ALL MECHANICAL ROOMS.
- N. CONTRACTOR SHALL PROVIDE AND INSTALL A HOSE BIBB WITH WHEEL HANDLE IN ALL MECHANICAL ROOMS, HB-3.
- O. ANY AND ALL WATER PIPING EXPOSED TO OUTSIDE ELEMENTS SHALL BE INSULATED AND HEAT TRACED TO PREVENT FREEZING.
- P. ALL SANITARY 3" OR ABOVE SHALL BE INSPECTED BY A CAMERA PRIOR TO SUBSTANTIAL COMPLETION.





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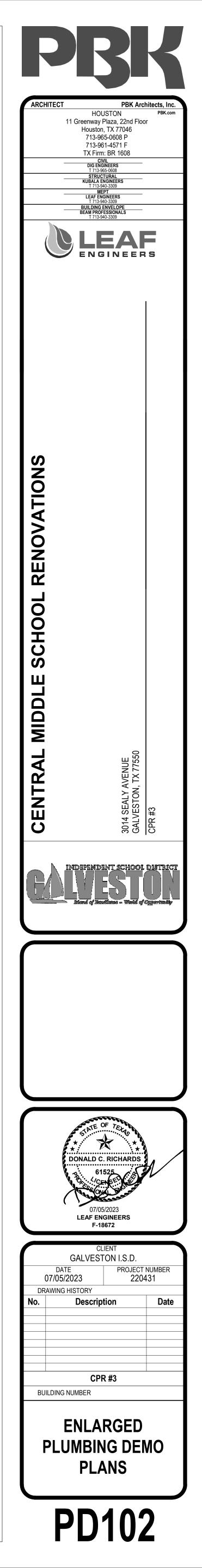
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- ADA ACCESSIBLE HEIGHT PER ARCHITECTURAL DETAILS. J. ALL DOMESTIC COLD AND HOT WATER TAKE-OFFS SHALL HAVE AN ISOLATION
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# KEYNOTES - PLUMBING PLAN

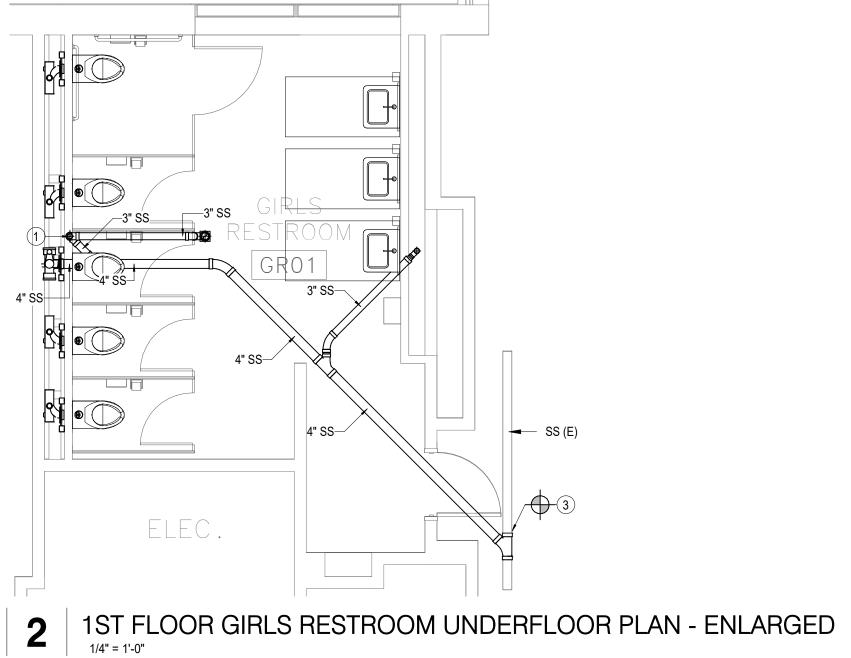
- 1 DEMO, REMOVE, REPLACE & RELOCATE EXISTING FLOOR DRAIN TO ACCOMMODATE FOR NEW CHASE SPACING. CONTRACTOR SHALL SAWCUT & PATCH/REPAIR EXISTING SLAB TO MATCH EXISTING CONDITION AS REQUIRED. CONTRACTORS SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING ANY WORK.
- 2 DEMO, REMOVE AND REPLACE EXISTING PLUMBING FIXTURES. CONTRACTOR SHALL PATCH AND REPAIR ALL WALLS AFTER DEMO AND INSTALLATION TO MATCH EXISTING CONDITION AS REQUIRED. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING ANY WORK. EXISTING FLOOR DRAIN(S) TO REMAIN, RELOCATE AND BE PROTECTED DURING CONSTRUCTION. RE: NEW CONSTRUCTION DRAWINGS FOR FIXTURE SCHEDULE.

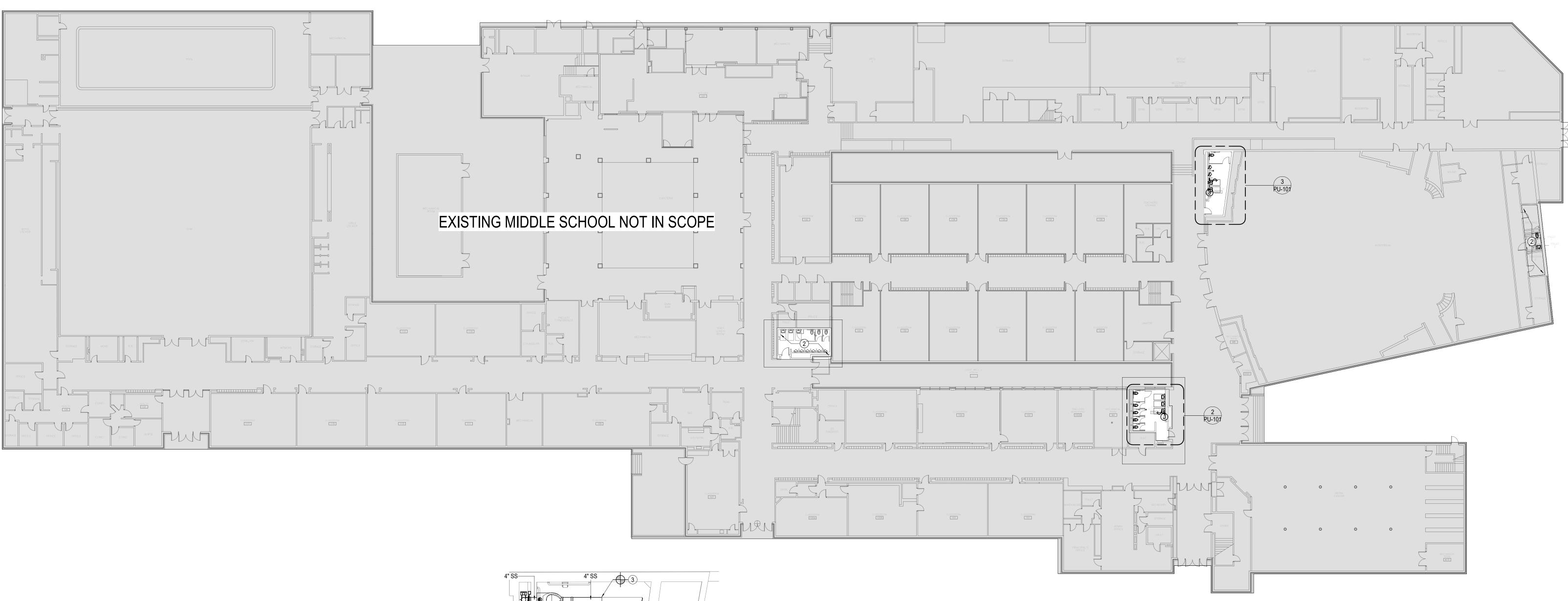


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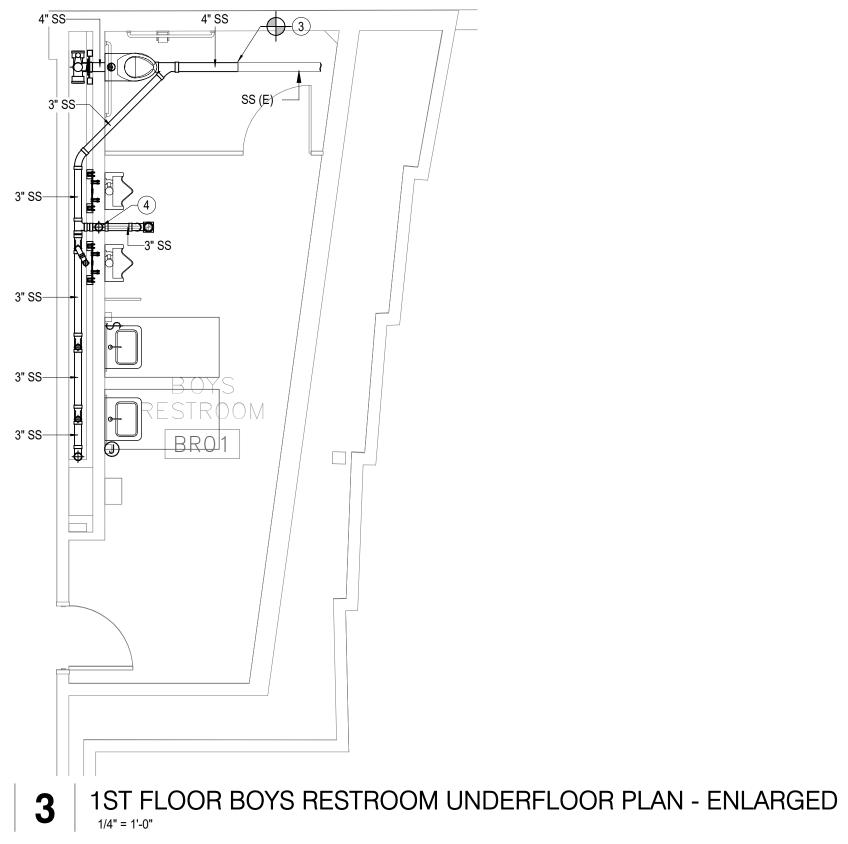
# OR PLUMBING UNDERFLOOR PLAN





# KEYNOTES - PLUMBING PLAN

- 1 3" WASTE DOWN, 2" VENT-UP.
- 2 NO NEW PLUMBING SCOPE.
- 3 CONNECT NEW 4" SANITARY PIPING TO THE NEAREST 4" SANITARY LINE. CONTRACTOR SHALL SAWCUT & PATCH/REPAIR EXISTING SLAB TO MATCH EXISTING CONDITION AS REQUIRED. CONTRACTOR SHALL FIELD VERIFY AND LOCATE EXISTING
- 4 3" VENT UP.

