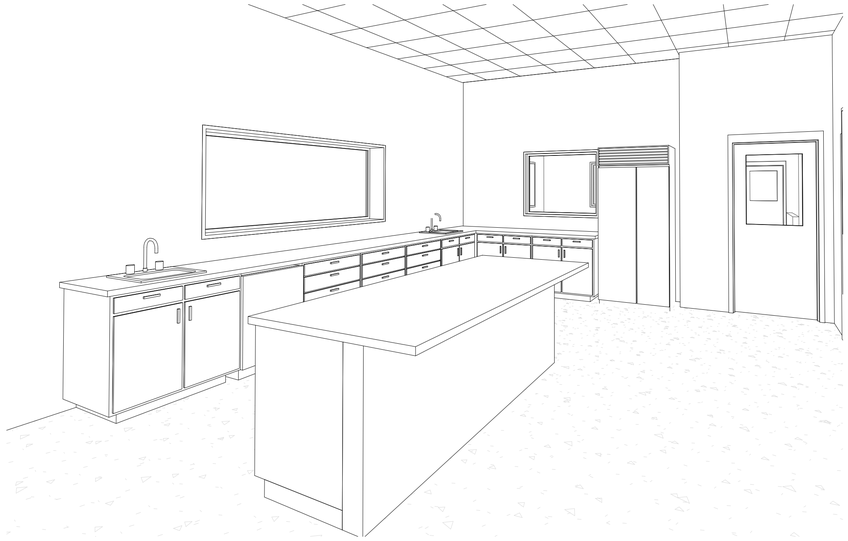
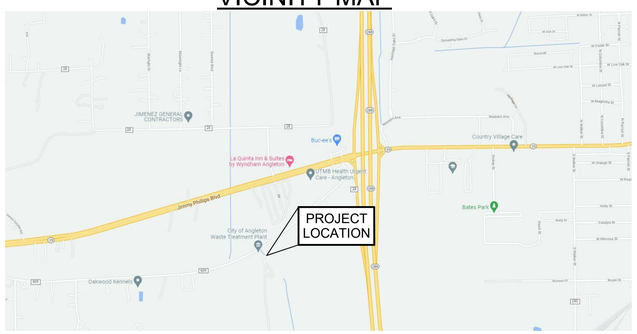
CONTRACT DOCUMENTS
FOR THE

OYSTER CREEK WASTEWATER TREATMENT PLANT

474 COUNTY RD 609
ANGLETON, TEXAS 77515



VICINITY MAP



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90% FOR REVIEW

DRAWING INDEX

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PROJECT 0109.21005
JANUARY 14, 2022

GENERAL DEMOLITION NOTES:

A. A.THESE NOTES ARE GENERAL IN NATURE AND APPLY TO THE ENTIRE BUILDING WHETHER OR NOT SPECIFICALLY NOTED OR REFERENCED ON EACH SHEET. THE DRAWINGS INDICATE ONLY THE GENERAL EXTENT OF DEMOLITION AND MAY NOT INCLUDE ALL DEMOLITION WHICH WILL BE REQUIRED FOR NEW CONSTRUCTION. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO STARTING WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INCLUSION OF ALL REQUIRED DEMOLITION AREAS UNDERGOING MODIFICATION WHETHER SUCH WORK IS OR IS NOT INDICATED ON THE CONTRACT DOCUMENTS. TO DETERMINE THE FULL EXTENT OF ITEMS TO BE DEMOLISHED OR REMOVED AND SALVAGED FOR RE-USE. DEMOLITION SHALL GENERALLY BE ARRANGED TO AGREE WITH THE ACCOMPLISHMENT OF WORK UNDER THE VARIOUS PHASES AND IN COORDINATION WITH THE WORK OF ALL TRADES. CONTRACTOR SHALL EXAMINE THE CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS.

B. ITEMS TO BE SALVAGED NOTED ON PLAN. ALL OTHER MATERIALS TO BE REMOVED & HAULED OFF BY CONTRACTOR.

C. ALL WORK MUST BE IN STRICT COMPLIANCE WITH ALL CODES, REGULATIONS, AND ORDINANCES OF THE AGENCIES HAVING JURISDICTION OVER ANY PORTION OF THE WORK, INCLUDING ALL LICENSES AND PERMITS.

D. THE CONTRACTOR SHALL BEAR THE RESPOSIBILITY OF VERIFYING EXISTING UTILITY LOCATIONS AND ENSURE THAT UTILITIES IN AREAS OF DEMOLITION AND CONSTRUCTION ARE NOT DAMAGED. DAMAGED UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S OWN EXPENSE AND SHALL NOT IMPACT PROJECT SCHEDULE.

E. DIMENSIONS NOTED AS VIF (VERIFY IN FIELD) ARE APPROXIMATE BUT SHALL BE MAINTAINED AS MUCH AS GOOD CONSTRUCTION PRACTICES ALLOW. NOTIFY ARCHITECT OF ANY DISCREPANCY MORE THAN ONE INCH. SPECIFIC DIMENSIONS SHALL BE MAINTAINED.

F. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY IF ANY UNFORSEEN CONDITIONS ARE DISCOVERED THAT POTENTIALLY EFFECT THE STRUCTURAL INTEGRITY OF THE WORK TO REMAIN.

G. ELEMENTS TO BE REMOVED THAT ARE INDICATED BY BROKEN LINES SHOW THE GENERAL EXTENT OF DEMOLITION ONLY. UNLESS NOTED OTHERWISE ACTUAL DIMENSIONS MAY NEED TO BE DETERMINED BY FIELD MEASURING.

H. COORDINATE ALL SHUTOFF SERVICES WITH THE OWNER 72 HOURS IN ADVANCE MINIMUM.

I. IF AREAS IMMEDIATELY ADJACENT TO THE WORK WILL BE OCCUPIED, MINIMIZE INTERFERENCE WITH THE DAILY ACTIVITIES OF THE OWNER'S STAFF AND OPERATIONS.

J. DURING ALL PHASES OF WORK CLEANING AND DISPOSAL SHALL BE PERFORMED DAILY IN SUCH A MANNER AS TO INSURE THAT THE PREMISES, ADJACENT PUBLIC PROPERTY AND ADJACENT PRIVATE PROPERTIES ARE MAINTAINED FREE FROM ACCUMULATION OF DEBRIS, WASTE MATERIAL AND RUBBISH. UNLESS NOTED OTHERWISE ALL EQUIPMENT, WRECKED AND DEMOLISHED MATERIALS, DEBRIS AND RUBBISH SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY THE CONTRACTOR FROM THE PREMISES AS QUICKLY AS IT ACCUMULATES. DISPOSE OF ALL DEMOLISHED OR REMOVED MATERIALS LEGALLY OFF SITE. COMPLY WITH ALL LOCAL HAULING & DISPOSAL REQUIREMENTS.

K. AT ALL LOCATIONS WHERE DEBRIS IS TO BE TRANSFERED VERTICALLY FOR A DISTANCE OF 10 FEET OR MORE THE CONTRACTOR SHALL PROVIDE AN ENCLOSED CHUTE FOR THIS PURPOSE. DEBRIS SHALL NOT SPILL FROM THE BOTTOM OF THE CHUTE DIRECTLY ONTO THE GROUND. THE FINAL DROP OF DEBRIS SHALL BE INTO EITHER AN APPROVED COLLECTION HOPPER OR TRUCK.

L. THE GENERAL CONTRACTOR SHALL VERIFY THAT ALL ITEMS TO BE REMOVED/DEMOLISHED ARE NON-LOAD BEARING PRIOR TO START OF ANY DEMOLITION. REMOVE PORTION OF EXISTING WALL SYSTEM(S) IN THEIR ENTIRETY INCLUDING BUT NOT LIMITED TO FRAMING, WALLBOARD, BASES, TRIM AND BRACING.

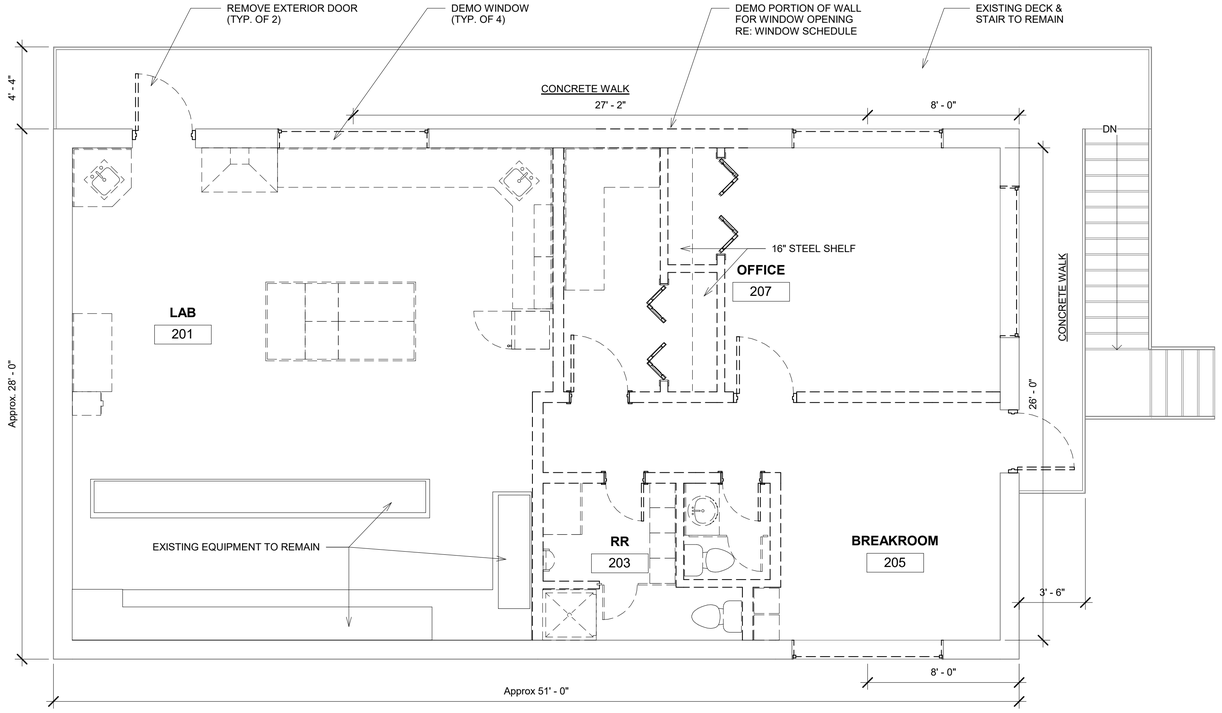
M. COORDINATE ARCHITECTURAL DEMOLITION DRAWINGS WITH ALL OTHER DEMOLITION DRAWINGS INCLUDING BUT NOT LIMITED TO STRUCTURAL, MECHANICAL, ELECTRICAL PLUMBING.

N. ANY ERRORS, OMISSIONS, OR DISCREPANCIES IN THE DRAWINGS, RELATED TO THE EXISTING CONDITIONS AND DEMOLITION IN GENERAL, SHALL BE REPORTED TO THE ARCHITECT/OWNER PRIOR TO START OF ANY DEMOLITION.

O. THERE IS NO KNOWN EXISTANCE OF ASBESTOS CONTAINING MATERIALS (ACMs) OR LEAD BASED PAINT IN THIS PROJECT. THE ARCHITECT HAS NO KNOWLEDGE OF AND SHALL NOT BE HELD LIABLE FOR ANY ASBESTOS OR OTHER HAZARDOUS MATERIALS ON THE JOB SITE. ANY SUSPECTED ACMs AND/OR LEAD PAINT DISCOVERED DURING DEMOLITION OR CONSTRUCTION MUST BE REPORTED TO THE OWNER IMMEDIATELY. DO NOT DISTURB OR AFFECT SUSPECTED MATERIALS UNTIL DIRECTED IN WRITING BY OWNER.

P. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL MEANS AND METHODS OF DEMOLITION AND CONSTRUCTION EMPLOYED ON THIS PROJECT INCLUDING ALL TEMPORARY BRACING, SUPPORT AND PROTECTION OF THE EXISTING STRUCTURE. THIS INCLUDES BUT IS NOT LIMITED TO PERFORMING A STRUCTURAL ANALYSIS OF THE AREAS TO BE EFFECTED BY THE WORK AND DETERMINING LOADS ON TEMPORARY SHORING, BRACING AND SUPPORT SYSTEMS. WHEN REQUIRED, CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER AT HIS/HER OWN EXPENSE TO MAINTAIN SAFE AND STABLE CONDITIONS ON THE PROJECT INCLUDING PROVISIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA). ANY SEQUENCES OF WORK OR METHODS INDICATED OR IMPLIED IN THE CONTRACT DOCUMENTS ARE PRESENT ONLY AS ASSUMPTIONS TO BE CONSIDERED AS A SUGGESTED OPTION FOR REVIEW BY THE CONTRACTOR.

NOTE: REMOVE ALL INTERIOR WALLS, DOORS, FIXTURES, EQUIPMENT, CASEWORK, CEILINGS, FLOOR COVERINGS, DUCTWORK, CONDUITS TO PANEL, ETC. TO EXISTING FACE OF EXTERIOR WALL AS SHOWN BY DASHED LINES.



2 DEMO SECOND FLOOR
1/4" = 1'-0"

OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

DEMOLITION PLAN

No.	Revisions and Descriptions	By	Date

Project Title:

Drawing Title:

Drawn By: Author
Checked By: Checker
Scale: 1/4" = 1'-0"
Date: 01/14/2022

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of

Project No.
0109.21005

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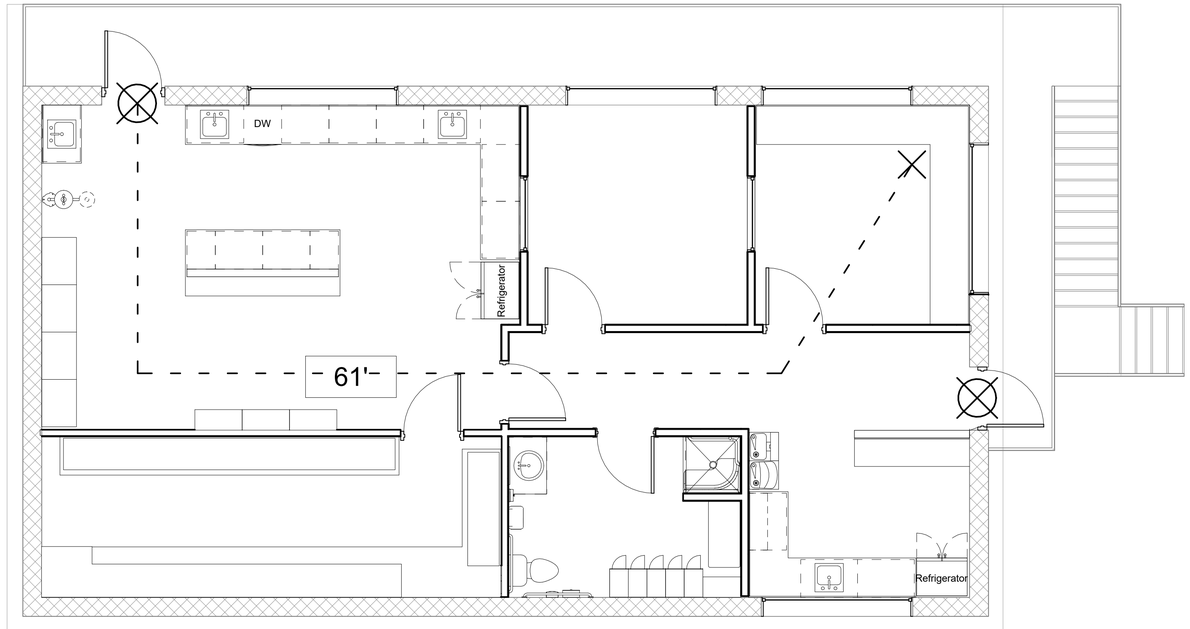
ITEM:	PROVIDED:	ALLOWABLE/ REQUIRED:	NOTES:
OCCUPANCY	B-BUSINESS		
TOTAL BLDG AREA (SF)	1,400		
CONSTRUCTION TYPE:	IIA		PER 2015 IBC TABLE 601
B-BUSINESS-AREA (SF)	1,100		PER TABLE 506.2
S-1 STORAGE-AREA (SF)	210		PER TABLE 506.2
S-1 STORAGE (OCCUPANTS/FLOOR AREA)	0.7	1/300	PER 2015 IBC 1004.1.2
B-OCCUPANTS (OCCUPANTS/FLOOR AREA)	11.0	1/100	PER 2015 IBC 1004.1.2
TOTAL OCCUPANTS	12		S1 + B COMBINED
EXITS (MAIN LEVEL)	2	2	PER 1006.3.1 THE MINIMUM NUMBER OF EXITS PER STORY FOR OCCUPANT LOADS UP TO 500 IS 2 EXITS.
TRAVEL DISTANCE	61'	200'	PER 1017.2
EGRESS WIDTH FOR EGRESS COMPONENTS *OTHER THAN STAIRWAYS* (INCHES)	72"	2.34	PER 1005.3.2: THE CAPACITY, IN INCHES, OF MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH COMPONENT BY A FACTOR OF (0.2) INCHES PER OCCUPANT.
COMMOM PATH OF TRAVEL	23'	100'	PER TABLE 1006.2.1
DEAD END CORRIDORS	NA	20'	PER 1020.4: WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQURIED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD END CORRIDORS MORE THAN 20 FEET IN LENGTH.
WATER CLOSETS	1	1	PER 2902.1
LAVATORIES	1	1	PER 2902.1
DRINKING FOUNTAINS	2	1	PER 2902.1
SERVICE SINK	0	?	PER 2902.1
AUTOMATIC SPRINKLER SYSTEM	NO	NO	PER 903.2.9 - NUMBER 4: S1 FIRE AREAS THAT STORE COMMERCIAL TRUCKS OR BUSES AND EXCEED 5,000 SF REQUIRE AN AUTOMATIC SPRINKLER SYSTEM
FIRE BARRIERS: REQUIRED SEPARATION BETWEEN ADJACENT OCCUPANCIES	NO	NO	PER TABLE 508.4



1 SECOND FLOOR LIFE SAFETY PLAN
1/4" = 1'-0"

OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

SECOND FLOOR LIFE SAFETY PLAN

No.	Revisions and Descriptions	By	Date

Project Title:

Drawing Title: SECOND FLOOR LIFE SAFETY PLAN

Drawn By: Author
Checked By: Checker
Scale: 1/4" = 1'-0"
Date: 01/14/2022

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PARTITION TYPES

1 STANDARD WALL - 5/8" GYPSUM BOARD EACH SIDE OF 2x4 MTL STUDS @ 16" O.C. - EXTEND TO STUCTURE.

2 STANDARD AND WET WALL - 5/8" GREEN BOARD ON WET SIDE AND 5/8" GYPSUM BOARD ON DRY SIDE OF 2x4 MTL STUDS @ 16" O.C. - EXTEND TO STUCTURE.