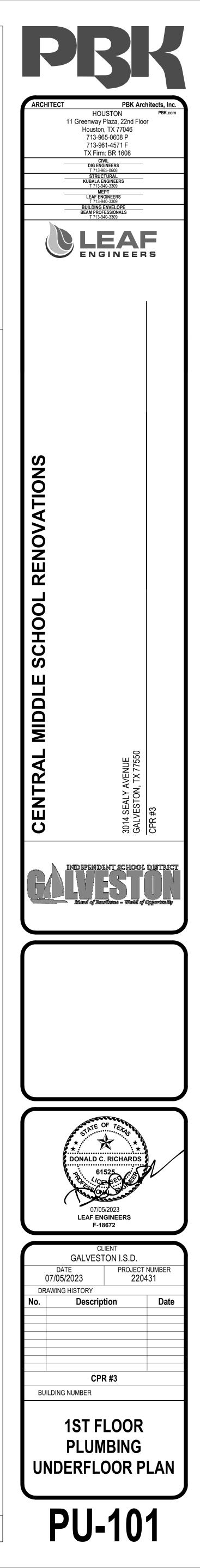


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# SANITARY LINE PRIOR TO COMMENCING ANYWORK.



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# KEYNOTES - PLUMBING PLAN

- 1 NO NEW PLUMBING SCOPE.
- 2 REWORK EXISTING SPRINKLER HEADS IN THIS AREA TO MATCH NEW CEILING LAYOUT.

# EXISTING MIDDLE SCHOOL NOT IN SCOPE

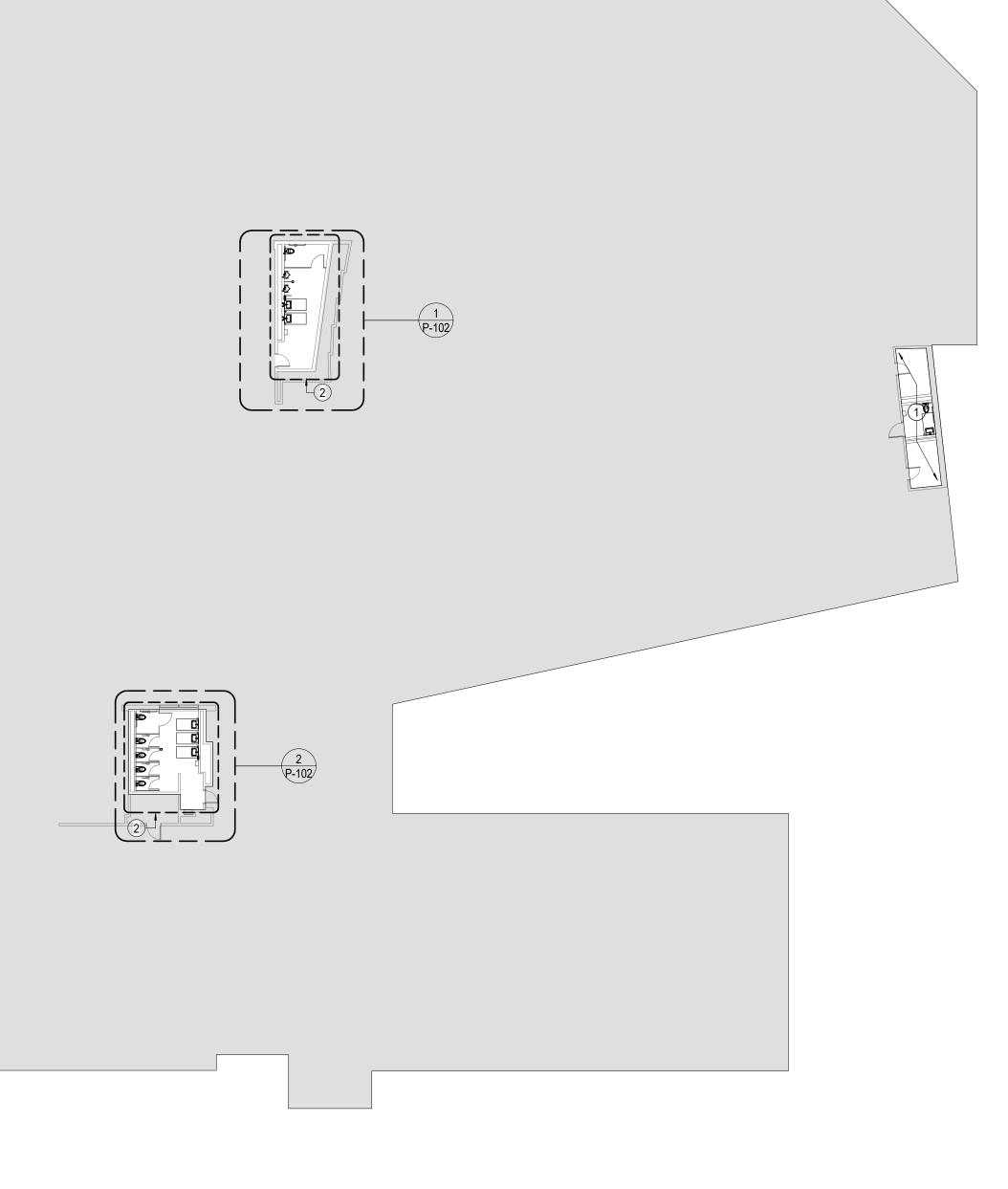
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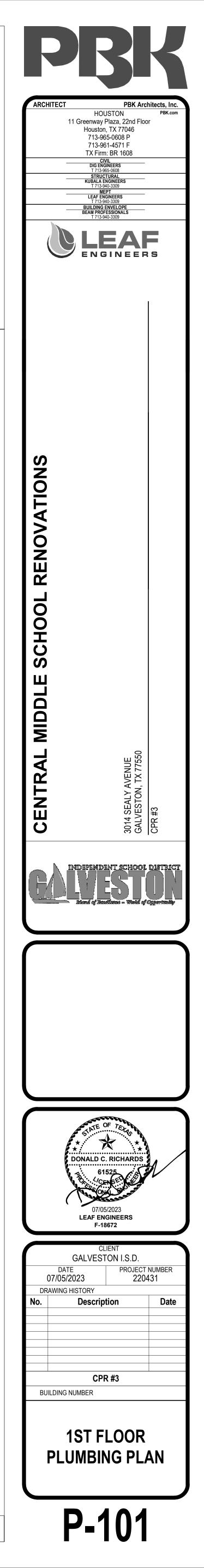
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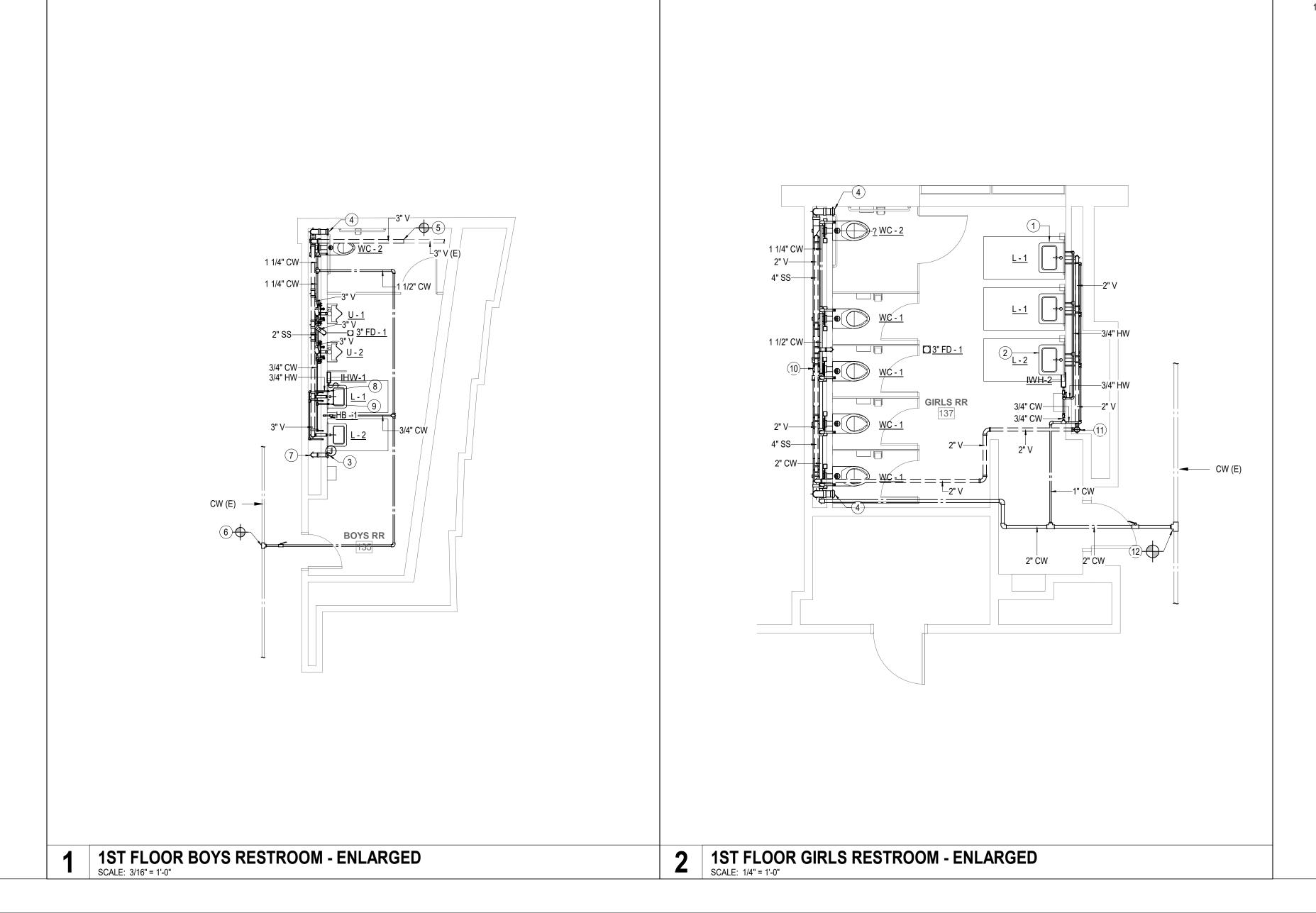


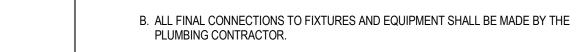


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**GENERAL NOTES - PLUMBING PLAN** 

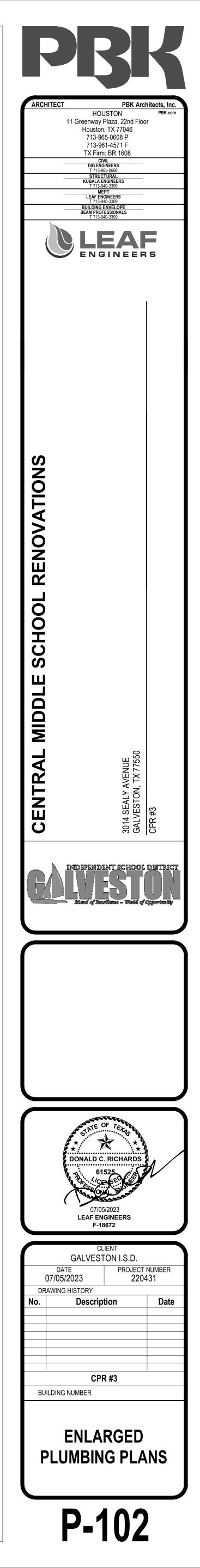
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# KEYNOTES - PLUMBING PLAN

- 1 NEW LAVATORY. CONTRACTOR SHALL EXTEND EXISTING COLD WATER LINE AND PROVIDE NEW 3/4" COLD WATER PIPING TO SERVE THE NEW LAVATORY. CONTRACTOR SHALL PROVIDE NEW 2" WASTE AND VENT PIPING THEN CONNECT TO EXISTING SANITARY WASTE AND VENT PIPING SYSTEM. CONTRACTOR SHALL PATCH/REPAIR WALL TO EXISTING CONDITION AS REQUIRED.
- 2 CONTRACTOR SHALL ADJUST HEIGHT OF DRAIN, WATER SUPPLY AND CARRIER AS NEEDED TO ACCOMMODATE THE NEW ADA HEIGHT.
- 3 PROVIDE NEW 3" WALL CLEANOUT.
- 4 PROVIDE NEW 4" WALL CLEANOUT.
- 5 CONNECT TO EXISTING 3" VENT TO ROOF PIPING. CONTRACTOR SHALL FIELD VERIFY THAT THE LOCATION OF EXISTING VENT PIPING SYSTEM VENTING TO ROOF SHALL BE FREE FROM ANY DEBRI OR BIRD NEST AND SHALL BE 3" DIAMETER MINIMUM SIZE. CONTRACTOR SHALL PROVIDE MINIMUM OF 3" VENT TO ROOF PIPING SYSTEM IF THE EXISTING SYSTEM IS LESS THAN 3" DIAMETER IN SIZE.
- 6 CONNECT NEW 1 1/2" CW PIPING TO NEAREST EXISTING DOMESTIC WATER SOURCE. CONTRACTOR SHALL FIELD VERIFY THE NEAREST DOMESTIC WATER LINE SOURCE PRIOR TO COMMENCING ANY WORK.
- 7 3" WASTE DOWN FROM WALL CLEAN OUT TO UNDERGROUND.
- 8 3/4" HW FROM INSTAHOT TO SERVE THE LAVATORIES.
- 9 3/4" CW SERVING INSTAHOT.
- 10 4" WASTE DOWN.
- 11 TO EXISTING 3" VENT TO ROOF. CONTRACTOR SHALL CONNECT THE NEW 3" VENT PIPING TO THE NEAREST EXISTING 3" VENT TO ROOF SYSTEM. CONTRACTOR SHALL FIELD VERIFY AND LOCATE EXISTING VENT TO ROOF SYSTEM PRIOR TO COMMENCING ANY WORK.
- 12 CONNECT NEW 2" CW PIPING TO NEAREST EXISTING DOMESTIC WATER SOURCE. CONTRACTOR SHALL FIELD VERIFY THE NEAREST DOMESTIC WATER LINE SOURCE PRIOR TO COMMENCING ANY WORK.



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	ELECTRIC WATER HEATER SCHEDULE											PLUMBING FIXTURE SCHEDULE						
ІІТ	MANUFACTURER AND MODEL NUMBER	LOCATION	CAPACITY (GAL)	RECOVERY (GPH)	TEMP RISE (°F)		ELEC	TRICAL		REMARKS	SYMBOL	DESCRIPTION		DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION SIZE	
	CHRONOMITE CM-20L/277	BOYS RESTROOM	-	-	38	kW 5.54	v	Φ 1	Hz 60	INSTALL UNDERNEATH LAVATORY. INSULATE ANY AND ALL EXPOSED PIPING UNDER THE LAVATORY PER THE SPECIFICATIONS.	WC-1		WALL-MOUNTED BOWL W/ 1-1/2" TOP SPUD, 1.28 GPF, ELONGATED RIM, PROVIDE ATLESS COVER AND ADJUSTABLE CARRIER	WALL-MOUNTED BOWL W/ 1-1/2" TOP SPUD, 1.28 GPF, ELONGATED RIM, PROVIDE	WALL-MOUNTED BOWL W/ 1-1/2" TOP SPUD, 1.28 GPF, ELONGATED RIM, PROVIDE	WALL-MOUNTED BOWL W/ 1-1/2" TOP SPUD, 1.28 GPF, ELONGATED RIM, PROVIDE		
	CHRONOMITE CM-30L/277	GIRLS RESTROOM	-	-	57	8.31	277	1	60	INSTALL UNDERNEATH LAVATORY. INSULATE ANY AND ALL EXPOSED PIPING UNDER THE LAVATORY PER THE SPECIFICATIONS.	WC-2		AME AS WC-1 EXCEPT FLUSH VALVE SHALL BE ROUGHED-IN NO MORE THAN 44" NE OF FIXTURE 18" FROM FINISHED WALL OR PARTITION, ADA					
ES:						1					U-1		WALL-MOUNTED W/ 3/4" TOP SPUD, HIGH EFFICIENCY 0.125 GPF, MOUNT URINAL RIM AT 24" FINISHED FLOOR, PROVIDE FLOOR SUPPORTED URINAL CARRIER					
OORDINA	ATE WITH WATER HEATER MANUFACTUREF	'S INSTALLATION	N DRAWINGS F	OR PROPER A	AND CORRECT	INSTALL	ATION OF	ALL EQU	JIPMENT /	AND APPURTENANCES.	U-2	UR	INAL, SAME AS U-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 17" AFF	INAL, SAME AS U-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 17" AFF 2"	INAL, SAME AS U-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 17" AFF 2" 2"	INAL, SAME AS U-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 17" AFF 2" 2" 3/4"	INAL, SAME AS U-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 17" AFF 2" 2" 3/4" -	
											L-1	Ζl	AVATORY, WALL-MOUNTED, 0.5 GPM W/ AERATOR FAUCET, ZURN Z-8746-CP OFFSET GRID DRAIN, JRN Z-8802LR-CP ANGLE STOPS W/ Ø3/8" (OD) TUBING, DEARBORN 701-1 17 GA. P-TRAP, TRUEBRO J5W OFFSET INSULATION KIT (NOT REQUIRED IF CABINET APRON IS INSTALLED), ADA, LEAD-FREE	JRN Z-8802LR-CP ANGLE STOPS W/ Ø3/8" (OD) TUBING, DEARBORN 701-1 17 GA. P-TRAP, TRUEBRO 2"	JRN Z-8802LR-CP ANGLE STOPS W/ Ø3/8" (OD) TUBING, DEARBORN 701-1 17 GA. P-TRAP, TRUEBRO 2" 2"	JRN Z-8802LR-CP ANGLE STOPS W/ Ø3/8" (OD) TUBING, DEARBORN 701-1 17 GA. P-TRAP, TRUEBRO 2" 2" 3/4"	JRN Z-8802LR-CP ANGLE STOPS W/ Ø3/8" (OD) TUBING, DEARBORN 701-1 17 GA. P-TRAP, TRUEBRO 2" 2" 3/4" 3/4"	
											L-2	LA	VATORY, SAME AS L-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 34" AFF	VATORY, SAME AS L-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 34" AFF 2"	VATORY, SAME AS L-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 34" AFF 2" 2"	VATORY, SAME AS L-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 34" AFF 2" 2" 3/4"	VATORY, SAME AS L-1 EXCEPT RIM SHALL BE MOUNTED NO HIGHER THAN 34" AFF 2" 2" 3/4" 3/4"	
											FD-1	DO	OOR DRAIN, ROUND, ADJUSTABLE NICKEL-BRONZE STRAINER, LACQUERED CAST IRON BODY W/ UBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, PUSH ON GASKET ITLET OR NO HUB OUTLET	UBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, PUSH ON GASKET SEE PLA	UBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, PUSH ON GASKET SEE PLANS	UBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, PUSH ON GASKET SEE PLANS -	UBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, PUSH ON GASKET SEE PLANS	
											HB-1		SE BIBB, WALL-MOUNTED, ENCLOSED IN BOX FLUSH W/ WALL, ANTI-SIPHON WALL FAUCET W/ EGRAL BACKFLOW PREVENTER, LEAD-FREE					
											TP-1		AP PRIMER, PRESSURE DROP TYPE, VACUUM BREAKER TRAP PRIMER CONNECTED TO COLD TER SUPPLY ONLY W/ ISOLATION VALVE, LEAD-FREE					
											TP-2		TRAP PRIMER, FLUSH VALVE TYPE, VACUUM BREAKER TRAP PRIMER ATTACHED TO WATER CLOSET FLUSH VALVE, LEAD-FREE					
											TP-3		TRAP PRIMER, AUTOMATIC TYPE, INTEGRAL ANTI-SIPHON AIR PORT, CONNECT TRAP PRIMER TO COLD WATER SUPPLY ONLY, LEAD-FREE					
											TMV-1		THERMOSTATIC MIXING VALVE, POINT-OF-USE, FLOW CAPACITY BETWEEN 0.35 GPM MINIMUM AND 4 GPM MAXIMUM AT 5 PSI PRESSURE DROP, VOLUME CONTROL SHUT-OFF VALVE ON OUTLET, CHECK VALVE ON INLETS, LEAD-FREE	4 GPM MAXIMUM AT 5 PSI PRESSURE DROP, VOLUME CONTROL SHUT-OFF VALVE ON OUTLET,	4 GPM MAXIMUM AT 5 PSI PRESSURE DROP, VOLUME CONTROL SHUT-OFF VALVE ON OUTLET,	4 GPM MAXIMUM AT 5 PSI PRESSURE DROP, VOLUME CONTROL SHUT-OFF VALVE ON OUTLET, - 3/4"	4 GPM MAXIMUM AT 5 PSI PRESSURE DROP, VOLUME CONTROL SHUT-OFF VALVE ON OUTLET, 3/4" 3/4"	