3 WET WALL - 5/8" GREEN BOARD EACH SIDE OF 2x4 MTL STUDS @ 16" O.C. - EXTEND TO STUCTURE.

4 MECH WALL - 5/8" GYPSUM BOARD ONE SIDE OF 2x4 MTL STUDS @ 16" O.C. - EXTEND TO STUCTURE.

5 MECH WALL - 5/8" GREEN BOARD ONE SIDE OF 2x4 MTL STUDS @ 16" O.C. - EXTEND TO STUCTURE.

GENERAL NOTES

1. REMOVE AND DISPOSE OF ALL EXISTING INTERIOR WALLS. NEW WALL TO BE CONSTRUCTED IN SIMILAR PLACES. SEE PLANS. ALL NEW WALLS TO INCLUDE SOUND BATT INSULATION.

2. DEMOLISH EXISTING FLOORING AS REQUIRED. EPOXY FLOORING EVERYWHERE EXCEPT RESTROOMS. TILE IN RESTROOMS.

3. CEILING HEIGHT TO BE 9'-0" FOR ALL ROOMS EXCEPT LAB. LAB CEILING HEIGHT TO BE 11'-0". ALL CEILINGS TO BE DEMOLISHED AND REPLACE WITH 2X2 ARMSTRONG MOLD RESISTANT LAY-IN TILES W/ SPRAY DISINFECTABILITY.

4. ALL EXTERIOR WINDOWS TO BE REPLACED OR ADDED TO MEET WIND CODE.

5. ALL DOORS TO BE REPLACED WITH 3'-0"X 7'-0" DOORS TO MEET FIRE CODE AND HAVE A HALF LIGHT WINDOW. SEE DOOR SCHEDULE.

6. ALL DOORS TO HAVE LEVER HARDWARE

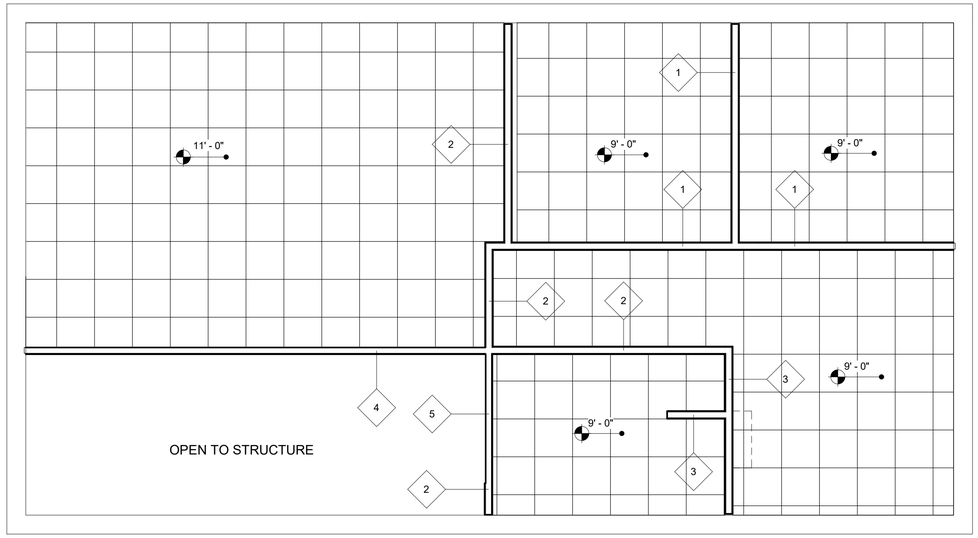
7. ALL FAUCETS, TOILETS, SOAP DISPENSER AND AIR DRYERS TO BE TOUCHLESS.

8. ALL LIGHTS TO BE SENSOR LED LIGHTS. SEE MEP.

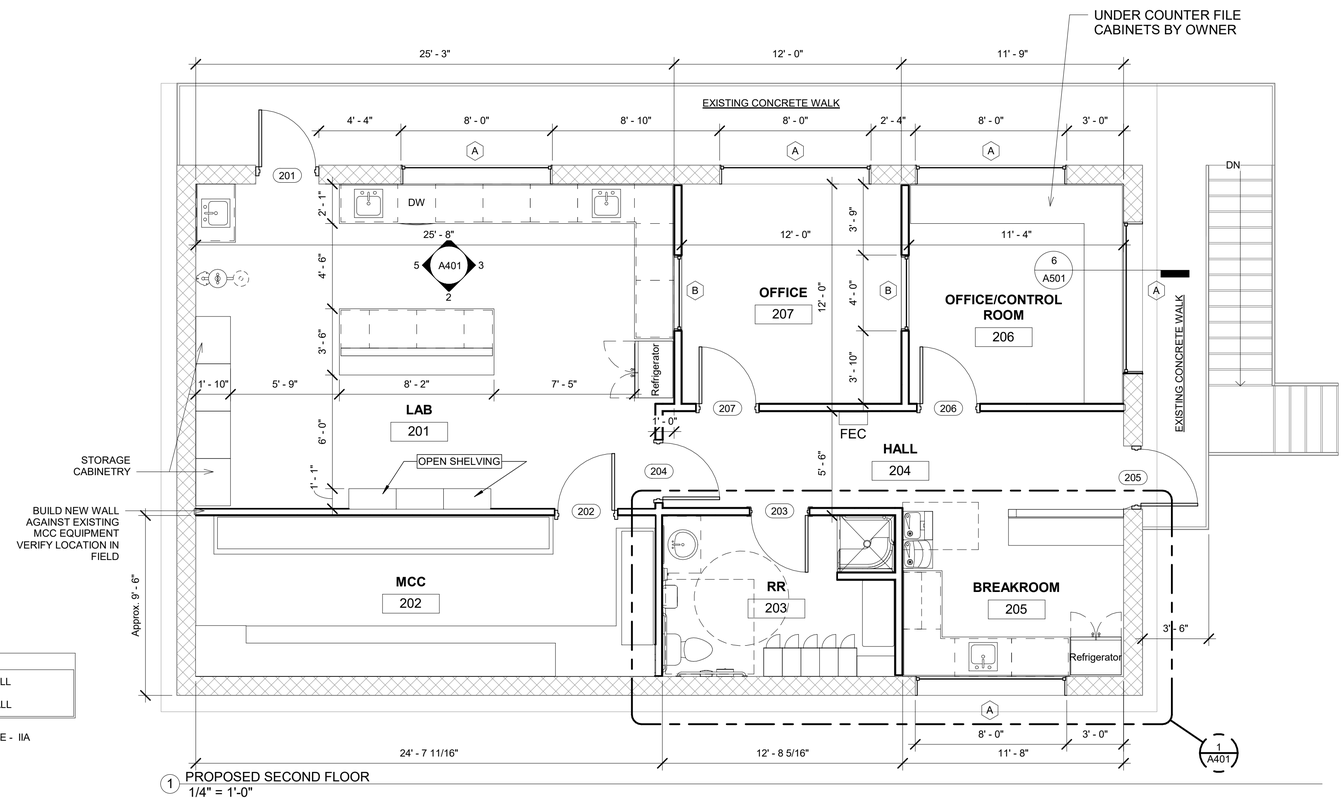
9. ALL DUCTWORK TO BE REDESIGNED FOR NEW LAYOUT. SEE MEP.

10. WHITE INTEGRATED SLIMSHADE BLIND SYSTEM TO BE IN ALL EXTERIOR WINDOWS.

11. APPLIANCES BY OWNER



2 SECOND FLOOR REFLECTED CEILING PLAN
1/4" = 1'-0"



1 PROPOSED SECOND FLOOR
1/4" = 1'-0"

WALL LEGEND
- EXISTING EXTERIOR WALL
- INTERIOR MTL STUD WALL

BUILDING CONSTRUCTION TYPE - IIA

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OYSTER CREEK WWTP
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ANGLETON, TX 77515

PROPOSED FLOORPLANS

Project Title:

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Drawn By: AM
Checked By: TMR
Scale: As indicated
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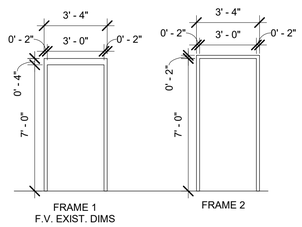
Room Schedule						
Number	Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish	Comments
201	LAB	EPOXY	EPOXY	PT	ACT	
202	MCC	EPOXY	EPOXY	PT	OPEN TO STRUCTURE	
203	RR	TILE	TILE	PT	ACT	
204	HALL	EPOXY	EPOXY	PT	ACT	
205	BREAKROOM	EPOXY	EPOXY	PT	ACT	
206	OFFICE/CONTROL ROOM	EPOXY	EPOXY	PT	ACT	
207	OFFICE	EPOXY	EPOXY	PT	ACT	

Door Schedule

Door No.	Type	Height	Width	Finish	Glass Type	Frame Type	Frame Material	Hardware	Fire Rating	Comments
201	A	7' - 0"	3' - 0"	HM		1	HM		Available in 20, 45, 60, & 90 minute ratings.	
202	A	7' - 0"	3' - 0"	HM		2	HM		Available in 20, 45, 60, & 90 minute ratings.	
203	B	7' - 0"	3' - 0"	HM		2	HM			
204	A	7' - 0"	3' - 0"	HM		2	HM			
205	A	7' - 0"	3' - 0"	HM		1	HM		Available in 20, 45, 60, & 90 minute ratings.	
206	A	7' - 0"	3' - 0"	HM		2	HM			
207	A	7' - 0"	3' - 0"	HM		2	HM			

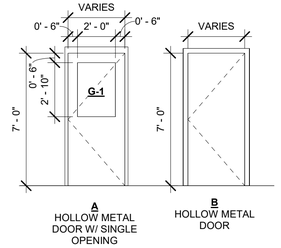
FINISH SPECIFICATIONS

WALLS	ALL PAINTS TO BE SHERWIN WILLIAMS UNLESS OTHERWISE NOTED OR APPROVED EQUIVALENT ALL INTERIOR GYP. BD. WALLS TO BE 5/8" TYPE 'X' GYPSUM BOARD UNLESS NOTED IN PARTITION TYPE, TEXTURED WITH A MEDIUM LEVEL ORANGE PEEL AND PAINTED WITH ONE COAT ULTRA SPEC 500 WALL PRIMER 534 (1.1 MILS) AND TWO COATS INTERIOR PAINT SEMI-GLOSS A100 (1.6 MILS).
CEILINGS	ACT - 2X2 ACOUSTIC TILE, ARMSTRONG OPTIMA LAY-IN SQUARE. THROUGHOUT EXCEPT WHERE OTHERWISE NOTED - INSTALL PER MANUF RECOMMENDATIONS
FLOORS	NOVOLAC EPOXY FLOORING - STANDARD GREY PORCELAIN TILE IN RESTROOM - COLOR BY OWNER PROVIDE MARBLE TRANSITION STRIP TO MATCH TILE COLOR
TRIM	METAL FRAMES TO BE PAINTED WITH SATIN WATER BASE ACRYLIC LATEX EQUIVALENT TO ONE COAT OF DTM ACRYLIC PRIMER/FINISH (2.5 MILS) AND TWO FINISH COATS DTM ACRYLIC S-6 (3.0 MILS EA.). PAINT TO MATCH ADJACENT WALLS ALL WINDOW TRIM, PRIME & PAINT, INTERIOR SIDE RUBBER BASE, TYP. THROUGHOUT. TILE BASE IN BATHROOMS
DOORS	ALL INTERIOR DOORS TO BE PAINTED ALL INTERIOR FRAMES TO BE PAINTED
SIGNAGE	ALL INTERIOR SIGNAGE TO BE ADA COMPLIANT. STANDARD SIGNAGE AT EACH ENTRANCE, AND INTERIOR ROOM. EXTERIOR SIGNAGE TO BE FROM TEXAS CUSTOM SIGNS OR APPROVED EQUAL
MISC	PRIME AND PAINT ALL EXPOSED METAL, CONDUIT, PLYWOOD PANELS (TYP)



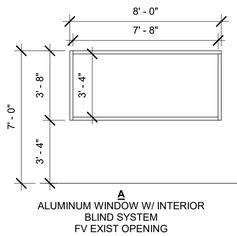
FRAME 1
F.V. EXIST. DIMS

FRAME 2

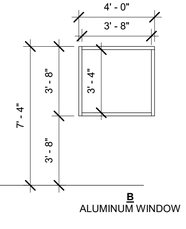


A
HOLLOW METAL DOOR W/ SINGLE OPENING

B
HOLLOW METAL DOOR



A
ALUMINUM WINDOW W/ INTERIOR BLIND SYSTEM
FV EXIST OPENING
W/ 1" INSULATED GLAZING, LOW E AND TINT

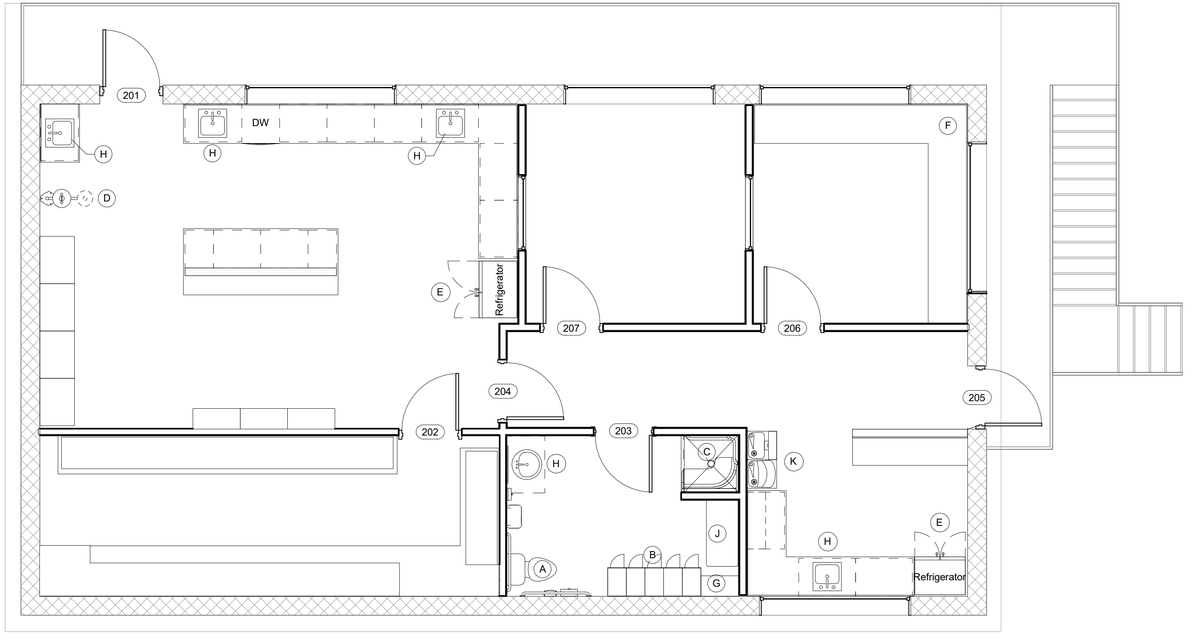


B
ALUMINUM WINDOW

NOTE:
DOOR HARDWARE MOUNTING HEIGHT
- 3'-0" STANDARD HEIGHT, TYP.