NOTES:

1. ROUGH-IN SUPPLY WASTE AND VENT PIPE SIZES INDICATED ARE MINIMUM SIZES SHOWN FOR ROUGH-IN PURPOSES ONLY.

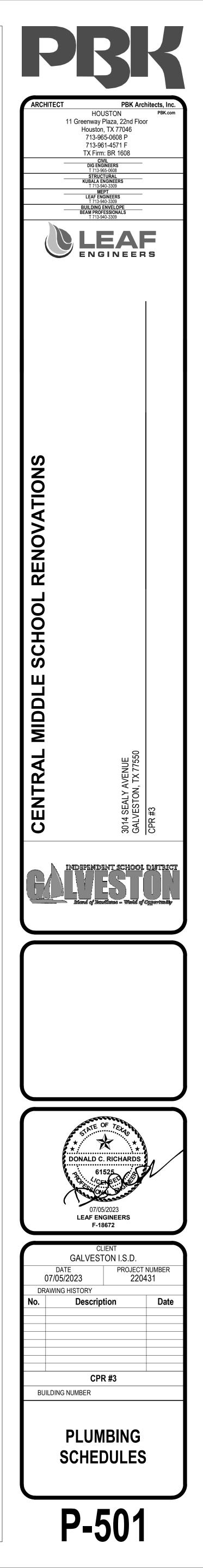
2. COORDINATE WITH FIXTURE MANUFACTURER'S INSTALLATION DRAWINGS FOR PROPER AND CORRECT INSTALLATION OF ALL FIXTURES AND APPURTENANCES.

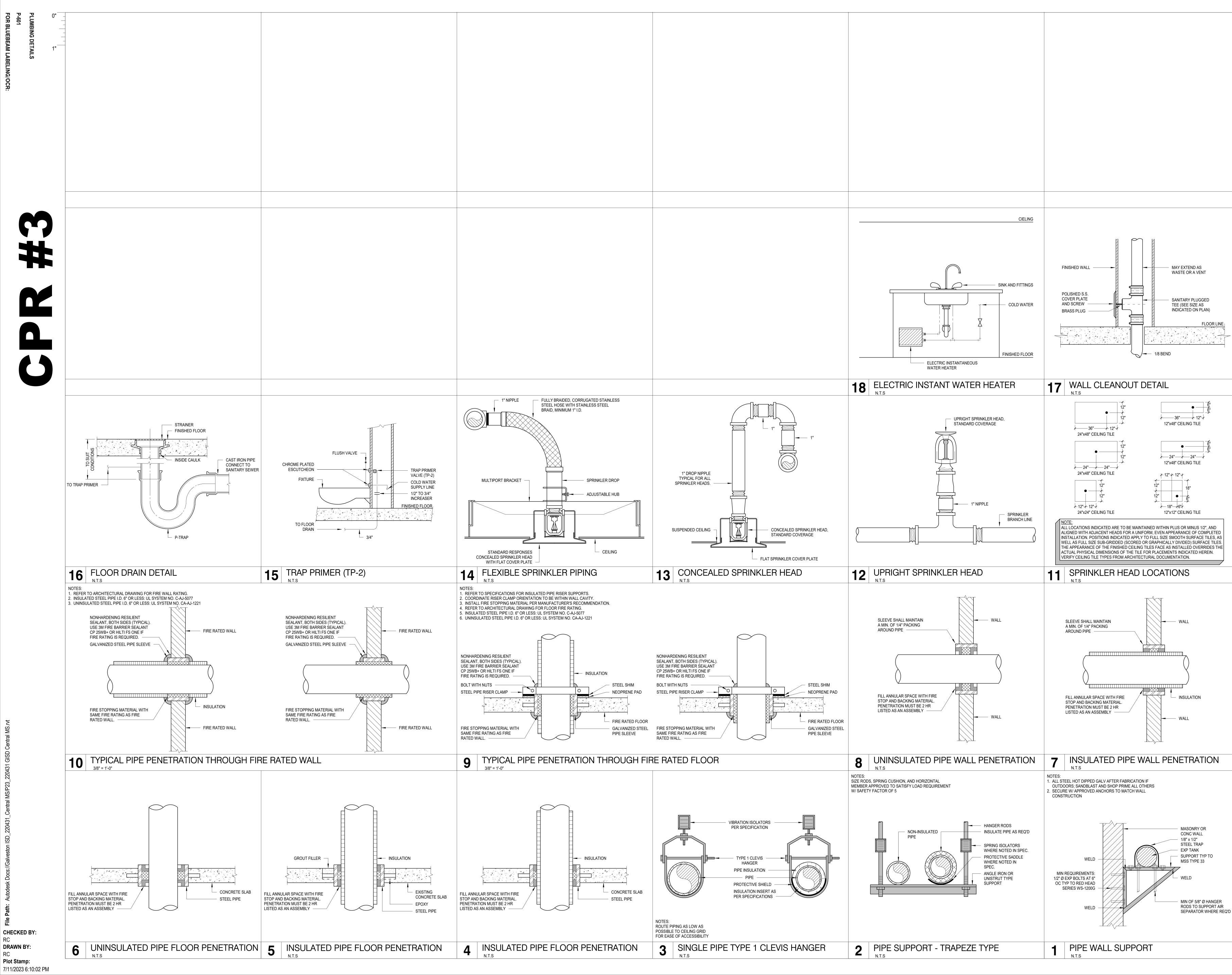
3. ALL PLUMBING FIXTURES SHALL BE COMPLETELY ROUGH-IN BY THE PLUMBING CONTRACTOR AND SHALL MEET ALL CODES HAVING JURISDICTION.

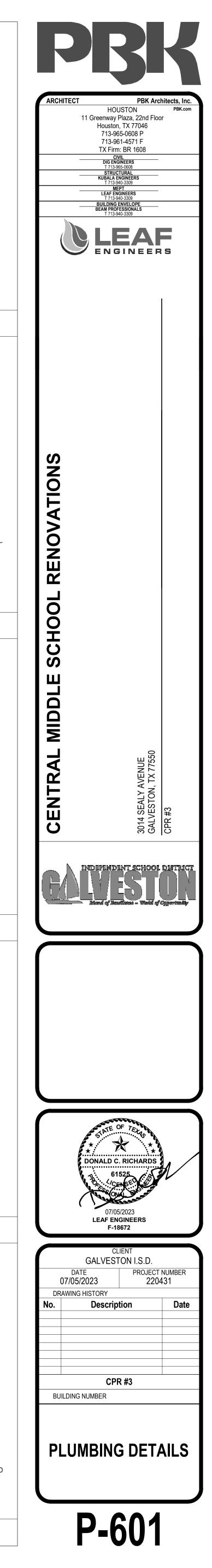
4. ALL FIXTURES TO BE COMMERCIAL GRADE UNLESS OTHERWISE NOTED.

5. PROVIDE A WATER HAMMER ARRESTER IN PIPING TO ALL FIXTURES AND / OR FIXTURE BANKS.

6. PROVIDE A SHUT-OFF VALVE AT ALL FIXTURES AND / OR FIXTURE BANKS AND AT EACH FLOOR IF FIXTURES AND / OR FIXTURE BANKS ARE STACKED (MULTI-LEVEL).







### SECTION 22 30 00 - PLUMBING EQUIPMENT

### PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. SECTION 22 05 00 COMMON WORK RESULT FOR PLUMBING
- C. SECTION 22 05 16 EXPANSION FITTINGS AND LOOPS FOR PLUMBING PIPING
- D. SECTION 22 05 29 PLUMBING PIPE HANGERS AND SUPPORTS
- E. SECTION 22 05 48.13 VIBRATION CONTROLS FOR PLUMBING PIPING AND EQUIPMENT

### 1.2 SUMMARY

- A. Provide a complete installation for each equipment type listed in this section.
- B. Section Includes:
  - 1. **CPR#3** COMMERCIAL (TANKLESS) ELECTRIC WATER HEATERS
  - 2. ACID DILUTION TRAP
  - 3. BACKFLOW PREVENTERS
  - 4. WATER HAMMER ARRESTORS
  - 5. THERMOSTATIC MIXING VALVES

### 1.3 SUBMITTALS

- A. Product Data: Submit complete manufacturer's specification pages for each piece of equipment. Submit dimensioned drawings of water heaters indicating components and connections to other equipment and piping. Indicate pump type, capacity and power requirements. Submit certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable. Submit electrical characteristics and connection locations.
- B. Manufacturer's Installation Instructions: Submit mounting and support requirements.
- C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Accept all equipment on site in original labeled cartons. Inspect for damage.
- B. Protect heat exchangers and tanks with temporary inlet and outlet caps. Maintain caps in place until installation.