EQUIPMENT

A TOILET
B STEEL LOCKERS: 12"X12"X8'-0"
C SHOWER: 40" X 40"
D SAFETY STATION WITH EYEWASH
E REFRIGERATOR: BY OWNER
F OPEN COUNTERTOP W/ TUBE STEEL BRACE, RE: 7/A501
G CABINETRY: BY OWNER
H SINK: RE: MEP
J ADA LOCKER BENCH
K HI-LO WATER FOUNTAINS W/ (1) BOTTLE FILLER, ADA COMPLIANT



1 SECOND FLOOR FINISH PLAN
1/4" = 1'-0"

OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

FINISH PLAN & DOORS

No.	Revisions and Descriptions	By	Date

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Drawn By: AM
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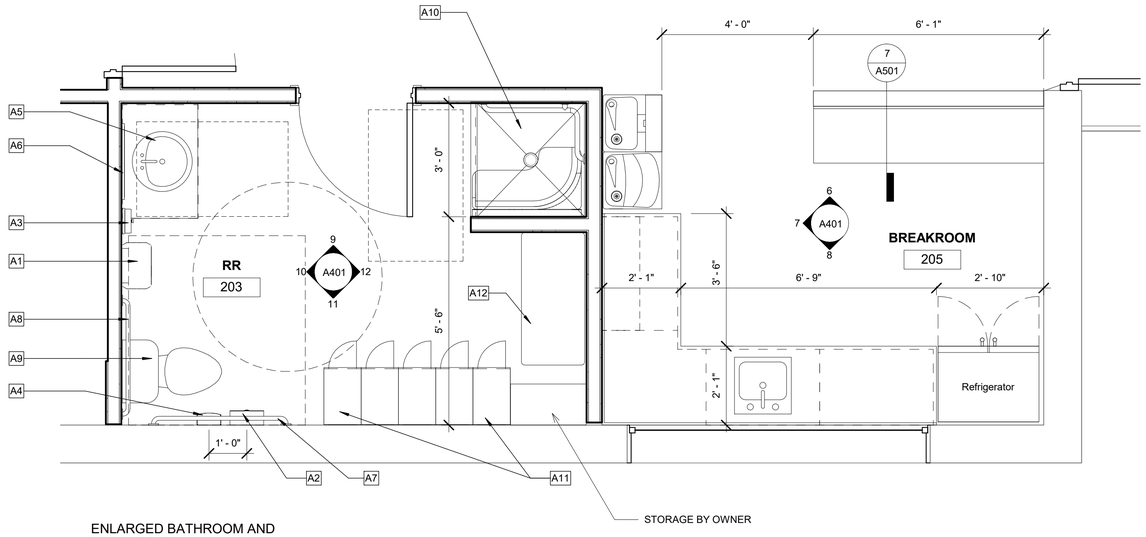
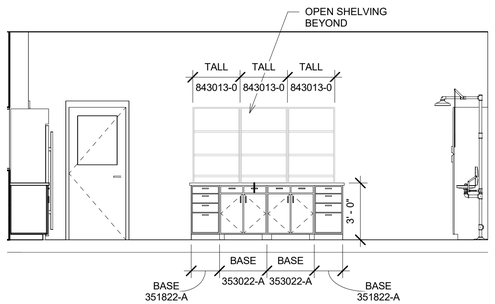
ACCESSORIES LEGEND

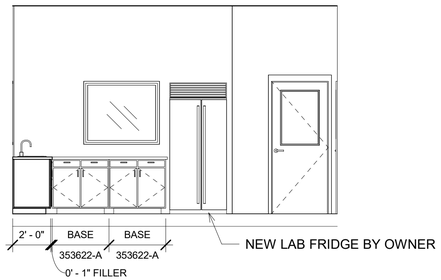
A1	PAPER TOWEL DISPENSER TOUCHLESS	INSTALL AT EACH RESTROOM LAVATORY AS SHOWN ON PLANS 1. MODEL NUMBER: GEORGIA PACIFIC COMMERCIAL MODEL 59462
A2	TOILET TISSUE DISPENSER	EACH RESTROOM TOILET 1. MODEL NUMBER: BOBRICK B-2890
A3	SOAP DISPENSER	INSTALL AT EACH LAVATORY AS SHOWN ON PLANS 1. MODEL NUMBER: BOBRICK B-2013 OR EQUAL
A4	SANITARY NAPKIN DISPOSAL	EACH UNI-SEX RESTROOM 1. MODEL NUMBER: BOBRICK B-270
A5	SINK	PORCELAIN WALL-MOUNT (ADA) 1. INSULATE HOT WATER SUPPLY AND DRAIN RE: MEP
A6	MIRROR	INSTALLED 24" X 36" BEVELED FRAME OVER WALL MOUNTED LAVATORY 1. MODEL NUMBER: BOBRICK B-290 OR APPROVED EQUAL - CONFIRM WITH OWNER PRIOR TO INSTALLATION 2. DESCRIPTION: BEVELED FRAME EDGE GALVANIZED STEEL BACK WITH SLOTS FOR MOUNTING SCREWS AND INTEGRAL SCREW-HEAD LOCK. BACK PROTECTED BY SHOCK-ABSORBING WATER-RESISTANT PADDING 3. INSTALL MIRROR AT 3'-4" AFF TO REFLECTIVE SURFACE
A7	42" GRAB BAR	INSTALLED IN EACH ACCESSIBLE TOILET AS SHOWN ON PLANS 1. MODEL NUMBER: BOBRICK B-6806 2. DESCRIPTION: 1-1/2" OUTSIDE DIA. X PLAN LENGTH, HORIZONTAL, 1-1/2" WALL CLEARANCE. TYPE 304 MINIMUM 18 GA. STAINLESS STEEL. CONCEALED SCREW ATTACHED MOUNTING AND ANCHORAGE. NO.4 SATIN FINISH. MINIMM 900 POUND SUPPORTING CAPACITY
A8	36" GRAB BAR	EACH UNI-SEX, MOUNT TO DOOR (ADA) 1. MODEL NUMBER BOBRICK B-672 2. MOUNT @ 36" AFF MAX.
A9	ADA COMPLIANT FLOOR MOUNTED TOILET	INSTALLED IN EACH UNISEX AND PARTITIONED RESTROOM - CENTERLINE 16" FROM WALL AT ALL ADA RESTROOMS 1. MODEL NUMBER: RE: MEP
A10	ADA COMPLIANT SHOWER	1. MODEL NUMBER: RE: MEP
A11	LOCKERS	INSTALL 5 IN RESTROOM 1. HALLOWELL STEEL SINGLE TIER 1 DOOR LOCKER MODEL NUMBER: WGB661819 OR EQUAL
A12	ADA BENCH	INSTALL AT RESTROOM 1. SALSBURY MODEL NUMBER: 77781-ADA-LGT OR EQUAL



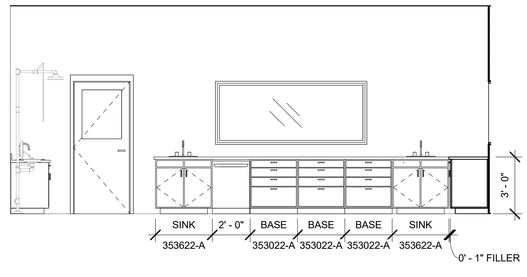
1 ENLARGED BATHROOM AND BREAKROOM
1/2" = 1'-0"



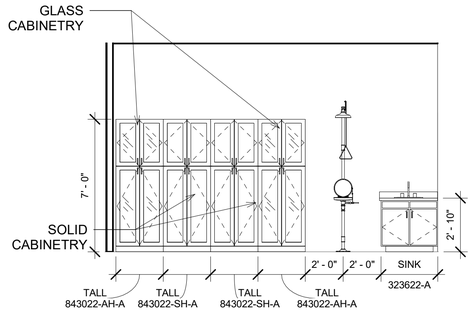
2 LAB - SOUTH
1/4" = 1'-0"



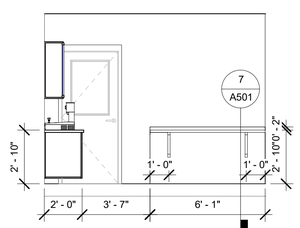
3 LAB - EAST
1/4" = 1'-0"



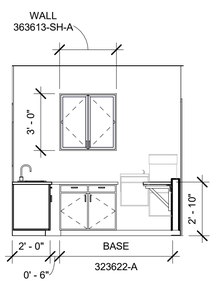
4 LAB - NORTH
1/4" = 1'-0"



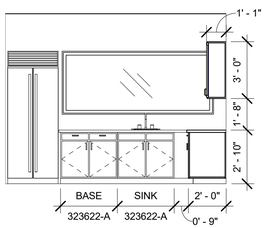
5 LAB - WEST
1/4" = 1'-0"



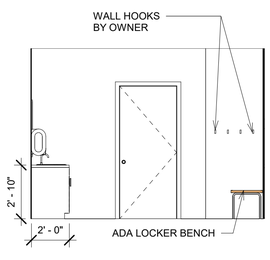
6 BREAKROOM - NORTH
1/4" = 1'-0"



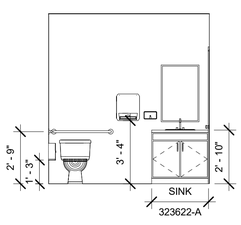
7 BREAKROOM - WEST
1/4" = 1'-0"



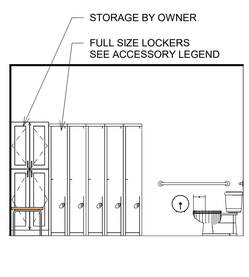
8 BREAKROOM - SOUTH
1/4" = 1'-0"



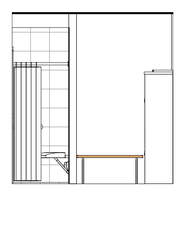
9 BATHROOM - NORTH
1/4" = 1'-0"



10 BATHROOM - WEST
1/4" = 1'-0"



11 BATHROOM - SOUTH
1/4" = 1'-0"



12 BATHROOM - EAST
1/4" = 1'-0"

No.	Revisions and Descriptions	By	Date
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Project Title: OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Drawing Title: ENLARGED PLAN AND INTERIOR ELEVATIONS

Drawn By:	Checked By:	Scale:	Date:
AM	TMR	As indicated	01/14/2022

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Sheet No. A401 of

Project No. 0109.21005

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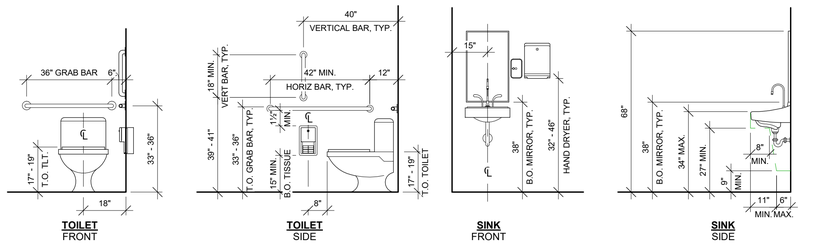
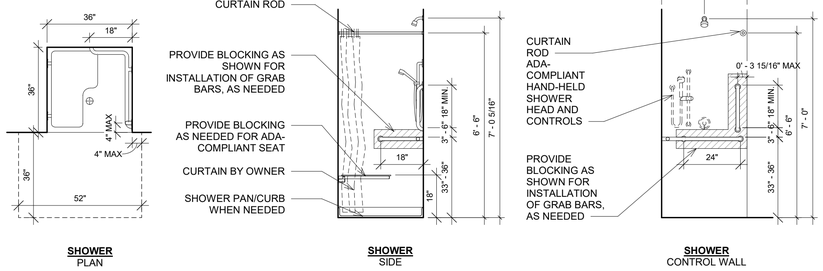
MOUNTING DIMENSIONS FOR PLUMBING FIXTURES AND TOILET ACCESSORIES



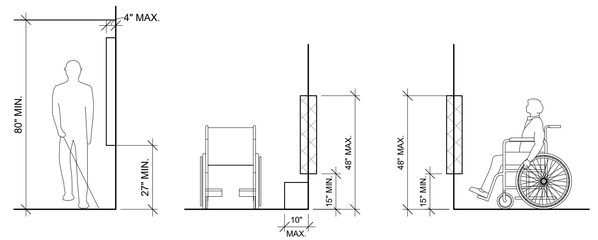
TOILET FRONT | **TOILET** SIDE | **SINK** FRONT | **SINK** SIDE



SHOWER PLAN | **SHOWER** SIDE | **SHOWER** CONTROL WALL

NOTES:
- PROVIDE COVERINGS FOR ALL EXPOSED PIPING BELOW FIXTURES.
- ALL TOILET ROOM ACCESSORIES SHALL BE SELECTED BY OTHERS.
- FINAL LOCATIONS SHALL BE COORDINATED BETWEEN GC & OWNER.

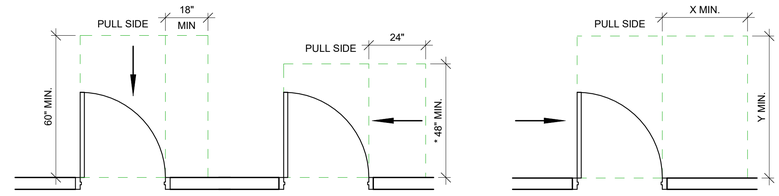
ACCESSIBLE CLEARANCES AND REACH RANGES



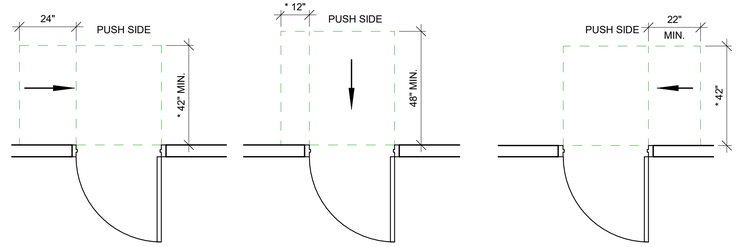
SIDE APPROACH | **FORWARD APPROACH**

SIDE APPROACH | **FORWARD APPROACH**

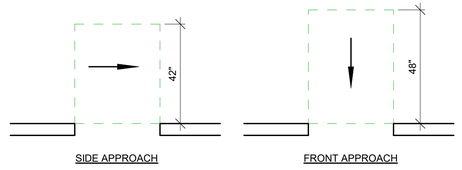
DOOR CLEARANCES



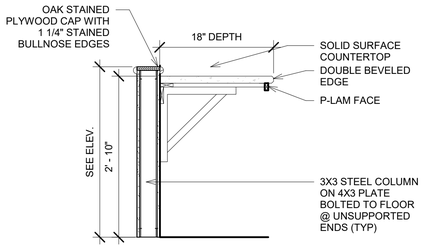
FRONT APPROACH- PULL SIDE | LATCH APPROACH- PULL SIDE * 54" MIN WHERE CLOSER IS PROVIDED | HINGE APPROACH- PULL SIDE X=36" MIN IF Y=60" X=42" MIN IF Y=54"



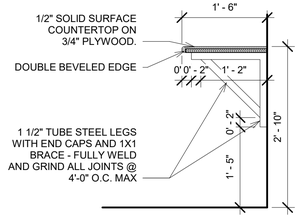
LATCH APPROACH- PUSH SIDE * 48" MIN WHERE CLOSER IS PROVIDED | FRONT APPROACH- PUSH SIDE *IF CLOSER AND LATCH PROVIDED | HINGE APPROACH- PUSH SIDE * 48" MIN IF BOTH CLOSER AND LATCH ARE PROVIDED



SIDE APPROACH | FRONT APPROACH



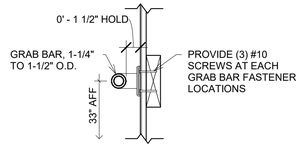
7 OPEN COUNTER @ PONY WALL ADA
3/4" = 1'-0"

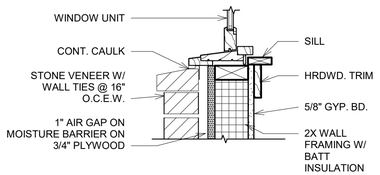


6 DESK W/O LEGS
3/4" = 1'-0"

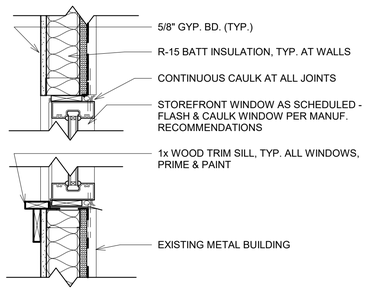
GRAB BAR DETAIL

THE GRAB BAR AND NECESSARY BACKING SUPPORT SHALL BE SUFFICIENT TO SUPPORT THE POUND POINT LOAD AS SPECIFIC FOR THE CODE

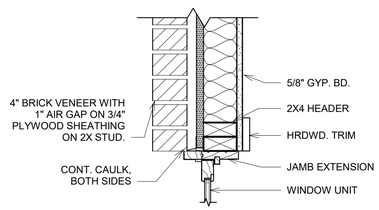




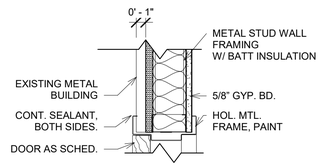
5 EXTERIOR WINDOW SILL
1 1/2" = 1'-0"



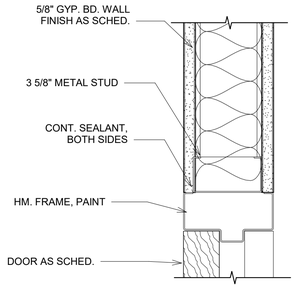
4 WINDOW HEADER & SILL DETAIL (TYP)
1 1/2" = 1'-0"



3 EXTERIOR WINDOW HEADER
1 1/2" = 1'-0"



2 EXTERIOR DOOR HEADER (TYP)
1 1/2" = 1'-0"



1 INTERIOR DOOR HEADER (TYP)
3" = 1'-0"

No.	Revisions and Descriptions	By	Date

Project Title: OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Drawing Title: DETAILS

Drawn By: AM
Checked By: TMR
Scale: As indicated
Date: 01/14/2022

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Sheet No. A501 of

Project No. 0109.21005

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GENERAL REQUIREMENTS

SUMMARY OF WORK
1.1 WORK COVERED BY CONTRACT DOCUMENTS - Work of this Contract consists of a renovation to the Oyster Creek Wastewater Treatment Plant Lab's second floor located at 474 County Road 609, Angleton, TX, 77515
The work consists of the following;
A. Selective demolition of existing second floor interior walls, equipment and exterior windows.

1.2 CONTRACTOR'S DUTIES -Except as specifically noted, provide and pay for:
A. Labor, materials and equipment.
B. Water, heat, and utilities required for construction.
C. Other facilities and services necessary of proper execution and completion of the work.

1.3 Secure and pay for, as necessary for proper execution and completion of Work, and as applicable at time of receipt of bids:
A. Government Fees (including inspection fees).
B. Permits.
C. Licenses.

1.4 Contractor to give required notices.

1.5 Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities that bear on performance of Work, including all provisions of the Occupational Safety and Health Administration, and including Article 1926.21 (Safety Training and Education).

1.6 Promptly submit written notice to architect of observed variance of Contract Documents from legal requirements. Assume responsibility for Work known to be contrary to such requirements, without notice.

1. 7 Certify that materials incorporated into the Work as part of this project contain no hazardous materials (asbestos, PCP's, etc.). Submit certification letter in triplicate to Architect stating such at substantial completion of the project.

1.8 CONTRACTOR USE OF THE PREMISES
A. General: Contractor's staging area and parking for Contractor's employees shall be fully coordinated with Owner and Contract Document requirements.
B. Use of the Site: Limit the use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond areas in which Work is indicated.
C. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to site activities and emergency vehicles at all times. Do not use these areas for parking or storoge of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on the Project site.

1.9 QUALITY CONTROL - Maintain quality control over superv1s1on, subcontractors, suppliers, manufacturers, products, services, workmanship, and site conditions, to produce Work in accordance with Contract Documents.

2.1 WORKMANSHIP
A. Comply with industry standards of the region except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
B. Provide suitably qualified personnel to produce Work of specified quality.
C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and rocking.
D. Provide finishes to match approved samples.

2.2 MANUFACTURER'S INSTRUCTIONS
A. Require compliance with instructions in full detail, including each step in sequence.
B. Should instruction conflict with Contract Documents, request clarification from Architect before proceeding.

CLEANING
3.1 Execute cleaning, during progress of the work, and at completion of the work.
3.2 DISPOSAL REQUIREMENTS - Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and antipollution laws.

3.3 MATERIALS
A. Use only those cleaning materials which will not create hazardous conditions to health or property and which will not damage surfaces.
B. Use only those cleaning materials and methods recommended by manufacturer of the surface materials to be cleaned.
C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

3.4 DURING CONSTRUCTION
A. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.
B. Provide on-site containers for the collection of waste materials, debris, and rubbish.

3.5 DUST CONTROL
A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly painted surfaces.
C. Prior to final completion, or Owner occupancy, Contractor shall conduct an inspection of sight exposed interior and exterior surfaces, and all work areas, to verify that the entire work is clean.

3.6 FINAL CLEANING
A. Employ skilled work persons for final cleaning.
B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
C. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

4.1 SCHEDULE OF VALUES- Procedures for preparation and submittal of Schedule of Values.

4.2 FORMAT
A. Type Schedule on AIA Document G703 - Continuation Sheet for Application and Certificate for Payment, or use media driven printout.
B. Follow Table of Contents of Project Manual for listing component parts. Identify each line item by number and title of major Specifications section.

4.3 CONTENT
A. List installed value of each major item of Work and each subcontracted item of Work as a separate line item to serve as a basis for computing values for Progress Payments. Round off values to nearest dollar.
B. For each major subcontract, list products and operations of that subcontract as separate line items.
C. Coordinate listings with Progress Schedule.
D. Component listings shall each include a directly proportional amount of Contractor's generol office overhead and profit. However, use separate line for bonds, insurance, temporary facilities and controls, and superintendence. The sum of values listed shall equal total Contract Sum.

4.4 SUBMITTALS - Submit electronic copy of Schedule of Values a minimum of 14 days prior to first Application for Payment..

4.5 SUBSTANTIATING DATA - When Architect requires substantiating information, submit data justifying line item amounts in question.

SHOP DRAWINGS

5.1 Present in a clear and thorough manner original drawings that illustrate the portion of the work showing fabrication, layout, setting, or erection details, prepared by a qualified detailer. Title each drawing with Project and Contract name and number; identify each element of drawings by reference to sheet number and detail, schedule, room number, or specification section of Contract Documents.

5.2 PRODUCT DATA - Submit only pages that are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
A. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
B. Submit material safety data sheets for each product, including certificate from manufacturer certifying all products provided for the project are "asbestos free" (i.e. contains less that 1 % of content by weight).

5.3 SAMPLES
A. Submit full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures, and patterns, for Architect selection.
B. Submit samples to illustrate functional characteristics of products, including parts and attachments.
C. Approved samples that may be used in the Work are indicated in the Specification section.
D. Label each sample with identification required for transmittal letter.
E. Provide field samples of finishes at Project, at location acceptable to Architect, as required by individual Specifications section. Install each sample complete and finished. Acceptable finishes in place may be retained in completed work.

5.4 CONTRACTOR REVIEW
A, Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, quantities and details, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
B. Coordinate submittals with requirements of Work and of Contract Documents.
C. Sign and certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.
D. Do not fabricate products or begin work that requires submittals until return of submittal with Architect acceptance.
E. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect's review of submittals.
F. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect's review of submittals, unless Architect gives specific written acceptance of deviations. Architect will review submittals for general conformance to design intent only.

5.5 SUBMITTAL REQUIREMENTS
A. Transmit only from Contractor to Architect. Submittals sent from subcontractor or material supplier directly to Architect will be returned for resubmission through Contractor.
B. Apply Contractor's stamp, signed or initialed, certifying to review, verification of products, field dimensions and field construction criteria, and coordination of information with requirements of Work and Contract Documents.
C. Submit electronic copy, or number of hard copies of product data and manufacturer's instructions Contractor requires, plus one (1) copy that will be retained by Architect
D. Identify Work and product by Specification section and Article number.

5.6 ARCHITECT AND ENGINEER REVIEW - Architect and consultants will review shop drawings, product data, and samples and return submittals generally within 10 days from receipt.

SUBSTITUTIONS

6.1 OPTIONS
A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.
B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named.
C. Products Specified by Naming Severol Manufacturers: Products of named manufacturers meeting specifications; no options, no substitutions.
D. Products Specified by Naming Only One Manufacturer: No option; no substitution allowed.

6.2 LIMITATIONS ON SUBSTITUTIONS
A. Any substitution proposed prior to bidding; If the substitution is not accepted via addendum to bid documents, it is not officially accepted.
B. Substitutions proposed after bidding may be approved ONLY if contractor can prove that proposed item has become unavailable since the bid date.
C. Substitutions will not be considered when indicated on shop drowings or product data submittals without separate formal request, when requested directly by subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.
D. Substitute products shall not be ordered or installed without written acceptance. Only one request for substitution for each product will be considered. When substitution is not accepted, provide specified product.
E. Architect will determine acceptability of substitutions.

6.3 REQUESTS FOR SUBSTITUTIONS
A. Submit separate request for each substitution. Document each request with complete data substantiating compliance of proposed substitution with requirements of Contract Documents.
B. Identify product by Specifications section and Article numbers. Provide manufacturer's name and address, trode name of product, and model or catalog number. List fabricators and suppliers.
C. Give itemized comparison of proposed substitution with specified product, listing variations, and reference to Specifications section and Article numbers.
D. Give quality and performance comparison between proposed substitution and the specified product.
E. Give cost data comparing proposed substitution with specified product, and amount of net change to Contract Sum.

CONTRACT CLOSEOUT

7.1 SUBSTANTIAL COMPLETION
A. When contractor considers the work is substantially complete, he shall submit to the architect:
A written notice that the work, or designated portion thereof, is substantially complete.
A list of items to be completed or corrected.
B. Within a reasonable time after receipt of such notice, architect will make an inspection to determine the status of completion.
C. Should architect determine that the work is not substantially complete: Architect will promptly notify the contractor in writing, giving the reasons therefore. Contractor shall remedy the deficiencies in the work and send a second written notice of completion to the architect/engineer. Architect will re-inspect the work.
D. When architect concurs that the work is substantially complete, he will: Prepares a certificate of substantial completion on AIA form G704, accompanied by contractor's list of items to be completed or corrected, as verified and amended by the architect. Submit the certificate to owner and contractor for their written acceptance of the responsibilities assigned to them in the certificate.

7.2 CONTRACTOR'S CLOSE OUT SUBMITTALS TO ARCHITECT
A. Contractor shall prepare and furnish one (1) set of record drawings and indicate the following: Where actual field construction differs from work as shown on contract documents. Show changes in detail with the same accuracy of dimensions and/or scale as shown by the original contract documents. Locations and dimensions of concealed worked.
B. Warranties and bonds: Refer to uniform general requirements.
C. Spare parts and maintenance materials: Refer to various sections.
D. Evidence of payment and release of liens: Refer to requirements of general and supplementary conditions.
E. Certificate of insurance for products and completed operations.

7.3 FINAL APPLICATION FOR PAYMENT
A. Contractor shall submit the final application for payment in accordance with procedures and requirements stated in the conditions of the contract.
B. Contractor shall include consent of surety to final payment documentation.
C. Contractor shall include final release of lien documentation.

SELECT DEMOLITION

SUBMITTALS FOR REVIEW
1. Project Record Documents: Accurately record actual locations of capped utilities and any subsurface obstructions.

REGULATORY REQUIREMENTS
1. Conform to OSHA requirements and all applicable codes for demolition work, dust control, construction materials disposal, and products requiring electrical disconnection and re-connection.
2. Obtain required permits from authorities.
3. Conform to procedures applicable when hazardous or contaminated materials are discovered.

PROJECT CONDITIONS
I. Conduct demolition to minimize interference with adjacent materials that are not scheduled to be demolished.
2. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

PREPARATION
1. Provide, erect, and maintain temporary barriers and partitions as needed.
2. Protect existing materials and elements that are not to be demolished.
3. Prevent movement of structure; provide bracing and shorting as required.
4. Mark location and termination of utilities.

EXECUTION
I. Demolish in an orderly and careful manner. Protect existing supporting structural members and building materials.
2. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
3. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.

ROUGH CARPENTRY (IF WOOD FRAMING)

LUMBER MATERIALS
1. Lumber, finished 4 sides, 15 percent maximum moisture content. Each piece of lumber to be factory marked with type, grade, mill and grading agency.
2. Light framing: Construction grade Douglas fir or southern pine, appearance grade where exposed.
3. Structural framing and timbers: Select Structural no. 1 grade Douglas Fir, Southern Pine, or Sitka Spruce, appearance grade A where exposed. Sizes as indicated on the Drawings.
4. Boards: Construction grade.

NAILERS, BLOCKING, FURRING AND SLEEPERS
1. Wood for nailers, blocking, furring and sleepers: Construction grade, finished 4 sides, 15 percent maximum moisture content. Pressure preservative treat items in contact with roofing, flashing, waterproofing, masonry, concrete or the ground.

WOOD TREATMENT
1. Preservative Pressure Treated Lumber:
• Remove excess moisture where shrinkage is a serious fault or where treated lumber will be in contact with plaster, or stucco, and where water-borne treated lumber is to be painted or stained.
• Lumber shall be dried to 15-19 percent moisture content after treatment, and material to be painted or stained shall have knots and pitch streaks sealed as with untreated wood.
• Liberally brush freshly cut surfaces, bolt holes and machined areas with the compatible preservative in accordance with preservative manufacturer's recommendations.
2. Wood Requiring Treatment includes nailers, blocking, stripping, cant strips and similar items in conjunction with roofing, flashing, and other construction. Sills, blocking, furring, stripping, and similar items in contact with masonry or concrete.

INSTALLATION - FRAMING
1. Set structural members level and plumb, in correct position.
2. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.
3. Place horizontal members with crown side up.
4. Construct load bearing framing and curb members full length without splices.
5. Place full width continuous sill flashing under framed walls on cementitiaus foundations. Lap flashing joint 4 inches.
6. Install miscellaneous blocking, nailing strips and framing where required as backing for attachment of wall mounted fixtures, cabinetwork, and other items, and as shown on Drawings. Coordinate to allow proper attachment of work of other Sections.
7. Secure in place using fasteners specified. Use only recommended power tools for placement of fasteners.
8. Recess heads af fasteners below surface of wood members.
9. Secure in place with appropriate fasteners and as shown on the Drawings. Use fasteners of correct size that will not penetrate members where opposite side will be exposed to view or require finishing. Do not split wood with fasteners; set panel products to allow expansion at joints.
10. Secure wall sheathing with long dimension perpendicular to wall studs, with ends over firm beoring and staggered.
11. Install plywood in combination single and two span continuous.
12. Install telephone and electrical panel back boards with plywood sheathing material where required. Size the backboard by 12 inches beyond size af electrical panel. (field verify).
13. Place building paper with 12-inch overlap and minimum 6-inch end-laps; weather-lap edges and ends. Fasten to sheathing/decking with corrosion resistant fasteners.

SITE TREATMENT OF WOOD MATERIALS
1. Apply preservative treatment in accordance with manufacturer's published instructions.
2. Brush apply two (2) coats of preservative treatment on wood in contact with cementitious materials, roofing and related metal flashing. Treat site-sawn cuts.
3. Allow preservative to dry prior to erecting members.

SITE TOLERANCES:
1. Framing Members: 1 /4 inch from true position, maximum.

FRAMING INSPECTION
1. Inspect wood framing installation and connections at completion of each phase of wood construction for correct installation, nailing, connections, and fasteners.
2. Inspect and verify that types and spacing of fasteners are installed in locations specified or indicated on Drawings.
3. Inspect types, locations, and fasteners for structural metal framing connectors.
4. Inspect types, locations, and connections of hold-down anchors.
5. Inspect wood to steel beam connections.

NAILING SCHEDULE

CONNECTION	NAILING
1. Joist to sill or girder, toenail	3-8d
2. Bridging to joist, toenail each end	2-8d
3. Bottom Plate to joist or blocking, face nail	16d at 16" oc
4. Top plate to stud, end nail	2-16d
5. Stud to bottom plate	4-8d, toenail or 2-16d, end nail
6. Double studs, face nail	16d at 24"oc
7. Double top plates, face nail	16d at 16" oc
8. Top plates, laps and intersections, face nail	2 - 16d
9. Continuous header, two pieces	16d at 16" oc along each edge
I 0. Ceiling joists to plate, toenail	3-8d
1 1. Continuous header to stud, toenail	4-8d
12. Ceiling joists, laps over partitions, face nail	3 - 16d
13. Ceiling joists to parallel rafters, face nail	3 - 16d
14. Rafter to plate, toenail	3 - 16d
15. Built-up cornerstuds	16d at 24" oc

CASEWORK

1. Use Onepointe Solutions Metal Casework for labs from onepointesolutions.com Sizes noted on drawings or indicated herein for metal casework are based on standard Onepointe Solutions sizes.
2. All base cabinets at 22" depth with scribes sized to close gap between cabinets and wall. All other cabinet dimensions noted on drawings.
3. Products surfaced as specified at onepointesolutions.com. Metal Casework to be Stainless Steel ASTM A240, type 304 alloy. Finish: AISI No. 3 or 4 brushed finish
4. Clear Acrylic .125" thick, conforming to ANSI z97.1, as indicated on plan.
5. Base molding to be 4" high plywood with framed out at each casework edge.