# 1.5 EXTRA MATERIALS

A. Furnish two pump seals.

# PART 2 - PRODUCTS

# 2.6 **CPR#3** COMMERCIAL (TANKLESS) ELECTRIC WATER HEATERS

- A. Manufacturers:
  - 1. Chronomite
- B. Type: Point of use electric water heater.
- C. IWH-1:
  - Tankless Water Heater have a micro processing temperature control capable of maintaining outlet temperature of +/- 1-degree Fahrenheit accuracy, Chronomite CM-20L/277, with 5.6 kW, 277 V, and 20A to heat 1.0 GPM @ a temperature rise of 38 degrees F. Unit shall be UL-Listed. Element shall be replaceable cartridge insert. Unit shall have replaceable filter in the inlet connector. Element shall be iron free, Nickel Chrome material. Heater shall be fitted with ½" pipe compression nuts (5/8" OD) or 3/8" sleeves, to eliminate need for soldering. Maximum operating pressure of 150 PSI. Hot water storage tanks prohibited.
- D. IWH-2:
  - Tankless Water Heater have a micro processing temperature control capable of maintaining outlet temperature of +/- 1-degree Fahrenheit accuracy, Chronimite CM-30L/277, with 8.4 kW, 277 V, and 30A to heat 1.5 GPM @ a temperature rise of 38 degrees F. Unit shall be UL-Listed. Element shall be replaceable cartridge insert. Unit shall have replaceable filter in the inlet connector. Element shall be iron free, Nickel Chrome material. Heater shall be fitted with ½" pipe compression nuts (5/8" OD) or 3/8" sleeves, to eliminate need for soldering. Maximum operating pressure of 150 PSI. Hot water storage tanks prohibited.

# 2.1 GARBAGE DISPOSAL

A. Insinkerator Model 444, 120V, 3/4 HP, provide all trim and accessories for City approved installation.

# 2.2 BACKFLOW PREVENTERS

- A. Reduced Pressure Backflow Preventers
  - 1. Comply with ASSE 1013.
  - 2. Bronze body, with bronze internal parts and stainless-steel springs.
  - 3. Two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve opening under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two gate valves, strainer, and four test cocks.
  - 4. Manufacturers:
    - a. Febco 825Y.
      - b. Hersey FRP II
      - c. Wilkins 975.
      - d. Watts Series LF909, or approved equal

PLUMBING EQUIPMENT 22 30 00 - 2

- B. Double Check Valve Assemblies:
  - 1. Comply with ASSE 1012.
  - 2. Bronze body with corrosion resistant internal parts and stainless-steel springs; two independently operating check valves with intermediate atmospheric vent.
  - 3. Dual Check Valve with Atmospheric Vent shall be installed at referenced crossconnections. Valve shall feature stainless steel and rubber internals protected by an integral strainer. Primary check shall be rubber to rubber seated, backed by the secondary check with rubber to metal seating.
  - 4. Manufacturers:
    - a. Febco 815.
    - b. Hersey BCP
    - c. Wilkins 760.
    - d. Watts Series 9D or approved equal.
- C. Dual Check Valves:
  - 1. Comply with ANSI/NSF Standard 18, Manual Food and Beverage Dispensing Equipment. (ASSE 1022 Approved Dual Check Valve).
  - 2. Body and adapters are of 316 stainless steel construction and all rubber components comply with FDA food additive regulations.
  - 3. All materials in contact with the potable water are in compliance with the requirements of the Safe Drinking Water Act, Public Law 93-523, National Interim Primary Drinking Water Regulations.
  - 4. Manufacturers:
    - a. Wilkins 740.
    - b. Watts Model SD-2/9BD, or approved equal
- D. Lead Free

# 2.3 WATER HAMMER ARRESTORS

- A. Manufacturers: Watts Series LF15M2 Series or approved equal.
- B. ANSI A112.26.1; copper construction, piston type sized in accordance with PDI WH-201.
- C. Pre-charged suitable for operation in temperature range 33 to 180 degrees Fahrenheit and maximum 150 psi working pressure.
- D. Access Panel: Acorn Model 8292 or approved equal.
- E. Lead Free.

### 2.4 THERMOSTATIC MIXING VALVES:

- A. Manufacturers:
  - 1. Leonard.
  - 2. Acorn controls.
  - 3. Power.
  - 4. Bradley.
  - 5. Zurn/Wilkins.
- B. Certified to ASSE Standard 1017, ASSE 1070, and meets the anti-scald requirements of ASSE Standard 1016.
- C. Valve: Chrome plated cast brass body, stainless steel or copper alloy bellows, integral temperature adjustment.

D. Capacity:

2.

- 1. TMV-1: Flow capacity between 0.35 gpm Min. and 4 gpm Max. at 5 psi pressure drop. Lead Free.
  - Model: a.
    - Lawler 1070 Series (1)
    - (2) Leonard - 170-LF
    - (3)Acorn controls - ST70CP-38
    - (4)Power - LFLM495
    - (5) Zurn/Wilkins - ZW3870XLT-4P
  - TMV-2: 3 gpm Min. and 14 gpm Max. at 5 psi pressure drop. Lead Free
    - Model: a.
      - Lawler 66-25 (1)
      - (2)Leonard - LV-186-982-LF-STSTL-REC.
      - (3) Acorn controls - SFMV Series
      - (4) Power - ETV200
      - Bradley TMV-25 (5)
- 3. TMV-3: 3 gpm Min. and 30 gpm Max. at 5 psi pressure drop. Lead Free a.
  - Model:
    - Lawler 66-80 (1)
    - (2)Leonard - LV-186-983-LF-STSTL-REC.
    - (3)Acorn controls - SFMV Series
    - (4) Power - ETV200
    - (5)Bradley – TMV-80
- E. Accessories:
  - Check valve on inlets. 1.
  - Volume control shut-off valve on outlet. 2.
  - 3. Stem thermometer on outlet.
  - 4. Strainer stop checks on inlets.
- F. Cabinet: 16 gage stainless steel, for recessed mounting with keyed lock.
- Mechanical Rooms: Omit cabinet, surface mount. G.
- H. Mount:
  - TMV-1 in piping under lavatory/sink/etc. 1.
  - TMV-2 in wall mounted stainless steel cabinet. 2.
  - TMV-3 in wall mounted stainless steel cabinet 3.
- I. Lead Free.

#### 2.5 SOLENOID VALVES

- **ASCO Series Next Generation** Α.
- Β. Provide at each kitchen cooking hood and at each science lab prep room and demo table where for automatic gas supply shut-off.
- C. Coordinate electrical connections with Division 26.

#### 2.6 **INLINE AUTOMATIC WATER FILTER**

A 10 to 25 micron Water filter to be provided on the main cold-water line (Amiad SAF Α. series).

- B. The SAF series are automatic filters, with a self-cleaning mechanism driven by an electric motor. The SAF filters are designed to work with various types of screens in filtration degrees from 800 to 10 micron. The ABF series is available in inlet/outlet diameters of full size as incoming water service.
- C. Controller shall be Electro-Mechanical Relay and Timer. The self-cleaning cycle begins under any one of the following conditions:
  - 1. Receiving a signal from the Pressure Differential Switch.
  - 2. Time interval parameter set at the control board.
  - 3. Manual Start.
- D. Power.
  - 1. 460/3/60
  - 2. Coordinate electrical connections with Division 26.

# 2.7 FLOW METER

- A. Water meter
  - 1. Provide clamp-on ultrasonic water flow meter at the main water point of entry or as indicated on plan.
  - 2. Provide Onicon F-4300 meter with the followings.
    - a. Accuracy +/- 1.0% of reading from 1.6 ft/s to 20 ft/s
    - b. Repeatability +/- 0.25 % of reading
    - c. Bi-directional flow range of 1.6 to 40 ft/s
    - d. Process pipe-wall temperature: 32°F to140°F
    - e. Power supply: 120VAC , 60 Hz, 10 VA max. .(provide transformer as needed)
    - f. Output signals:
      - (1) 4-20 mA DC current output
      - (2) Pulse (configurable)
      - (3) Relay (configurable)
    - g. Digital communications: RS-232, RS-485, Modbus RTU
    - h. Materials:
      - (1) Enclosure NEMA 4X
      - (2) Transducers IP68 (Encapsulated)
    - i. Standard cable length: 25 ft (9 m), Maximum cable length: 100 ft (30 m)
  - 3. Acceptable Manufacturers:
    - a. Sierra
    - b. Siemens
    - c. Dynasonics
    - d. Onicon
- B. Natural/Propane gas meter
  - 1. Provide insert mass flow meter at the main water point of entry or as indicated on plan.
  - 2. Provide Onicon F-5500 meter with the followings.
    - a. Accuracy +/- 0.5% of reading from 0.16 ft/s to 20 ft/s
    - b. Repeatability +/- 0.25 % of reading
    - c. Bi-directional flow range of 0.16 to 40 ft/s
    - d. Process pipe-wall temperature: 32°F to140°F
    - e. Input power: 12-28 VDC, 6 W min.
    - f. Power supply: 120VAC , 60 Hz, 10 VA max.(provide transformer as needed)
    - g. Output signals:
      - (1) 4-20 mA DC current output

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- (2) Pulse (configurable)
- (3) Relay (configurable)
- Digital communications: RS-232, RS-485, Modbus RTU
- i. Materials:

h.