COUNTERTOPS:
1. Countertops: Durcon 1" thick Epoxy Resin w/ 1/4" marine edge finish. 25" deep countertop. Color: Black Onyx

HARDWARE
I. Recessed Annodized Aluminum Door and Drawer Handles as specified for standard metal cabinet at onepointesolutions.com. Color: Matte Jet Black
2. Concealed cabinet hinges as specified for standard metal cabinet on onepointesolutions.com.
3. Door types and sizes are noted on interior elevations.

BUILDING INSULATION

BATT INSULATION
1. 3 1/2" unfaced bait insulation at all new interior walls.
2. Trim insulation neatly to fit spaces. Use batts free of damage. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.
3. Install insulation with factory applied membrane facing warm side of building spaces. Lap ends and side flanges of membrane. Attach insulation in place to framing; tape seal butt end and lapped side flanges. Tape seal tears or cuts in membrane.

METAL DOORS AND FRAMES

1. Metal doors to be produced by one of the following: Amweld Building Products,Incorporated,Garrettsville, OH (216) 527-4385.
Ceco Door Products, Brentwood, TN (615) 661-5030.
Republic, Houston, TX (713) 820-5282.
Steelcraft, Cincinnati, OH (513) 745-6400.
2. Exterior Doors: SDI-100, Grade III - Extra Heavy-Duty - 1-3/4 inch, Model 1 - Full Flush Design, 16 gage cold_rolled steel; galvanized to ASTM A 525.
3. Interior Doors: SDI-100, Grade I - Standard-Duty - 1-3/4 inch, Model 1 - Full Flush Design, 18 gage cold_rolled steel.
4. Exterior Frames: 14 gage, cold_rolled steel, mitered and welded; in accordance with ASTM A 525.
5. Interior Frames: 16 gage, cold_rolled steel, mitered and welded, 2 inch profile, for installation in a metal or wood stud and gypsum board partition.
6. The core shall be constructed of one of the following:
• Kraft Honeycomb: Phenolic treated.
• Polyurethane: Core foamed-in-place or laminated. 20 psi strength, 1 .8 pcf density; 1 /2 inch maximum voids in any direction. Strength of bond between core and steel face sheet shall exceed strength of core so delamination will not occur during operating conditions.
• Polystyrene: Rigid core of polystyrene foam board, 1500 psf compressive strength, 18 psi shear strength. Strength of bond between core and steel face sheet shall exceed strength of core so that delamination will not occur under operating conditions.
• Vertical Steel Stiffeners: 22 gage vertical steel stiffeners, spaced 6 inches apart and spot welded to face sheets at 6 inches on center. Insulate spaces between stiffeners with loose fill insulation full height of door.
7. Provide resilient rubber silencers on all doors.
8. Where door louvers are shown, use roll formed 20-gauge steel with wipe coat of zinc Blade shall be an inverted Y blade, sight proof.
9. Louvers are not permitted in exterior doors, or in doors that provide direct access from a public area, without burglar bars or wire mesh installed on the protected side.
10. Install integral rain-caps on exterior doors.
11. Field paint all metal doors and frames per paint notes.
12. The frame is to be mounted to the studding in such a manner to prevent a spreading of the frame from the studs of less than 1 /2 inch.

FINISH HARDWARE

HINGES:
I. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template_produced units. When used on existing frames, coordinate screw hole patterns, sizes, gauges, and locations. Hinges shall be machined prior to anodizing.
2. Screws: Furnish Phillips flat_head screws complying with the following requirements:
a. For metal doors and frames install machine screws into drilled and tapped holes.
b. For wood doors and frames install wood screws.
c. For fire-rated wood doors install II 12 x 1-1 /4 inch threaded to the head steel wood screws.
d. Finish screw heads to match surface of hinges or pivots.
3. Hinges Pins: Except as otherwise indicated, provide non, rising pins.
4. Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90 inches or less in height and one additional hinge for each 30 inches for additional height.

LOCKS, LATCHES, AND BOLTS
1. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bait, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated.
2. Provide curved lip strikes for locks with latchbolts as recommended by manufacturer and required by existing conditions.
3. Lock Throw: Provide 5/8-inch minimum throw of latch on pairs af doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
4. Provide 3/4 inch minimum throw of latch for mortise locks. Provide 1-inch minimum throw for all dead bolts.
5. Flush Bolt Heads: Minimum of½ inch diameter rods of brass, bronze, or stainless steel with minimum 12 inch long rod for doors up to 7'-0' in height. Provide longer rods as necessary for doors exceeding 7'-rJ' in height.
6. Exit Device Dogging: Except on fire-rated doors, provide exit devices with hex key dogging to keep the latch bolt retracted with activation by masterkey.

CLOSERS
1. Where parallel arms are indicated for closers, provide with solid forged extra duty arms and extra duty knuckles with integral bronze bushings.
2. Provide parallel arms for all overhead closers, except as otherwise indicated.
3. Closers shall have powder coated finish.
4. Provide cast iron closer with steel pistons.
5. All closers shall be furnished by one manufacturer.
6. Units shall be independently certified to 10,000,000 cycles in accordance with ANSI testing procedures unless otherwise indicated.

WEATHERSTRIPPING AND SEALS:
1. Provide continuous weather stripping on exterior doors. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
2. Provide bumper-type resilient insert and metal retainer strips, surface applied unless shown as mortised or semi-mortised, and of following metal, finish, and resilient bumper material at jambs and heads
3. Install hardware in compliance with the manufacturer's instructions and recommendations.
4. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
5. Drill and countersink units that are not factory_prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
6. Patch and repair all existing holes and voids as resulted by the removal and replacement of door hardware.
7. Set thresholds for exterior doors in full bed of butyl_rubber or polyisobutylene mastic sealant.
8. Weather stripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

FLUID APPLIED WATERPROOFING (IF APPLICABLE)

I. Subgrade and above grade waterproofing at concrete and CMU locations shall be equal to Elastomulsion Waterproofing rubberized asphalt membrane by Henry Company (HE787074) or equal.
2. Waterproofing must be a Fluid applied Class 1 vapor retarder.

HARDWARE SCHEDULE

HW 1

EXTERIOR SET:		
1-1/2 PR HINGES	1279 - 4-1/2 x 4-1/2	HA
1 STOP	1211 \ 1270	TR
3 SILENCER	GJ64	GJ
WEATHERSTRIPPING		NGP
THRESHOLD	425	NGP
SWEEP	102V	NGP

HW 2

OFFICE SET:		
1-1/2 PR HINGES	1279 - 4-1/2 x 4-1/2	HA
1 ENTRY LOCK	B501 DAN	FA
1 STOP	1211 \ 1270	TR
3 SILENCER	GJ64	GJ
DOUBLE COAT HOOK	7345-S	ASI

HW 3

STORAGE SET:		
1-1/2 PR HINGES	1279 - 4-1/2 x 4-1/2	HA
1 STOP	1211 \ 1270	TR
3 SILENCER	GJ64	

HW 4

RESTROOM PRIVACY SET:		
1-1/2 PR HINGES	1279 - 4-1/2 x 4-1/2	HA
1 PRIVACY LOCK	B301 DAN	FA
1 STOP	1211 \ 1270	TR
3 SILENCER	GJ64	GJ
DOUBLE COAT HOOK	7345-S	ASI

MANUFACTURERS LISTING:

SEL	SELECT HINGE
HA	HAGER HINGE
VD	VON DUPRIN
FA	FALCON LOCK
A/R	ADAMS-RITE
DO	DORMA
LCN	LCN
NGP	NATIONAL GUARD PRODUCTS
TR	TRIMCO MFG
GJ	GLYNN-JOHNSON

HARDWARE NOTES:

1. ALL HARDWARE FINISHES TO BE 626/US26D.
2. FINAL HARDWARE SCHEDULE TO BE REVIEWED AND APPROVED BY OWNER AND OWNER'S SECURITY VENDOR PRIOR TO ORDERING DEVICES.
3. ALL LOCKSETS SUPPLIED FOR INTERIOR AND EXTERIOR DOORS SHALL BE KEYED TO MASTER KEY.

No.	Revisions and Descriptions	By	Date
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Project Title: OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Drawing Title: SCHEDULES & SPECIFICTIONS

Drawn By: Author
Checked By: Checker
Scale: As indicated
Date: 01/14/2022

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of

Project No. 0109.21005

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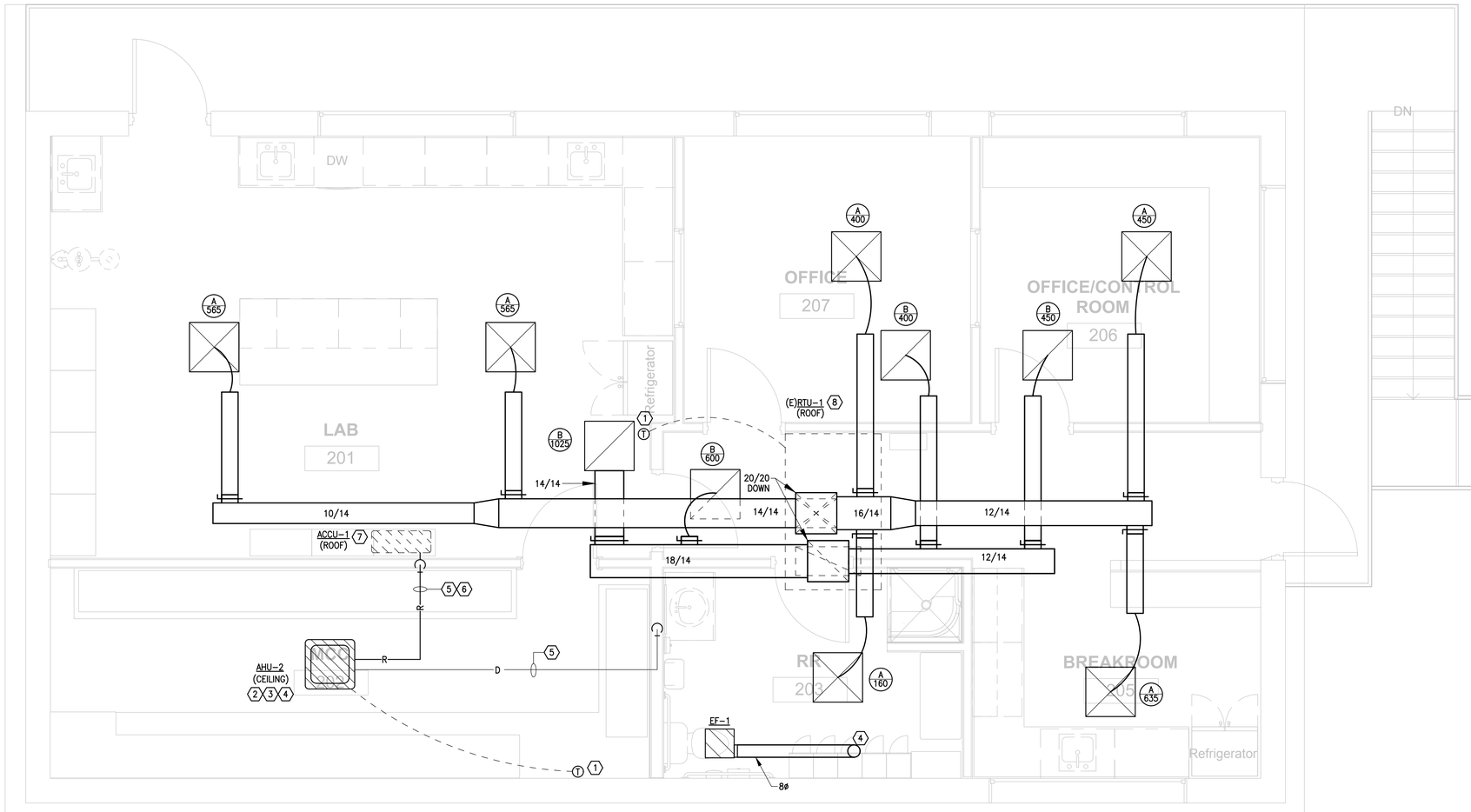
MECHANICAL GENERAL NOTES:

1. CODES, RULES AND REGULATIONS – DESIGN OF SYSTEM
   - A) ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES AND CODES.
   - B) WHEN THE DRAWINGS CALL FOR MATERIALS OR CONSTRUCTION OF A BETTER QUALITY OR LARGER SIZES THAN REQUIRED BY THE ABOVE MENTIONED CODES AND RULES, WORK SHALL BE AS SPECIFIED OR SHOWN RATHER THAN AS REQUIRED BY CODE. ALL ITEMS OR FEATURES OF THE MECHANICAL SYSTEMS REQUIRED BY CODE SHALL BE INCLUDED, EVEN THOUGH NOT SPECIFIED HEREIN.
   - C) INSTALLATION OF THE SYSTEMS SHALL BE IN ACCORDANCE WITH THE ABOVE MENTIONED CODES AND REGULATIONS AND ALSO SHALL CONFORM TO GOOD, ACCEPTED MECHANICAL PRACTICES.
2. PROVIDE AND INSTALL VOLUME DAMPERS IN ALL BRANCH DUCTS.
3. FLEXIBLE CONNECTIONS AT SUPPLY AND RETURN AIR OPENINGS OF ALL AIR CONDITIONING UNITS.
4. FLEXIBLE DUCTS TO BE R-8 GLASS-FLEX 6'-0" MAXIMUM IN LENGTH, WHERE APPLICABLE.
5. COORDINATE EXACT LOCATION OF ALL AIR OUTLETS AND INLETS (DIFFUSERS, REGISTERS AND GRILLES) WITH APPROPRIATE ARCHITECTURAL PLAN, AND VERIFY THEIR LOCATION WITH ARCHITECT ON THE JOB SITE BEFORE INSTALLATION. COLOR AS DIRECTED BY ARCHITECT/OWNER.
6. AUTOMATIC TEMPERATURE CONTROL DEVICE FOR REGULATION OF SPACE TEMPERATURE SHALL BE CAPABLE OF BEING SET FROM 55 TO 85°F, AND HAVE THE ABILITY TO OPERATE THE HEATING AND COOLING IN SEQUENCE. CONTROL SHALL BE ADJUSTABLE TO PROVIDE A RANGE OF UP TO 5°F BETWEEN FULL HEATING AND FULL COOLING.
7. APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE FASTENED IN PLACE.
8. A MAINTENANCE LABEL SHALL BE AFFIXED TO MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNERS USE.
9. PROVIDE ACCESS PANEL FOR ALL CEILING MOUNTED EQUIPMENT & YOUNG REGULATORS OR ACCESS PANEL FOR VOLUME DAMPERS.
10. PROVIDE MIN. 10'-0" SEPARATION BETWEEN POINT OF EXHAUST AND ANY FRESH AIR INTAKE, OR A/C UNIT OUTSIDE AIR INTAKE.
11. PROVIDE FIRE DAMPERS OR SMOKE/FIRE DAMPERS WHERE DUCT PENETRATES FIRE RATED CEILING OR WALL IF APPLICABLE.
12. TRANSVERSE JOINTS FOR ALL AIR SUPPLY DUCTS INSTALLED WHERE AIR LEAKAGE WOULD BE NON-BENEFICIAL TO THE OCCUPIED AREA. TEMPERATURE REQUIREMENTS SHALL BE SEALED WITH APPROVED MASTIC OR TAPE.
13. ALL DUCT SIZES SHOWN ON THE FLOOR PLANS ARE CLEAR INSIDE DIMENSIONS. CONTRACTOR SHALL ENLARGE DUCT SIZE IN ORDER TO ACCOMMODATE LINING INSIDE OF DUCT.
14. THE MECHANICAL CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND FEES.
15. SHOP PRIME ALL MISCELLANEOUS INTERIOR BRACKETS AND HANGERS UNLESS GALVANIZED OR STAINLESS STEEL.
16. ENERGY CONSERVATION STANDARDS FOR NEW NONRESIDENTIAL BUILDINGS HAVE BEEN REVIEWED AND DESIGN SUBSTANTIALLY CONFORMS TO THEM.
17. EACH SINGLE SYSTEM PROVIDING HEATING OR COOLING AIR IN EXCESS OF 2,000 CFM SHALL BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF. THE SMOKE DETECTOR SHALL BE INSTALLED IN THE MAIN RETURN DUCT AHEAD OF OSA INTAKE. SEE CODE FOR EXEMPTIONS AND LOCAL AUTHORITY FOR CODE INTERPRETATION, OR AS INDICATED ON PLAN.
18. ALL EQUIPMENT AND APPLIANCES ARE LISTED PRODUCTS, AND WILL BE INSTALLED ACCORDING TO THEIR LISTING, AND ALL LISTING INFORMATION WILL BE AVAILABLE FOR INSPECTION.
19. REFER TO DETAILS OR GUIDELINES FOR MECHANICAL CONSTRUCTION REQUIRMENTS. INSTALL IN FULL ACCORDANCE WITH PROPER CODES AND GUIDELINES.
20. COORDINATE IN THE FIELD THE EXACT LOCATION OF ALL CEILING MOUNTED GRILLES AND DIFFUSERS WITH LIGHT FIXTURES AND (ARCHITECTUAL) REFLECTED CEILING PLAN.
21. ALL EXTERIOR BRACKETS, CLAMPS, AND HANGERS SHALL BE HOT DIPPED GALVANIZED. COAT ALL CUT ENDS AND WELDS WITH "ZRC" COLD GALVANIZING COMPOUND.