- (1) Enclosure NEMA 4X
- (2) Transducers IP68 (Encapsulated)
- j. Standard cable length: 15 ft (9 m), Maximum cable length: 100 ft (30 m)
- 3. Acceptable Manufacturers:
  - a. Sierra
  - b. Thermal Instrument Co.
  - c. Dynasonics
  - d. Onicon
- C. Blowdown meter
  - 1. Provide 2" stainless steel water flow meter with pulse output at the cooling tower blow down line or as indicated on plan.
  - 2. Provide PRM # WM200SSVX meter with the followings.
    - a. Accuracy +/- 5.0% of transitional flow and +/- 2.0% normal flow
    - b. Process pipe-wall temperature: 32°F to104°F
    - c. Flow range: 2-100 GPM.
    - d. Output signals:
      - (1) Pulse (configurable)
    - e. Materials:
      - (1) 304 Stainless steel
      - (2) Seal: Viton
    - f. Standard cable length: 10 ft (9 m), Maximum cable length
  - 3. Acceptable Manufacturers:
    - a. Stenner
    - b. EKM
    - c. Carlon Meter
    - d. PRM
- D. Warranty
  - Products are warranted to be free from defects in material and workmanship and will be repaired or replaced at no charge to the owner, provided return or rejection of product is made within a reasonable period but no longer than one (1) year for calibration and non-calibration defects, from date of delivery

#### 2.8 ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Coordinate required voltage, wire size and over current device size with electrical drawings. Contractor shall provide all electrical connections per manufacturer's installation instructions.

#### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install equipment on concrete housekeeping pad, minimum 4 inches high and six (6) inches larger than water heater base on each side. Refer to Section 03 30 00
- B. Backflow Preventers and Vacuum Breakers.

- 1. Isolate all non-potable water requirements from the building domestic water system with backflow prevention device manufactured and certified for the particular application.
- 2. Pipe relief from backflow preventer indirectly to drain of sufficient size to evacuate maximum flow discharge.
- 3. Backflow preventers shall be duplexed full-size where located within domestic water lines serving in-patient areas, critical research areas, and/or any area or equipment where un-interruptible (24 hour) water service is required.
- 4. Test ports shall not be located more than 72 inches above finished floor or permanent platform.
- 5. Do not install vacuum breakers or backflow preventers above equipment, above ceilings, concealed within walls, or areas where water leakage can cause damage.
- 6. Install a strainer immediately upstream of each vacuum breaker and backflow preventer.
- C. Water Hammer Arrestors (Hydraulic Shock Absorbers).
  - 1. Provide hydraulic shock absorbers in cold and hot water supply lines to each fixture branch, battery of fixtures and at each automatic, solenoid-operated or quick-closing valve serving equipment.
  - 2. Locate and size hydraulic shock absorbers in accordance with PDI-WH-201 Standard and manufacturer's published recommendations.
  - 3. Install hydraulic shock absorbers with clearances to allow inspection, removal and replacement. Provide access panels where required.

## END OF SECTION 22 30 00

# SECTION 22 40 00 - PLUMBING FIXTURES

# PART 1 – GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. SECTION 22 05 00 COMMON WORK RESULT FOR PLUMBING
- C. SECTION 22 05 16 EXPANSION FITTINGS AND LOOPS FOR PLUMBING PIPING
- D. SECTION 22 05 29 PLUMBING PIPE HANGERS AND SUPPORTS
- E. SECTION 22 05 48.13 VIBRATION CONTROLS FOR PLUMBING PIPING AND EQUIPMENT

### 1.2 SUMMARY

- A. Provide a complete system of plumbing fixtures and trim.
- B. All materials and equipment for the potable water system shall meet the latest mandates and requirements for lead free required by law that goes into effect January 2014.

## 1.3 SUBMITTALS

- A. Product Data: Submit catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- B. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

# 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Accept fixtures on site in factory packaging. Inspect for damage.
- B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

## 1.5 EXTRA MATERIALS

A. Furnish two sets of faucet washers flush valve service kits lavatory supply fittings shower heads toilet seats.

## PART 2 - PRODUCTS

### 2.1 FLUSH VALVE WATER CLOSETS

- A. Fixture Manufacturers:
  - 1. American Standard.
  - 2. Kohler Co.

- 3. Zurn.
- B. Fixture Trim Manufacturers:
  - 1. Bemis
  - 2. Beneke
  - 3. Church
  - 4. Delaney
  - 5. Sloan Valve Co.
  - 6. Zurn Industries.
  - 7. American Standard.
- C. WC-1: ASME A112.19.2M; wall hung, siphon jet vitreous china closet bowl, with elongated rim, 1-1/2 inch top back spud, china bolt caps. Provide as indicated on plumbing fixture schedule.
  - 1. Wall Mounted: American Standard 3351.101.020
  - 2. Or as indicated on schedules.
  - 3. Trim : (Type C)
  - 4. **CPR #3** At Central MS: Trim (Type A)
- D. WC-2: Same as WC-1, except mounted at ADA/TAS height for appropriate age group.
  - 1. Wall Mounted: American Standard 3351.101.020
    - 2. Or as indicated on schedules.
    - 3. Trim : (Type C)
    - 4. **CPR #3** At Central MS: Trim (Type A)
    - 5. Provide flush valve stem offset as required.
- E. Trim:
  - 1. Sensor Operated Flush Valve (Type A): ASME A112.18.1; exposed chrome plate, diaphragm type with battery operated solenoid operator, infrared sensor and over-ride button in plate chrome cover, 2" offset flush connection, vandal resistant stop cap and vacuum breaker maximum 1.28 gallon. Sloan Model 8111-1.28 or provide as indicated on plumbing fixture schedule.
  - 2. Sensor Operated Flush Valve (Type B): ASME A112.18.1; exposed chrome plated, diaphragm type with 24V transformer, solenoid operator, infrared sensor and manual over-ride button in chrome plated cover, 2" offset flush connection, integral screwdriver stop with vandal resistant stop and vacuum breaker, maximum 1.28 gallon flush volume. Sloan 111 ESS Hardwired-1.28 DFB-TMO-HW or provide as indicated on plumbing fixture schedule.
  - Exposed Flush Valve (Type C): ASME A112.18.1; exposed chrome plated, diaphragm type with non-hold open handle, escutcheon, seat bumper, 2" offset flush connection, integral screwdriver stop and vacuum breaker; maximum 1.28 gallon. Sloan Model Royal or Zurn AV Series or Sloan 111-1.28 (standard), Sloan 115-1.28 DFB (ADA) or provide as indicated on plumbing fixture schedule

- F. Seat: White plastic, open front, extended back, self-sustaining hinge, stainless steel mounting hardware, brass bolts, with without cover. Manufacturer: Bemis, Beneke, Olsonite, and Church. Bemis 1655SSCT or provide as indicated on plumbing fixture schedule.
- G. Wall Mounted Carrier: ASME A112.6.1; adjustable cast iron frame, integral drain hub and vent, adjustable spud, lugs for floor and wall attachment, threaded fixture studs with nuts and washers. Jay R. Smith 200 series carriers, or equal by zurn and watts.

# 2.2 WALL HUNG URINALS

- A. Fixture Manufacturers:
  - 1. American Standard Plumbing.
  - 2. Crane.
  - 3. Eljer.
  - 4. Kohler Co.
  - 5. Zurn.
- B. Fixture Trim Manufacturers:
  - 1. Delaney
  - 2. Sloan.
  - 3. Zurn.
  - 4. American Standard.
- C. All urinal flush valves shall meet the latest mandates and requirements for lead free required by law that goes into effect January 2014.
- D. U-1: ASME A112.19.2M; vitreous china, wall hung, elongated rim integral trap, removable stainless steel strainer, 3/4 inch top spud, provide chair carrier as required. American Standard Pintbrook Model 6002.001 or provide as indicated on plumbing fixture schedule.
  - 1. Trim : (Type C)
  - 2. **CPR #3** At Central MS: Trim (Type A)
- E. U-2: Same as U-1, except mounted at ADA/TAS height for appropriate age group.
  - 1. Trim : (Type C)
  - 2. **CPR #3** At Central MS: Trim (Type A)
- F. Trim:
  - 1. Sensor Operated Flush Valve (Type A): ASME A112.18.1; exposed chrome plate, diaphragm type with battery operated solenoid operator, infrared sensor and over-ride button in plate chrome cover, vandal resistant stop cap and vacuum breaker maximum 1 pint. Sloan Model G2 OPTIMA PLUS 8186-0.5 Series or provide as indicated on plumbing fixture schedule.
  - 2. Sensor Operated Flush Valve (Type B): ASME A112.18.1; exposed chrome plated, diaphragm type with 24V transformer, solenoid operator, infrared sensor and manual over-ride button in chrome plated cover, integral

PLUMBING FIXTURES 22 40 00 - 3 screwdriver stop with vandal resistant stop and vacuum breaker, maximum one (1) pint flush volume. Sloan Model 186 ES-S or provide as indicated on plumbing fixture schedule.

- 3. Exposed Flush Valve (Type C): ASME A112.18.1; exposed chrome plated, diaphragm type with non-hold open handle, escutcheon, integral screwdriver stop with vandal resistant stop cap, vacuum breaker; maximum one (1) pint flush volume. Sloan Model Royal, or Zurn AV series. Sloan Flushometer 186-0.125 DBP or provide as indicated on plumbing fixture schedule.
- G. Wall Mounted Carrier: ASME A112.6.1; cast iron and steel frame with rectangular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs. Provide bottom bearing plate. Jay R. Smith figure 0637, or equal by Zurn and watts or provide as indicated on plumbing fixture schedule.