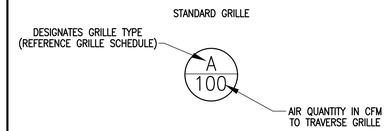
MECHANICAL KEYED NOTES:

1. PROVIDE PROGRAMMABLE THERMOSTAT. COORDINATE FINAL LOCATION AND HEIGHT WITH ARCHITECT.
2. ROUTE CONDENSATE DRAIN TO AHU SINK TAIL PIECE.
3. PROVIDE UNIT WITH MANUFACTURERS SUGGESTED CLEARANCES FOR ACCESS AND MAINTENANCE. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES PRIOR TO INSTALL OR FABRICATION TO ENSURE PROPER CLEARANCES OF SYSTEMS AND CODE REQUIREMENTS ARE MAINTAINED.
4. ROUTE EXHAUST THRU ROOF. PROVIDE ROOF RAIN CAP. CONTRACTOR SHALL COORDINATE ROOF PENETRATIONS WITH ROOFING CONTRACTOR.
5. INSULATE PIPE AS SPECIFIED. REFER TO SPECIFICATIONS.
6. REFRIGERANT LIQUID AND SUCTION LINES SIZED PER MANUFACTURER'S RECOMMENDATIONS. INSULATE PIPE AS SPECIFIED, REFER TO SPECIFICATIONS.
7. CONDENSERS SHALL BE INSTALLED ON THE ROOF. COORDINATE FINAL LOCATION WITH ARCHITECT PRIOR TO CONSTRUCTION. PROVIDE CONDENSER WITH HOUSEKEEPING PAD. PROVIDE CONDENSING UNIT WITH ALL PROPER CLEARANCES FOR MAINTENANCE AND OPERATION. REFER TO MANUFACTURER FOR RECOMMENDATIONS. PROVIDE CONDENSING UNIT WITH VIBRATION ISOLATION PADS.
8. EXISTING ROOFTOP UNIT SHALL REMAIN.



1 **MECHANICAL LAYOUT - REMODEL**
SCALE: 3/8" = 1'-0"

GRILLE SIZING SCHEDULE



MECHANICAL CONTRACTOR NOTES

- CONTRACTOR SHALL REMOVE ALL DUCTWORK AND AIR DEVICES BACK TO EXISTING RTU. EXISTING RTU SHALL REMAIN IN PLACE FOR REUSE.
- CONTRACTOR SHALL REMOVE LAB HOOD AND ASSOCIATED DUCTWORK. CAP AND SEAL ALL PENETRATIONS.
- CONTRACTOR SHALL REMOVE EXISTING RESTROOM EXHAUST FANS.
- CONTRACTOR TO BE AWARE OF OBSTRUCTIONS AND BE PREPARED TO OFFSET DUCT AND PIPING BOTH VERTICAL AND HORIZONTALLY TO ROUTE MECHANICAL SYSTEM.

CONDENSATE DRAIN SIZING SCHEDULE

PIPE DIA.	EQUIPMENT CAPACITY
3/4"ø	UP TO 5 TONS
1"ø	OVER 5 TONS TO 25 TONS
1-1/4"ø	OVER 25 TONS TO 60 TONS
1-1/2"ø	OVER 60 TONS TO 100 TONS
2"ø	OVER 100 TONS TO 200 TONS

SUPPLY DIFFUSER NECK SIZING SCHEDULE

SIZE	AIRFLOW (CFM)
4"ø	0 – 50
6"ø	50 – 100
8"ø	100 – 210
10"ø	210 – 380
12"ø	380 – 500
14"ø	500 – 700
16"ø	700 – 800

RETURN FLEX DUCT SIZING SCHEDULE

SIZE	AIRFLOW (CFM)
4"ø	0 – 50
6"ø	50 – 100
8"ø	100 – 200
10"ø	200 – 300
12"ø	300 – 400
14"ø	400 – 500
16"ø	600 – 700

No. Revisions and Descriptions By Date

Project Title:
OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Drawing Title:
MECHANICAL LAYOUT

Drawn By: MB
Checked By: MP
Scale: As indicated
Date: 12/29/2021

STATE OF TEXAS
COOPER GILL
128999
LICENSED
PROFESSIONAL ENGINEER
12.29.21

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of
Project No.
0109.21005

EXISTING HEAT PUMP ROOFTOP UNIT SCHEDULE

MARK	MFG.	MODEL #	NOMINAL TONNAGE	EVAPORATOR FAN DATA							COOLING DATA					ENERGY RECOVERY DATA						MIN HEATING STAGES	HEATING EAT (°F)	HEATING LAT (°F)	OSA (°F)	ELECTRICAL DATA RTU		
				SUPPLY AIRFLOW	OSA AIRFLOW	EXHAUST AIRFLOW	ESP (IN. WC.)	MAX FAN HP	FAN TYPE	RPM	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EAT (DB/WB) (°F)	LAT (DB/WB) (°F)	OSA (DB/WB) (°F)	SUMMER OSA (DB/WB) (°F)	SUMMER LAT (DB/WB) (°F)	SUMMER TOT/SENS CAPACITY (MBH)	WINTER OSA (DB/WB) (°F)	WINTER LAT (DB) (°F)	WINTER TOTAL CAPACITY (MBH)					V/PH/HZ	MCA (AMPS)	MOP (AMPS)
(E)RTU-1	TRANE	TSC092H4E0A	7.5	2,625	250	-	0.75	EXISTING TO REMAIN																		460/60/3	17.3	20.0

1) CONTACT DERRICK VAN WEST AT 214-846-8668 OR DERRICK.VANWEST@HTS.COM FOR PRICING ASSISTANCE
2) PROVIDE GLOBAL PLASMA SOLUTIONS BIPOLAR IONIZATION WITH 24V POWER, MOUNTED INTERNAL WITHIN RTU

HEAT-PUMP SPLIT SYSTEM UNIT SCHEDULE

INDOOR UNIT MARK	OUTDOOR UNIT MARK	INDOOR MFG.	INDOOR MODEL	OUTDOOR MFG.	OUTDOOR MODEL	EFF. (SEER)	NOMINAL TONNAGE	EVAPORATOR FAN DATA					COOLING DATA					ELECTRICAL DATA					
								SUPPLY AIRFLOW	OSA AIRFLOW	ESP (IN. WC.)	HP	RPM	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EAT (DB/WB) (°F)	LAT (DB/WB) (°F)	OSA (DB/WB) (°F)	INDOOR UNIT			OUTDOOR UNIT		
																		V/PH/HZ	MCA (AMPS)	MOP (AMPS)	V/PH/HZ	MCA (AMPS)	MOP (AMPS)
AHU-2	ACCU-2	DAIKIN	FCQ48TAVJU	DAIKIN	RZR48TAVJUA	17	4.00	1,215	-	-	-	-	48.0	35.0	75.0 / 63.0	56.9 / 56.0	99.0 / 76.0	240/1/60	-	-	240/1/60	29.1	35.0

NOTES:
1) PROVIDE MANUFACTURER'S HAIL GUARDS FOR ALL OUTDOOR UNITS.
2) PROVIDE REFRIGERANT SUCTION AND LIQUID LINE, AND CONDENSATE DRAIN LINE AS REQUIRED BY MANUFACTURER.
** CONTACT DERRICK VAN WEST AT DERRICK.VANWEST@HTS.COM FOR EQUIPMENT ASSISSTANCE.

EXHAUST / SUPPLY FAN SCHEDULE

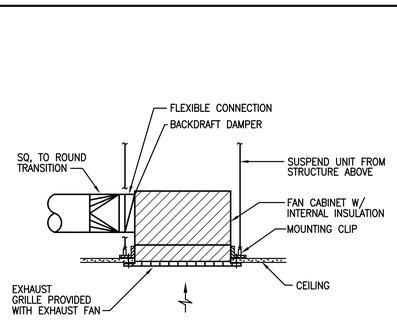
MARK	MFG.	MODEL	TYPE	SERVICE	AIRFLOW (CFM)	ESP (IN WC)	MTR. POWER	V/PH/HZ	NOTES
EF-1	COOK	GEMNI	CEILING	RESTROOM	150	0.50	120 WATTS	120/1/60	1,2,3

NOTES:
1) FAN SHALL BE INTERLOCKED WITH LOCAL SWITCH.
2) PROVIDE SPEED CONTROLLER FOR FAN SPEED ADJUSTMENT.
3) PROVIDE ALL EXHAUST FANS WITH BACKDRAFT DAMPERS.

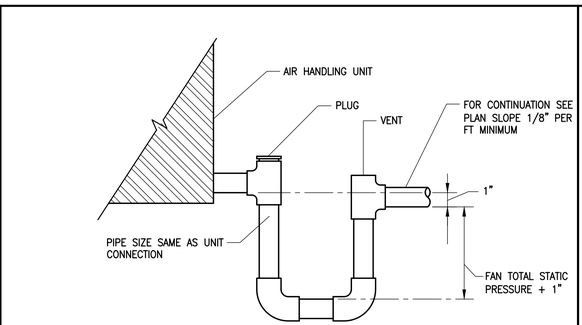
DIFFUSER, REGISTERS & GRILLES SCHEDULE

MARK	MFG.	MODEL	SERVES	MATERIAL	DESCRIPTION	FACTORY FINISH	BLOW PATTERN	SIZE	NOTES
A	TITUS	TMS	SUPPLY	STEEL	SQUARE CONE DIFFUSER	SEE ARCH.	4-WAY	24X24	
B	TITUS	350RL	RETURN	STEEL	CEILING RETURN GRILLE	SEE ARCH.	N/A	24X24	

NOTES:

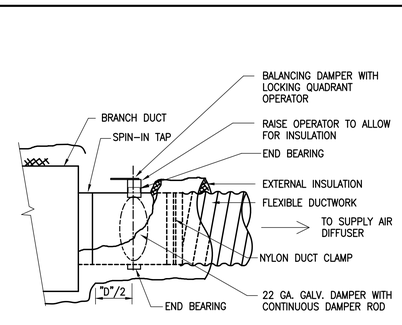


1 CENTRIFUGAL CEILING MOUNTED EXHAUST FAN DETAIL



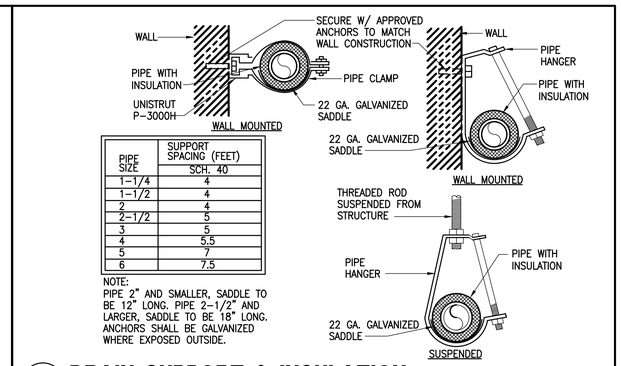
2 CONDENSATE TRAP DETAIL

SCALE: NONE



3 FLEXIBLE DUCT TAP

SCALE: NONE

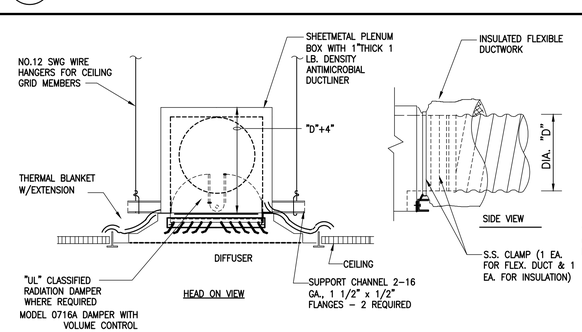


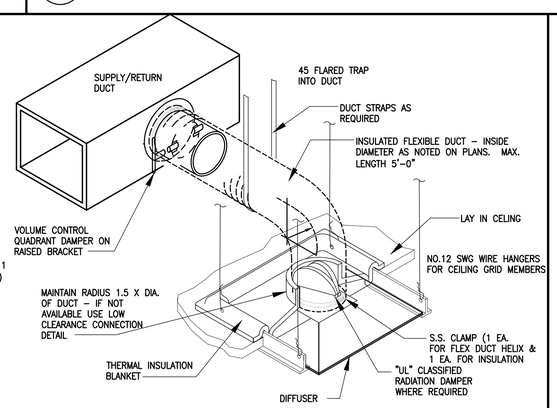
PIPE SIZE	SUPPORT SPACING (FEET) SCH. 40
1-1/4	4
1-1/2	4
2	4
2-1/2	5
3	5
4	5.5
5	7
6	7.5

NOTE:
PIPE 2" AND SMALLER, SADDLE TO BE 12" LONG. PIPE 2-1/2" AND LARGER, SADDLE TO BE 18" LONG. ANCHORS SHALL BE GALVANIZED WHERE EXPOSED OUTSIDE.

4 DRAIN SUPPORT & INSULATION

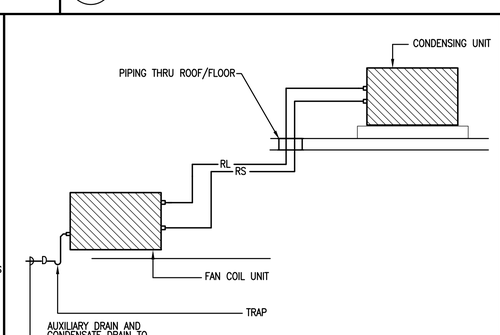
SCALE: NONE





5 DIFFUSER DETAIL

SCALE: NONE



6 REFRIGERANT LINE DETAIL

SCALE: NONE

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Project Title:

Drawing Title: MECHANICAL SCHEDULES AND DETAILS

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MECHANICAL SPECIFICATIONS

1.1 SCOPE
A. THE WORK OF THIS DIVISION CONSISTS OF PROVIDING LABOR, MATERIALS, PRODUCTS, AND IN PERFORMING ALL OPERATIONS REQUIRED FOR THE COMPLETE OPERATING INSTALLATION OF ALL MECHANICAL AND PLUMBING SYSTEMS IN ACCORDANCE WITH THE SPECIFICATIONS AS WELL AS APPLICABLE DRAWINGS, TERMS, CONDITIONS OF THE CONTRACT AND ALL APPLICABLE CODES AND ORDINANCES GOVERNING THE INSTALLATION OF THE VARIOUS MECHANICAL AND PLUMBING SYSTEMS. ALL WORK SHALL BE FULLY CORRELATED WITH THE WORK OF OTHER CRAFTS.
B. EACH CONTRACTOR SHALL STUDY THE CONTRACT DOCUMENTS TO DETERMINE THE EXTENT OF WORK PROVIDED UNDER THIS CONTRACT AS WELL AS ASCERTAIN THE DIFFICULTY TO BE ENCOUNTERED IN PERFORMING THE WORK ON THE DRAWINGS AND OUTLINED HEREINAFTER AND IN MAKING CONNECTIONS TO EXISTING UTILITIES, INSTALLING NEW EQUIPMENT AND SYSTEMS AND COORDINATING THE WORK WITH THE OTHER TRADES.
C. EXAMINATION OF THE SITE: THE CONTRACTOR SHALL THOROUGHLY EXAMINE SITE AND SATISFY HIMSELF AS THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL VERIFY, AT THE SITE, ALL MEASUREMENTS AFFECTING HIS WORK AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THE SAME. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR EXPENSES DUE TO HIS NEGLECT TO EXAMINE OR FAILURE TO DISCOVER CONDITIONS WHICH AFFECT HIS WORK. NO EXTRA COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.

1.2 REGULATORY REQUIREMENTS
A. CODES AND ORDINANCES/PERMIT AND FEES: PERFORM ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINATES, THE CURRENT EDITION OF NFPA, THE INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, AND ALL CURRENT SUPPLEMENTS THERETO, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK. PROCURE AND PAY FOR ALL PERMITS, LICENSES, FEES AND CHARGES, AND GIVE ALL NOTICES NECESSARY.
B. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND REQUIREMENTS OF ANY CODE OR AUTHORITIES HAVING JURISDICTION, THE MOST STRINGENT REQUIREMENTS OF THE AFOREMENTIONED SHALL BE GOVERNED.
C. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, AND LOCAL ORDINANCES AND INDUSTRY STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES, AS APPROVED BY THE ARCHITECT.
D. INTENT: THE DRAWINGS SHOW GENERAL ARRANGEMENTS AND THE EXTENT OF THE WORK. THE DRAWINGS DO NOT SHOW, IN MINUTE DETAIL, ALL FEATURES OF THE INSTALLATION. FOLLOW THE DRAWINGS AS CLOSELY AS ACTUAL CONSTRUCTION WILL PERMIT. ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE. THE JOB SHALL BE BID AND INSTALLED COMPLETE AND CONSISTENT IN EVERY REQUEST.

1.3 COORDINATION OF WORK
A. EACH CONTRACTOR SHALL COMPARE HIS DRAWINGS AND SPECIFICATIONS WITH THOSE OF OTHER TRADES. ALL WORK SHALL BE INSTALLED IN COOPERATION WITH ALL OTHER TRADES INSTALLING INTERRELATED WORK. BEFORE INSTALLATION, ALL TRADES SHALL MAKE PROPER PROVISIONS TO AVOID INTERFERENCES.
B. EACH CONTRACTOR SHALL COORDINATE THE LOCATION OF HIS SYSTEMS TO THAT ALL OUTSIDE AIR INTAKES, PLUMBING VENTS, AND EXHAUST FANS ARE LOCATED IN SUCH A WAY AS TO PREVENT CROSS-CONTAMINATION. SUCH A DISTANCE SHALL BE NOT LESS THAN 10'-0"FT.
C. LOCATIONS OF CONDUIT, DUCTS, PIPING, SPRINKLER HEADS AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE THE WORK WITH INTERFERENCES ANTICIPATED AND ENCOUNTERED. EXACT ROUTING AND LOCATION OF SYSTEMS SHALL BE DETERMINED PRIOR TO FABRICATION OR INSTALLATION.
D. OFFSETS AND CHANGES OF DIRECTION IN ALL CONDUIT, DUCTS AND PIPING SYSTEMS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER HEADROOM AND PITCH OF SLOPING LINES.

1.4 REGULATORY REQUIREMENTS
A. COMPLY WITH ALL CURRENT LOCAL, STATE, AND NATIONAL CODES, INCLUDING THE AMERICANS WITH DISABILITIES ACT (MOST CURRENT EDITION) AND SECURE AND PAY FOR ALL APPLICABLE COSTS, FEES, PERMITS AND LICENSES. NO ADDITIONAL COSTS SHALL BE PAID BY THE OWNER FOR THESE ITEMS.

B. PERFORM ALL WORK WITH HIGHEST REGARD TO SAFETY. EXCAVATE BY HAND AND WITH CAUTION TO LOCATE ALL UTILITIES IN THE BOUNDS OF THE AREA TO BE EXCAVATED PRIOR TO MACHINE EXCAVATING. PROCEED WITH SAFETY AND CAUTION SO THAT NO UTILITY IS DAMAGED OR INTERRUPTED.
C. PRIOR TO BID, VERIFY AND COORDINATE ALL REQUIRED CONNECTIONS AND/OR RELOCATIONS OF UTILITIES WITH UTILITY COMPANIES. PERFORM SUCH WORK IN ACCORDANCE WITH UTILITY COMPANY REGULATIONS. PAY ALL APPLICABLE FEES AND COSTS INCLUDING THOSE FOR ANY EXTENSIONS, RELOCATIONS AND/OR CONNECTIONS.
D. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ABOVE GROUND AND MARKED UTILITIES.

1.5 SUBMITTALS
A. SUBMITTALS SHALL BE COMPLETE FOR SYSTEM(S) INVOLVED. PROVIDE SUBMITTALS FOR ALL HVAC EQUIPMENT.
B. WHERE EQUIPMENT OF THE ACCEPTABLE MANUFACTURERS REQUIRE DIFFERENT ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE EQUIPMENT TO OPERATE PROPERTLY AND IN HARMONY WITH THE ORIGINAL INTENT OF THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES IN ALL AFFECTED RELATED WORK PROVIDED UNDER OTHER SECTIONS INCLUDING LOCATIONS OF ROUGH-IN CONNECTIONS BY OTHER TRADES, CONDUIT SUPPORTS, INSULATION, ETC. ALL CHANGES SHALL BE MADE AT NO INCREASE IN THE CONTRACT AMOUNT OR ADDITIONAL COSTS TO THE OTHER TRADES AND/OR OWNER.

1.6 GUARANTEE
A. ALL EQUIPMENT AND WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE. ANY DEFECTS IN EQUIPMENT OR WORKMANSHIP SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER. THE GUARANTEE PERIOD OF ANY PART OF THE REPAIRED ITEMS SHALL BE EXTENDED FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUCH REPAIR OR REPLACEMENT.

1.7 COMPLETION
A. UPON COMPLETION OF THE MECHANICAL INSTALLATION, DEMONSTRATE TO THE OWNER'S SATISFACTION THAT THE SYSTEMS HAVE BEEN INSTALLED IN A SATISFACTORY MANNER IN ACCORDANCE WITH THE PLANS AND APPLICABLE CODES. SHOW THAT ALL CONTROLS ARE OPERABLE AND ARE PROPERLY ADJUSTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FINAL SYSTEMS BALANCE, THAT ALL SYSTEMS ARE PROPERLY BALANCED, THAT ALL EQUIPMENT OPERATES PROPERLY, THAT FILTERS AND STRAINERS ARE CLEAN, AND THAT ALL COMPONENTS OF ALL SYSTEMS ARE INSTALLED AND ADJUSTED FOR PROPER OPERATION.

PRODUCTS
2.1 GENERAL
A. ALL MATERIALS SHALL BE NEW AND OF THE QUALITY SPECIFIED. MATERIALS SHALL BE FREE FROM DEFECTS. MANUFACTURERS SHALL BE AS SPECIFIED HEREIN, OR BY ADDENDA. ALL PIPING EQUIPMENT, ETC., WHICH NEEDS TO BE INSULATED TO CONSERVE HEAT OR COLD, OR TO PREVENT FREEZING OR CONDENSATION, SHALL BE INSULATED. ALL MATERIALS SHALL HAVE THE UNDERWRITERS LABORATORIES, INC. LABEL.

BASIC MECHANICAL METHODS

1.1 DIMENSION AND FIT
A. CUT MATERIALS ACCURATELY FROM MEASUREMENTS TAKEN ON THE JOB SITE.
B. DO NOT SPRING OR BEND PIPE TO FIT CONDITIONS OR MAKE UP JOINTS

1.2 SERVICEABILITY OF PRODUCTS
A. FURNISH ALL PRODUCTS TO PROVIDE THE PROPER ORIENTATION OF SERVICEABLE COMPONENTS TO ACCESS SPACE PROVIDED.
B. COORDINATE INSTALLATION OF PIPING, DUCTWORK, EQUIPMENT, SYSTEM COMPONENTS, AND OTHER PRODUCTS TO ALLOW PROPER SERVICE OF ALL ITEMS REQUIRING PERIODIC MAINTENANCE OR REPLACEMENT.
C. REPLACE OR RELOCATE ALL PRODUCTS INCORRECTLY ORDERED OR INSTALLED TO PROVIDE PROPER SERVICEABILITY.
D. PROVIDE ACCESS DOORS AND ACCESS PANELS IN CEILINGS, WALLS, FLOORS, ETC. FOR ACCESS TO TRAPS, VALVES, PRIMERS, DAMPERS, AUTOMATIC DEVICES, AND ALL SERVICEABLE OR OPERABLE EQUIPMENT IN CONCEALED SPACES.
E. PROVIDE VIBRATION ISOLATORS ON ALL EQUIPMENT HAVING MOTORS AND SUPPORTED BY THE BUILDINGS STRUCTURE.

1.3 ROUTING
A. ROUTE ALL PIPELINES AND DUCTWORK PARALLEL WITH BUILDINGS LINES AND AS HIGH AS POSSIBLE.
B. ROUTE PIPING AND DUCTS TO CLEAR ALL DOORS, WINDOWS, AND OTHER OPENINGS AND TO AVOID ALL OTHER PIPES AND DUCTS, LIGHT FIXTURES AND SIMILAR PRODUCTS.
C. PROVIDE UNIONS ADJACENT TO ALL EQUIPMENT AND WHERE REQUIRED FOR DISCONNECT AND MAINTENANCE OF EQUIPMENT.
D. SECURELY FASTEN ALL MECHANICAL/PLUMBING WORK TO THE STRUCTURE TO PREVENT HAZARD HUMAN LIFE AND LIMB, AND TO PREVENT DAMAGE TO PRODUCTS OF CONSTRUCTION UNDER ALL CONDITIONS OF OPERATION.
E. DO ALL SLEEVING, CUTTING, AND PATCHING OF ROUGH CONSTRUCTION FOR PIPING. ALL CUTTING, REPAIRING AND REQUIRED STRUCTURAL REINFORCING FOR INSTALLATION OF THIS WORK SHALL BE DONE IN CONFORMANCE WITH ARCHITECT'S DIRECTIONS AND ANY DAMAGE CAUSED BY CUTTING SHALL BE REPAIRED EQUAL TO ORIGINAL CONDITIONS. NO CUTTING WITHOUT ARCHITECT'S APPROVAL.
F. PLACE ANY SLEEVES, CHASES, CONCRETE INSERTS, ANCHOR BOLTS, ETC., BEFORE CONCRETE IS POURED, AND BE RESPONSIBLE FOR CORRECT LOCATION AND INSTALLATION OF THESE ITEMS.

VIBRATION AND SEISMIC CONTROL FOR HVAC PIPING AND EQUIPMENT

1.1 PERFORMANCE REQUIREMENTS
A. SEISMIC-RESTRAINT LOADING:
a. SITE CLASS AS DEFINED IN THE IBC: AS REQUIRED BY LOCAL JURISDICTION.
b. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: AS REQUIRED BY LOCAL JURISDICTION.
c. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND).
d. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD.

1.2 COMPONENTS:
A. VIBRATION ISOLATORS:
a. ISOLATOR PADS: NEOPRENE.
b. MOUNTS: DOUBLE-DEFLECTION TYPE.
c. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
d. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
e. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
f. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
g. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
h. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
i. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.
j. PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
k. RESILIENT PIPE GUIDES.
B. AIR-MOUNTING SYSTEMS:
a. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWS.
b. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWS.
C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.
D. VIBRATION ISOLATION EQUIPMENT BASES:
a. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
b. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE.
E. SEISMIC-RESTRAINT DEVICES:
a. SNUBBERS: WELDED STRUCTURAL-STEEL SHAPES AND REPLACEABLE RESILIENT ISOLATION WASHERS AND BUSHINGS.
b. CHANNEL SUPPORT SYSTEM: MFMA-3 SLOTTED STEEL CHANNELS.
c. RESTRAINT CABLES: STAINLESS-STEEL CABLES.
d. ANCHOR BOLTS: MECHANICAL TYPE, SEISMIC RATED.
e. RESILIENT ISOLATION WASHERS AND BUSHINGS: MOLDED NEOPRENE.

1.3 FIELD QUALITY CONTROL
A. TESTING: BY CONTRACTOR.

AIR DISTRIBUTION

1.1 FILTERS
A. MANUFACTURERS: AAF OR APPROVED EQUIVALENT.
a. PLEATED FILTERS MERV-8, OR AS NOTED ON THE DRAWINGS.

1.2 DUCTWORK

A. MATERIALS:
a. STEEL DUCTS: GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, MINIMUM GAUGE PER SMACNA STANDARDS.
b. INSULATED FLEXIBLE DUCTS: FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, ENCLOSED BY R-8 METALIZED VAPOR BARRIER JACKET.
c. SEALANT: NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, USED ALONE OR WITH TAPE.
B. METAL DUCTWORK:
a. FABRICATE AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE EXCEPT AS INDICATED.
b. CONSTRUCT T'S, BENDS, AND ELBOWS WITH RADIUS OF 1-1/2 TIMES WIDTH OF DUCT ON CENTER LINE. WHERE NOT POSSIBLE PROVIDE TURNING VANES.
c. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 30 DEGREES DIVERGENCE AND 45 DEGREES CONVERGENCE.
d. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS
e. USE CRIMP JOINTS WITH OR WITHOUT BEAD FOR JOINING ROUND DUCT SIZES 8 INCHES AND SMALLER WITH CRIMP IN DIRECTION OF AIR FLOW.
f. DUCT SCHEDULE:
f.a. SUPPLY DUCTS CONNECTED TO CONSTANT-VOLUME AIR-HANDLING UNITS, SINGLE ZONE VARIABLE-VOLUME AIR-HANDELING UNITS, AND SECONDARY DUCTWORK AFTER TERMINAL UNITS:
f.a.a. PRESSURE CLASS: POSITIVE 2-INCH WG.
f.a.b. MINIMUM SMACNA SEAL CLASS: B
f.a.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.a.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
f.b. SUPPLY DUCTS CONNECTED TO VARIABLE-VOLUME AIR-HANDLING UNITS:
f.b.a. PRESSURE CLASS: POSITIVE 4-INCH WG.
f.b.b. MINIMUM SMACNA SEAL CLASS: B
f.b.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 6
f.b.d. SMACNA LEAKAGE CLASS FOR ROUND: 6
f.c. RETURN DUCTS CONNECTED TO VARIABLE AND CONSTANT-VOLUME AIR-HANDLING UNITS:
f.c.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2-INCH WG.
f.c.b. MINIMUM SMACNA SEAL CLASS: B
f.c.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.c.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
f.d. EXHAUST DUCTS
f.d.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2-INCH WG.
f.d.b. MINIMUM SMACNA SEAL CLASS: B IF NEGATIVE, A IF POSITIVE
f.d.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.d.d. SMACNA LEAKAGE CLASS FOR ROUND: 6
f.e. OUTSIDE AIR DUCTS:
f.e.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2-INCH WG.
f.e.b. MINIMUM SMACNA SEAL CLASS: B
f.e.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.e.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
g. SEISMIC-RESTRAINT DEVICES
1. CHANNEL SUPPORT SYSTEM.
2. GALVANIZED STEEL RESTRAINT CABLES.
3. HANGER ROD STIFFENER: STEEL TUBE OR STEEL SLOTTED-SUPPORT-SYSTEM SLEEVE WITH INTERNALLY BOLTED CONNECTIONS OR REINFORCING STEEL ANGLE CLAMPED TO HANGER ROD.

1.3 VOLUME CONTROL DAMPERS
C. PROVIDE ALL BRANCHES AND DUCT TAKE-OFFS, FABRICATE IN ACCORDANCE WITH SMACNCA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE, AND AS INDICATED.
D. FABRICATE SPLITTER DAMPERS OF MATERIAL SAME GAGE AS DUCT TO 24 INCHES SIZE IN EITHER DIRECTION, OR TWO GAGES HEAVIER FOR LARGER SIZES. SECURE WITH CONTINUOUS HINGE OR ROD. OPERATE WITH MINIMUM ¼ INCH DIAMETER ROD.
E. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12X30 INCH.
F. EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS.
G. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS. WHERE WIDTH EXCEEDS 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.

1.4 FLEXIBLE DUCT CONNECTIONS
A. UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90, APPROXIMATELY 3 INCHES (75 MM) WIDE, CRIMPED INTO METAL EDGING STRIP.

1.5 AIR OUTLETS
A. MANUFACTURERS: PRICE, TITUS, TUTTLE AND BAILEY, KRUEGER, OR APPROVED EQUIVALENT.
B. DIFFUSERS/REGISTERS/GRILLES: PROVIDE AIR DEVICE TYPE, OPERATION, COLOR, ETC. AS SCHEDULED.

2.1 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL FLEXIBLE CONNECTIONS SPECIFIED BETWEEN FAN INLET AND DISCHARGE DUCTWORK. FLEXIBLE CONNECTORS SHALL NOT BE IN TENSION WHILE RUNNING.
C. PROVIDE BACK DRAFT DAMPERS ON DISCHARGE OF EXHAUST FANS AND AS INDICATED.
D. PREVENT PASSAGE OF UNFILTERED AIR AROUND FILTERS WITH FELT, RUBBER, OR NEOPRENE GASKETS.
E. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
F. PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT.
G. CHECK LOCATION OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM TO ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENTS.
H. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFF TO DIFFUSERS, AND GRILLES AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, OR GRILLE AND REGISTER ASSEMBLY.