# 2.3 LAVATORIES

- A. Fixture Manufacturers:
  - 1. American Standard Plumbing.
  - 2. Kohler Co
  - 3. Crane
  - 4. Eljer
  - 5. Zurn.
- B. Fixture Trim Manufacturers:
  - 1. Sloan
  - 2. T & S Brass.
  - 3. Chicago.
  - 4. Speakman.
- C. Supply Fittings Manufacturers:
  - 1. Chicago.
  - 2. McGuire.
  - 3. Brasscraft.
  - 4. Zurn.
- D. All lavatory faucets and trim shall meet the latest mandates and requirements for lead free required by law that goes into effect January 2014.
- E. L-1, Vitreous China Wall Hung Basin: ASME A112.19.2M; American Standard 0355.012 vitreous china wall hung lavatory 21 x 18 inch minimum, with four (4) inch high back, 3 deck holes, rectangular basin with splash lip, front overflow, and soap depression. Provide floor mounted carrier for correct lavatory type. Provide as indicated on plumbing fixture schedule.
  - 1. Trim : (Type F1)

- 2. **CPR #3** At Central MS: Trim (Type A1)
- F. L-2, Vitreous China Wall Hung Basin: ASME A112.19.2M; American Standard 0356.421 vitreous china wall hung lavatory 21 x 18 inch minimum, with four (4) inch high back, single deck hole, rectangular basin with splash lip, front overflow, and soap depression. Provide floor mounted carrier for correct lavatory type. Provide as indicated on plumbing fixture schedule.
  - 1. Trim : (Type F1)
  - 2. **CPR #3** At Central MS: Trim (Type A1)
- G. L-3, Vitreous China Counter Top Basin: ASME A112.19.2M; vitreous china self-rimming counter top lavatory, 20 x 17 inches with drillings on four (4) inch centers, front overflow, soap depression, seal of putty, caulking, or concealed vinyl gasket. (Oval) American Standard 0476.028 or provide as indicated on plumbing fixture schedule.
  - 1. Trim : (Type F1)
  - 2. **CPR #3** At Central MS: Trim (Type A1)
- H. Trims:
  - 1. Supply Fitting: ASME A112.18.1 (Type A1); chrome plated brass spout, metering valve cartridge, supply fitting with open grid strainer, water economy aerator with maximum 0.5 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago 802-VE2805-665ABCP or provide as indicated on plumbing fixture schedule.
  - 2. Supply Fitting: ASME A112.18.1 (Type B); chrome plated brass spout, supply fitting with open grid strainer, water economy aerator with maximum 0.5 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago Mechanical Faucet 420-E2805ABCP or provide as indicated on plumbing fixture schedule.
  - 3. Supply Fitting: ASME A112.18.1 (Type C1); chrome plated brass spout, supply fitting with open grid strainer, battery operated sensor faucet with water economy aerator with maximum 0.5 gpm flow, ADA compliant. Sloan Model EBF-650 or provide as indicated on plumbing fixture schedule.
  - 4. Supply Fitting: ASME A112.18.1 (Type C2); chrome plated brass spout, supply fitting with open grid strainer, battery operated sensor faucet with water economy aerator with 0.5 gpm flow, ADA compliant. Chicago Faucets Model EQ-C12A-12ABCP or provide as indicated on plumbing fixture schedule.
  - 5. Supply Fitting: ASME A112.18.1 (Type C3); chrome plated brass spout, supply fitting with open grid strainer, battery operated sensor faucet with water economy aerator with maximum 0.5 gpm flow, ADA compliant. Chicago Faucet 116.606.AB.1 Series or provide as indicated on plumbing fixture schedule.
  - 6. Supply Fitting: ASME A112.18.1 (Type C4); chrome plated brass spout, supply fitting with open grid strainer, 24V transformer sensor faucet with water economy aerator with maximum 0.5 gpm flow, ADA compliant. Chicago Faucet 116.706.AB.1 Series or provide as indicated on plumbing fixture schedule.
  - 7. Supply Fitting: ASME A112.18.1 (Type D1) ; chrome plated brass spout, supply fitting with open grid strainer, 24V transformer sensor faucet with water economy aerator with maximum 0.5 gpm flow, ADA compliant. Sloan Model ETF-600-8-B-BDM or provide as indicated on plumbing fixture schedule.

- 8. Supply Fitting: ASME A112.18.1 (Type D2); chrome plated brass spout, supply fitting with open grid strainer, 24V transformer sensor faucet with water economy aerator with 0.5 gpm flow, ADA compliant. Chicago Faucets Model EQ-A-12A-52ABCP or provide as indicated on plumbing schedule.
- 9. Supply Fitting: ASME A112.18.1 (Type D3); chrome plated brass spout, supply fitting with open grid strainer, 24V transformer sensor faucet with water economy aerator with maximum 0.5 gpm flow, single supply for temperature Chicago Faucets EQ-A13A-51ABCPand or provide as indicated on plumbing fixture schedule.
- 10. Supply Fitting: ASME A112.18.1 (Type D4); chrome plated brass spout, supply fitting with open grid strainer, 24V transformer sensor faucet with water economy aerator with maximum .5 gpm flow, dual supply for temperature Chicago Faucets EQ-A13A-52ABBN ADA compliant or provide as indicated on plumbing fixture schedule.
- 11. Supply Fitting: ASME A112.18.1 (Type E1); chrome plated brass spout, quantum compression operating cartridge, supply fitting with open grid strainer, water economy aerator with 0.5 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago Faucet 895-317E2805-5ABCP.
- 12. Supply Fitting: ASME A112.18.1 (Type E2); chrome plated brass spout, quantum compression operating cartridge, supply fitting with open grid strainer, water economy aerator with 1.0 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago Faucet 895-317E65VRGD1AB.
- 13. Supply Fitting: ASME A112.18.1 (Type E3); chrome plated brass spout, quantum compression operating cartridge, supply fitting with open grid strainer, water economy aerator with 1.5 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago Faucet 895-317E35ABCP.
- 14. Supply Fitting: ASME A112.18.1 (Type E4); chrome plated brass spout, quantum compression operating cartridge, supply fitting with open grid strainer, water economy aerator with 2.2 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago Faucet 895-317E29ABCP.
- 15. Supply Fitting: ASME A112.18.1 (Type F1); chrome plated brass spout, metering valve cartridge, supply fitting with open grid strainer, water economy aerator with 0.5 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago Faucets Model 807-E2805-665PSHAB or provide as indicated on plumbing fixture schedule.
- 16. Supply Fitting: ASME A112.18.1 (Type F2); chrome plated brass spout, metering valve cartridge, supply fitting with open grid strainer, water economy aerator with 0.5 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S Brass, and American Standard. Chicago Faucets Model 857-E2805-665PSHAB or provide as indicated on plumbing fixture schedule
- 17. Supply Fitting: ASME A112.18.1 (Type H); chrome plated brass spout, metering valve cartridge, supply fitting with open grid strainer, water economy aerator with 0.5 gpm flow, ADA compliant. Chicago Faucet Co. Series, or equivalent by T&S

Brass, and American Standard. Chicago Faucets Model 333-E2805-665PSHAB or provide as indicated on plumbing fixture schedule.

- 18. Supply Fitting: ASME A112.18.1 (Type I); chrome plated brass spout, supply fitting with open grid strainer, water economy aerator with 0.5 gpm flow, ADA compliant. Chicago Faucet 3510-E2805AB Series, or equivalent by T&S Brass, and or provide as indicated on plumbing fixture schedule.
- 19. Supply Fitting: ASME A112.18.1 (Type J1); chrome plated brass spout, supply fitting with open grid strainer, water economy aerator with 0.5 gpm flow, 4 inch wrist blade handle. ADA compliant. Chicago Faucet 201-G8AE2805F317AB, or equivalent by T&S Brass, or provide as indicated on plumbing fixture schedule.
- I. Accessories:
  - 1. Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon.
  - 2. Chrome plated 17 gage open grid P. O. plug.
  - 3. Removable key stops.
  - 4. Flexible supplies.
  - 5. Trap and waste insulated and offset to meet ADA compliance.
  - 6. Tempering valve Power LFe480 series, Acorn, or Leonard.
- J. Floor Mounted Carrier: ASME A112.6.1; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded studs for fixture hanger, concealed arm supports, bearing plate and studs. Jay R. Smith 710 Series, or equal by Zurn and watts.

#### 2.4 SINKS

- A. Fixture Manufacturers:
  - 1. Elkay Mfg.
  - 2. Just
  - 3. American standard
  - 4. Advance Tabco
- B. Fixture Trim Manufacturers:
  - 1. Chicago Faucet Co.
    - 2. T & S Brass
    - 3. Symmons
    - 4. Speakman
- C. Supply Fittings Manufacturers:
  - 1. Chicago.

- 2. McGuire.
- 3. Brasscraft.
- 4. Zurn.
- D. All sink faucets and trim shall meet the latest mandates and requirements for lead free required by law that goes into effect January 2014.
- E. SK-1: Single Compartment Bowl: ASME A112.19.3; 19-1/2 x 19-1/2" x 6-1/2 inch outside dimensions, 18 gage thick, Type 304 stainless steel. Self-rimming and undercoated, with 1-1/2 inch chromed brass stainless steel drain, ledge back drilled for trim. Elkay Model LRADQ191965PD or provide as indicated on plumbing fixture schedule.
  - 1. Trim: ASME A112.18.1 (Type J1): chrome plated brass supply with rigid spout, 4" vandal proof wrist blade, water economy aerator with 0.5 gpm. Mechanical faucet deck mounted 8" fixed Center, dual supply for hot and cold water service Chicago Faucets Model 201-AGN8AE2805-F-317CP, or equivalent by T&S Brass and American Standard or provide as indicated on plumbing fixture schedule.
  - 2. Trim: ASME A112.18.1 (Type J2): chrome plated brass supply with rigid spout, 4" vandal proof wrist blade, water economy aerator with 1.0 gpm. Mechanical faucet deck mounted 8" fixed Center, dual supply for hot and cold water service Chicago Faucets Model 201-G8AE26-F-317AB, or equivalent by T&S Brass and American Standard or provide as indicated on plumbing fixture schedule.
  - 3. Trim: ASME A112.18.1 (Type J3): chrome plated brass supply with rigid spout, 4" vandal proof wrist blade, water economy aerator with 1.5 gpm. Mechanical faucet deck mounted 8" fixed Center, dual supply for hot and cold water service Chicago Faucets Model 201-AGN8AE35-317CP, or equivalent by T&S Brass and American Standard or provide as indicated on plumbing fixture schedule.
  - 4. Trim: ASME A112.18.1 (Type K1); chrome plated brass supply with rigid spout, vandal proof water economy aerator with maximum 1.5 gpm flow, four (4) inch wrist blade handles and quarter turn ceramic disc cartridges. Chicago Faucet Model 1100-L9E35-317ABCP, or equivalent by T&S Brass and or provide as indicated on plumbing fixture schedule.

# 2.5 LAVATORY and SINK INSULATION & SHIELD KIT

- A. Manufacturers:
  - 1. Truebro/IPS
  - 2. Plumberex
  - 3. Zurn
- B. Product Description: Safety Covers conforming to ANSI A177.1 and consisting of insulation kit of molded closed cell vinyl construction, 3/16 inch thick, white color, for insulating tailpiece, P-trap, valves, and supply piping. Furnish with weep hole and angle valve access covers.
- C. Provide Lavatory shield: Rigid enclosure is dimensionally engineered to comply with ADA requirements, design aesthetics and mechanical cooperation. LAV SHIELD conceals electronic faucet components, mixing valves, trap primers and instantaneous water heaters\*, eliminating vandalism while allowing wheelchair accessibility under lavatories.

Available in the standard model for field fit applications or may be ordered as a factory pre-cut which closely follows the underside contours of the lavatory specified.

- 1. UL listing in accordance with ADA Standards.
- 2. Flammability UL-94 V-0, 5VA ASTM D-635-91 4 (ATB) 2.1 (AEB).

D.

### 2.6 BATHTUBS AND SHOWERS

- A. Fixture Manufacturers:
  - 1. Aquarius
  - 2. American Standard Plumbing
  - 3. Eljer Plumbingware
  - 4. Kohler Co.
- B. Trim Manufacturers:
  - 1. Chicago Faucet Co.
  - 2. Leonard
  - 3. Powers
  - 4. Symmons
- C. Bathtub: ANSI Z124.1; molded glass fiber reinforced polyester, with slip-resistant bottom surface, contoured shape, 60 inches long x 30 inches wide color as selected by Architect.
- D. Bath and Shower Trim: ASME A112.18.1; concealed shower and over rim supply with diverter spout, pressured balanced mixing valve, bent shower arm with flow control and adjustable spray ball joint showerhead with maximum 2.5 gpm flow and escutcheon, lever operated pop-up waste and overflow. Leonard Model 4503 or provide as indicated on plumbing fixture schedule.

## 2.7 SHOWERS (Regular) – (SH-1)

- A. Manufacturers:
  - 1. Chicago Faucet Co.
  - 2. Acorn Engineering Company.
  - 3. Speakman.
  - 4. Leonard Valve Co.
  - 5. Symmons
  - 6. Powers
- B. SH-1: ASME A112.18.1; concealed shower supply with pressure balanced or thermostatic mixing valves, integral service stops, chrome plated vandal-proof institutional head with integral wall mounting flange, built-in 1.5 gpm flow, and

escutcheon. Acorn – SV16-LVR – 519 - MSH - F1.5 or provide as indicated on plumbing fixture schedule.

# 2.8 SHOWERS (ADA) – (SH-2)

- A. Manufacturers:
  - 1. Acorn Engineering Company.
  - 2. Powers.
  - 3. Approved equal.
- B. SH-2 ADA: ASME A112.18.1 and ASSE 1016-2011; concealed shower supply with pressure balanced and thermostatic mixing valves, integral service stops, hand held shower () with 69 inch metal clad hose and 24 inch glide mounted on right hand side (), flow rate 1.5 GPM. ACORN SV16-LVR HHC15 HHSH HHSE IVB SB PK or provide as indicated on plumbing fixture schedule.

# 2.9 FLOOR DRAINS

- A. Manufacturers:
  - 1. Josam Mfg.,
    - 2. Jay R. Smith Mfg.,
    - 3. Wade Spec. Products
    - 4. Zurn Industries
    - 5. Mifab
    - 6. Watts
- B. Floor Drain (FD-1): ASME A112.21.1; Top round floor drain, lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer. Zurn ZN-415-BZ1 (Vandal-Proof Secured Top) or provide as indicated on plumbing fixture schedule.

#### 2.10 TRAP SEAL PRIMERS

- A. Manufacturers:
  - 1. PPP Inc.
  - 2. Jay R. Smith Mfg.
  - 3. Siouxchief
  - 4. Zurn Industries
  - 5. Mifab
  - 6. Watts
  - 7. Sloan

- B. Trap Seal Primers-Pressure Drop Type (TP-1)
  - 1. Adjustable to the static line pressure by use of the adjusting screw. System operating range is 20 psi minimum to 80 psi. The trap Primer is to be connected to a cold water supply with isolation valve.
    - a. PPP Model P1-500 will prime 1-4 floor drains using DU-U Distribution unit.
    - b. PPP Model P2-500 will prime 1-2 floor drains using DU-U Distribution unit.
- C. Trap Seal Primers-Flush Valve Type (TP-2)
  - 1. Vacuum breaker trap primer attached to water closet flush valve, similar to Sloan VBF-72-A.
- D. Trap Seal Primer: (TP-3), Jay R. Smith 2699 Series.

# 2.11 CLEANOUTS

- A. Cleanouts shall be provided where indicated on Drawings and elsewhere as required by code.
  - 1. Cleanouts in pipelines shall consist of cast iron ferrule and heavy duty cleanout plug with square head as scheduled on the Drawings. Where piping is concealed in floors or walls cleanouts shall be installed in or near surface of floor or walls and have countersunk plugs with covers
  - B. Cleanouts shall be provided at the base of the stack on all sanitary, waste and drainage stacks. Base of stack cleanouts on piping located within walls or partitions shall be cast iron cleanout tee with countersunk plug and chromium-plated round access cover, J.R. Smith figure or approved equal.
  - C. Manufacturers:
    - 1. Josam Mfg.
    - 2. Jay R. Smith Mfg.
    - 3. Wade Spec. Products
    - 4. Zurn Industries
    - 5. Mifab
    - 6. Watts
  - D. Floor, Outdoors: Coated cast iron body with gasket seal ABS plug and round cast iron scoriated non-skid cover. Jay R. Smith, Model 4220-F-C-U.
  - E. Floor, Indoors (<u>FCO</u>): Coated cast iron body with gasket seal ABS plug, threaded top assembly with round nickel bronze scoriated cover in service areas. Jay R. Smith, Model 4025 F-C-U.
  - F. Wall Cleanout (<u>WCO</u>): Line type with lacquered cast iron body with bronze taper thread plug and round stainless steel access cover secured with vandal proof screw. Jay R. Smith Model 4420-U.

G. Floor, Stainless Steel Indoors (<u>CO</u>): Coated cast iron body with gasket seal ABS plug, threaded top assembly with round stainless steel scoriated cover in service areas. Jay R. Smith Model 9760 Series.

# 2.12 RECESSED VALVE BOX

- A. Manufacturers: Guy Gray, or approved equal.
- B. RVB-1, Refrigerator/Ice Machine: Stainless steel preformed rough-in box with brass valves with wheel handle slip in finishing cover. IPS Model SSMIB8AB.
- C. <u>RVB-2</u>, Washing Machine: Galvanized steel preformed rough-in box with brass long shank valves with wheel handles, valves with single lever handle, socket for two (2) inch waste, slip in finishing cover. IPS Model SSWB-3.

# PART 3 - EXECUTION

# 3.1 EXAMINATION

- A. Section 01 31 13 Administrative Requirements: Coordination and project conditions.
- B. Verify walls and floor finishes are prepared and ready for installation of fixtures.
- C. Verify electric power is available and of correct characteristics.
- D. Confirm millwork is constructed with adequate provision for installation of counter top lavatories and sinks.

#### 3.2 **PREPARATION**

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

#### 3.3 INSTALLATION

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide chrome plated rigid or flexible supplies to fixtures with loose key or screwdriver stops, reducers, and escutcheons.
- C. Install components level and plumb.
- D. Install and secure fixtures in place with wall supports wall carriers and bolts.
- E. Seal fixtures to wall and floor surfaces with sealant, color to match fixture.
- F. For ADA accessible water closets, install flush valve with handle to wide side of stall.
- G. Emergency Shower: Provide a floor drain at each shower installation. Jay R. Smith Model 2005-A07NB-P or provide as indicated on plumbing fixture schedule.
- H. Ice maker: Provide floor sink and cold-water outlet RVB-1 to each location. Coordinate with Architecture Drawings prior to rough-in. Ensure drains are located at low point(s) of floor slope.

- I. Water Heater: Provide floor drain to each location. Coordinate with Architecture Drawings prior to rough-in. Ensure drains are located at low point(s) of floor slope.
- J. Janitor Closet: Provide floor drain to each location. Coordinate with Architecture Drawings prior to rough-in. Ensure drains are located at low point(s) of floor slope.
- K. Commercial Washer: Provide floor drain to each location. Coordinate with Architecture Drawings prior to rough-in. Ensure drains are located at low point(s) of floor slope.
- L. Washing Machine: Provide Hot and cold water outlet RVB-2 to each location. Coordinate with Architecture Drawings prior to rough-in.
- M. Provide power wiring, including control power transformers as required for all sensor type fixtures.
- N. Bolt carriers to the floor.
- O. All sinks shall have an offset rear centered drain.

# 3.4 INTERFACE WITH OTHER PRODUCTS

A. Review millwork shop-drawings. Confirm location and size of fixtures and openings before rough in and installation.

# 3.5 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.
- B. Hot water temperature outlet at each sink and lavatory shall be adjusted to 105 degree F maximum except for water supplying clothes washing machines and kitchen equipment which shall supply with 140 degree F.

#### 3.6 CLEANING

A. Clean plumbing fixtures and equipment.

# 3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Do not permit use of fixtures before final acceptance.

# END OF SECTION 22 40 00