MECHANICAL INSULATION

1.1 SCOPE
A. GENERAL: FURNISH ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETE INSTALLATION OF THERMAL INSULATION ON ALL HOT AND COLD PIPING SURFACE AND DUCTWORK INSTALLED UNDER THIS CONTRACT WHICH REQUIRE INSULATIONS FOR HEAT OR COLD CONSERVATION: FREEZE PROTECTION, PREVENTION OF CONDENSATION OR DRIPPINGS; COMFORT FOR OCCUPANTS; EFFICIENCY OR

BASE OF OPERATION. MECHANICAL INSULATION SHALL BE COMPLETE AND EFFECTIVE THROUGHOUT THE PROJECT.
B. SYSTEMS TO RECEIVE INSTALLATION INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO:
a. HYDRONIC WATER LINES (SUPPLY AND RETURN).
b. CONDENSATE DRAINAGE.
c. HORIZONTAL RAIN LEADERS AND ROOF DRAINS.
d. REFRIGERANT LINES (BOTH HIGH AND LOW PRESSURES).
e. PIPING ACCESSORIES AND SPECIALTIES.
f. DUCTWORK

1.2 PIPE INSULATION
A. ALL ABOVE GRADE INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET OR FACING, ALL ADHESIVE OR CEMENT USED TO ADHERE THE JACKET TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED UNDER PROCEDURE ASTM E-84 AND NFPA 225.
B. APPROVED MANUFACTURERS: CERTAINEED, OWENS/CORNING, JOHNS-MANVILLE, URJOHN, ARMSTRONG, OR APPROVED EQUIVALENT.
C. LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE LOCATIONS.
D. NEATLY FINISH INSULATION AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS.
E. PROVIDE INSULATED DUAL TEMPERATURE PIPES OR COLD PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE WITH VAPOR BARRIER JACKETS. FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE. INSULATE COMPLETE SYSTEM.
F. FOR INSULATED PIPES CONVEYING FLUIDS ABOVE AMBIENT TEMPERATURE, PROVIDE STANDARD JACKETS. BEVEL AND SEAL ENDS OF INSULATION AT EQUIPMENT, FLANGES, AND UNIONS.
G. PROVIDE INSERT BETWEEN SUPPORT SHIELD AND PIPING ON PIPING 2 INCHES (50 MM) DIAMETER OR LARGER. FABRICATE OF CORK OR OTHER HEAVY DENSITY INSULATING MATERAL SUITABLE FOR TEMPERATURE, NOT LESS THAN 6INCHES (150 MM) LONG.
H. SCHEDULE:
a. CONDENSATE DRAINS: 1" FLEXIBLE ELASTOMERIC. PROVIDE ALUMINUM JACKETING ON PIPING EXPOSED TO WEATHER.
b. REFRIGERANT LINES; 1" FLEXIBLE ELASTOMERIC, PROVIDE ALUMINUM JACKETING ON PIPING EXPOSED TO WEATHER.

1.3 DUCTWORK INSULATION
A. MANUFACTURERS: KNAUF, OR APPROVED EQUIVALENT.
B. FIBERGLASS BLANKET INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE II AND ASTM C 1290, TYPE III WITH FACTORY-APPLIED FSK JACKET. FACTORY-APPLIED JACKET REQUIREMENTS ARE SPECIFIED IN "FACTORY-APPLIED JACKETS" ARTICLE.
a. 'K' (KSI) VALUE: 0.29 AT 75 DEGREES F (0.042 AT 24 DEGREES C).
b. DENSITY: 0.75 LB/CU FT (24 KG/CU M).
c. VAPOR BARRIER JACKET: ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCRIM WITH KRAFT-PAPER BACKING; COMPLYING WITH ASTM C 1136, TYPE II.
C. INSULATION PINS AND HANGERS:
a. METAL, ADHESIVELY ATTACHED, PERFORATED-BASE INSULATION HANGERS: BASEPLATE WELDED TO PROJECTING SPINDLE THAT IS CAPABLE OF HOLDING INSULATION, OF THICKNESS INDICATED, SECURELY IN POSITION INDICATED WHEN SELF-LOCKING WASHER IS IN PLACE. COMPLY WITH THE FOLLOWING REQUIREMENTS:
D. GLASS FIBER BLANKET INSULATION SCHEDULE (UNLESS SPECIFIED ON PLANS):
i. EXHAUST DUCTS EXPOSED TO OUTDOOR AIR: 1-1/2"
ii. VENTILATION DUCTS: 2"
iii. SUPPLY DUCTS: 2"
iv. RETURN DUCTS IN UNCONDITIONED SPACES: 1-1/2"

1.4 INSTALLATION
A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. CONTINUE INSULATION VAPOR BARRIER THROUGH PENETRATIONS.
C. MASTICS:
a. MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES; COMPLY WITH MIL-PRF-19565C, TYPE II.
i. FOR INDOOR APPLICATIONS, USE MASTICS THAT HAVE A VOC CONTENT OF 50 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

SYSTEM TESTING, ADJUSTING, AND BALANCING

A. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT AABC OR NEBB CONTRACTOR WHO IS CURRENTLY LICENSED. THE HVAC CONTRACTOR SHALL INSTALL NEW FILTERS IN ALL UNITS PRIOR TO THE AIR BALANCE. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION.
B. BALANCE AIR AND WATER QUANTITIES TO WITHIN +/- 5% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS, PULLEYS, OR THE ADDITION OF DAMPERS REQUIRED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED BY THE HVAC CONTRACTOR WITH NO ADDITIONAL COST.
C. THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION:
A. CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR.
B. INSTRUMENTATION LIST WITH LAST CALIBRATION DATES.
C. MAKE AND MODEL NUMBERS OF ALL HVAC EQUIPMENT.
D. AIR CFM AND STATIC PRESSURE READINGS (DISCHARGE AND SUCTION) AS MEASURED BY PITOT TUBE DUCT TRAVERSE AT THE UNIT.
E. MOTOR NAMEPLATE DATA WITH ACTUAL FIELD VOLTAGE AND AMPERAGE READINGS FOR EACH LEG.
F. MOTOR AND FAN RPMS, SHEAVE SIZES AND BELT SIZES.
G. OUTSIDE, RETURN, MIXED AND SUPPLY AIR TEMPERATURES AT FULL COOLING AND HEATING.
H. WATER BALANCE DATA INCLUDING GPM WITH INLET AND OUTLET TEMPERATURE AND PRESSURE READINGS (WHERE APPLICABLE)
I. MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT.
J. FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETURNS WHERE DUCTED).
K. INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.
E. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.
F. THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR APPROVAL.
G. THE BALANCING CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS AS REQUIRED FOR THE SYSTEM DESIGNED IN THESE DRAWINGS. THE BALANCING CONTRACTOR SHALL RECHECK ANY ITEMS THAT THE TENANT DEEMS NECESSARY AT NO ADDITIONAL COST TO THE TENANT.
H. CONTROLS CONTRACTOR SHALL PROVIDE, AT NO COST, ALL NECESSARY SOFTWARE AND HARDWARE REQUIRED FOR SYSTEM BALANCE AND VERIFICATION OF CONTROLS. CONTROLS CONTRACTOR SHALL BE PRESENT AND ASSIST TEST & BALANCE CONTRACTOR DURING CONTROLS VERIFICATION. PRIOR TO START OF TEST & BALANCE, THE CONTROLS CONTRACTOR SHALL VERIFY ALL CONTROLS ARE OPERATIONAL AND ALL INPUT VALUES HAVE BEEN ENTERED PER DESIGN DOCUMENTATION. CONTROLS CONTRACTOR SHALL PROVIDE CONTROL SYSTEM START-UP SHEETS VERIFYING CONTROLS OPERATION PRIOR TO THE START OF TEST & BALANCE.
I. FINAL BALANCE REPORT SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUALS.

No.	Revisions and Descriptions	By	Date

Project Title:
OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Drawing Title:
MECHANICAL SPECIFICATIONS

Drawn By: MB
Checked By: MP
Scale: As indicated
Date: 12/29/2021

STATE OF TEXAS
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PROFESSIONAL ENGINEER
12.29.21

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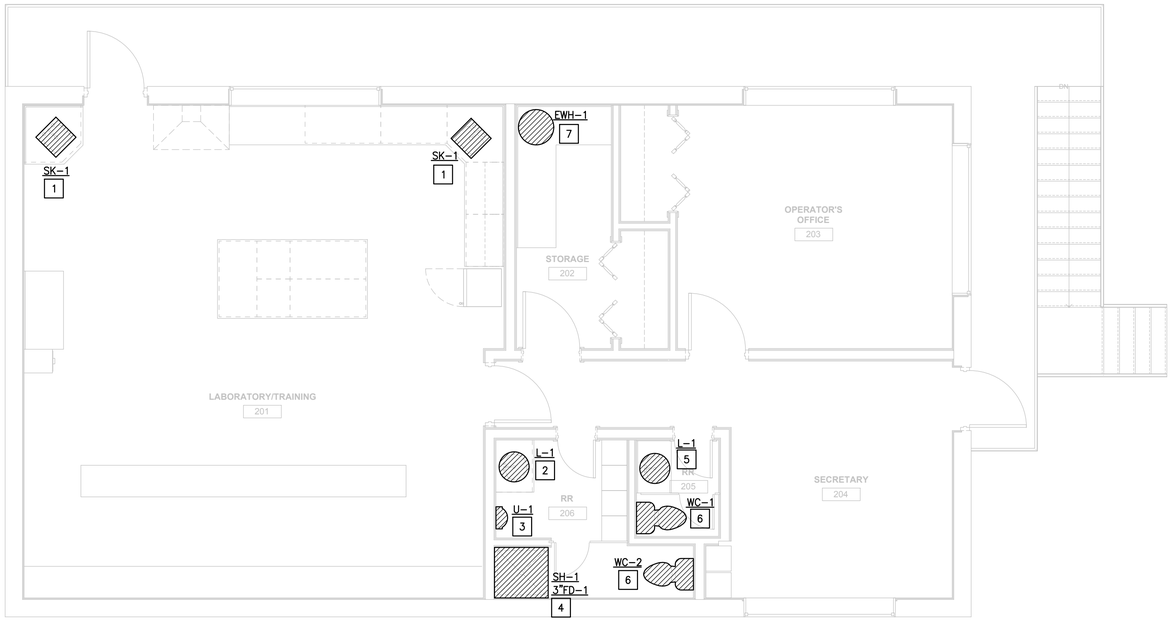

1 **PLUMBING LAYOUT - DEMOLITION**
SCALE: 1/4" = 1'-0"

PLUMBING GENERAL NOTES: DEMOLITION

1. REFER TO GENERAL DEMOLITION NOTES ON ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF WORK REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED FLOOR PLANS.
2. COORDINATE ALL WORK WITH THE WORK OF OTHER TRADES TO AVOID CONFLICTS AND TO MINIMIZE INTERRUPTION OF SERVICES.
3. THE PROPER INSTALLATION OF NEW FIXTURES AND THE PROPER CONTINUED OPERATION OF EXISTING BUILDING FIXTURES TO REMAIN SHALL GOVERN THE EXTENT AND NATURE OF WORK.
4. UNLESS NOTED OTHERWISE, WHERE FIXTURES ARE TO BE REMOVED: REMOVE FIXTURE, CARRIER, FAUCET/FLUSH VALVE, SUPPLIES/STOPS, TUBULAR BRASS, AND ASSOCIATED PIPING AS NOTED.
5. ALL PIPING BEING EXPOSED DURING REMODEL THAT IS NOT IDENTIFIED/LABELED SHALL BE IDENTIFIED WITH PIPE MARKERS FOR BOTH TYPE OF SERVICE AND DIRECTION OF FLOW.
6. ALL PIPING BEING EXPOSED DURING REMODEL SHALL BE PROVIDED WITH INSULATION IF NOT ALREADY EXISTING OR IN POOR CONDITION; INSULATION SHALL BE PER THE SPECIFICATIONS.
7. ALL EXISTING PLASTIC PIPING, NOT BEING DEMOLISHED, WITHIN CEILING AREAS SHALL BE INSULATED WITH 3M OR EQUAL FIRE WRAPPING.
8. ALL PLUMBING FIXTURES AND/OR EQUIPMENT REMOVED SHALL BE SUBMITTED TO THE OWNER, WITH THE OPTION TO BE REUSED AT THE OWNER'S DISCRETION ONLY. ITEMS THE OWNER DOES NOT WISH TO REUSE BUT WISHES TO RETAIN SHALL BE DELIVERED TO STORAGE AS DIRECTED. ITEMS THE OWNER DOES NOT WISH TO REUSE OR RETAIN SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF LEGALLY.
9. PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A COPY OF THE OWNER'S MOST RECENT RULES AND REGULATIONS FOR CONSTRUCTION. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH SUCH RULES AND REGULATIONS, UNLESS THE PREVAILING CODE OR THESE DOCUMENTS INDICATE A HIGHER STANDARD, WHICH SHALL GOVERN.
10. SITE INSPECTION: CONTRACTOR SHALL VISIT THE SITE OF WORK PRIOR TO SUBMISSION OF HIS BID AND THOROUGHLY FAMILIARIZE HIMSELF WITH THE WORKING CONDITIONS AND EXACT NATURE OF WORK. SUBMISSION OF A BID ACKNOWLEDGES FULL RESPONSIBILITY FOR FURNISHING A COMPLETE AND FUNCTIONAL SYSTEM. NO CHANGES IN CONTRACT WILL BE MADE TO ACCOMMODATE OR ALLOW EXTRA FUNDS FOR ANY OMISSION WHICH RESULTS FROM A FAILURE TO MAKE SUCH A THOROUGH EXAMINATION.ALL EXISTING PIPING TO REMAIN OR TO BE ABANDONED IN PLACE MAY NOT BE SHOWN ON FINISHED FLOOR PLAN FOR GRAPHICAL CLARITY.
11. THE CONTRACTOR SHALL MAKE ARRANGEMENTS IN ADVANCE WITH THE OWNER PRIOR TO ANY NECESSARY SHUT DOWN OF THE DOMESTIC WATER OR ANY OTHER SERVICE. SUCH SHUT DOWN SHALL BE AT A TIME AND FOR A DURATION SATISFACTORY TO THE OWNER, WHO SHALL MAKE THE FINAL DETERMINATION AS TO ITS ACCEPTABILITY.

PLUMBING KEYED NOTES: DEMOLITION

1. DEMO EXISTING SINK. MODIFY EXISTING PLUMBING PIPING FOR NEW SINK. CAP ANY UNUSED PIPING AT CONCEALED LOCATION. PATCH WALL AND FLOOR TO MATCH EXISTING.
2. DEMO EXISTING LAVATORY. MODIFY EXISTING PLUMBING PIPING FOR NEW LAVATORY. CAP ANY UNUSED PIPING AT CONCEALED LOCATION. PATCH WALL AND FLOOR TO MATCH EXISTING.
3. DEMO EXISTING URINAL IN IT'S ENTIRETY. CAP ANY UNUSED PIPING AT A CONCEALED LOCATION. CAP AND PLUG SANITARY FLUSH WITH FLOOR. PATCH FLOOR TO MATCH EXISTING.
4. DEMO EXISTING SHOWER. MODIFY EXISTING PLUMBING PIPING FOR NEW WATER CLOSET. CAP ANY UNUSED PIPING AT CONCEALED LOCATION. PATCH WALL AND FLOOR TO MATCH EXISTING.
5. DEMO EXISTING LAVATORY. MODIFY EXISTING PLUMBING PIPING FOR NEW SHOWER. CAP ANY UNUSED PIPING AT CONCEALED LOCATION. PATCH WALL AND FLOOR TO MATCH EXISTING.
6. DEMO EXISTING WATER CLOSET IN IT'S ENTIRETY. CAP ANY UNUSED PIPING AT A CONCEALED LOCATION. CAP AND PLUG SANITARY FLUSH WITH FLOOR. PATCH FLOOR TO MATCH EXISTING.
7. DEMO EXISTING ELECTRIC WATER HEATER ON 1ST FLOOR. MODIFY SPACE FOR NEW ELECTRIC WATER HEATER IN EXACT SAME LOCATION.

NOTE FOR CONTRACTORS:

THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO BID, PURCHASE, AND/OR INSTALLATION AND SHALL INCLUDE ANY ADDITIONAL COST ASSOCIATED WITH PROVIDING A COMPLETE PLUMBING SYSTEM.

THE CONTRACTOR SHALL REPORT ALL DEFICIENCIES AND/OR CODE COMPLIANT ISSUES TO THE ENGINEER DURING THE DEMOLITION PHASE FOR DESIGN REVISIONS PRIOR TO THE START OF CONSTRUCTION.

No.	Revisions and Descriptions	By	Date

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474 COUNTY RD 609
ANGLETON, TX 77515

Project Title:

Drawing Title: PLUMBING LAYOUT - DEMOLITION

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MB	MP	as indicated	12/29/2021

STATE OF TEXAS
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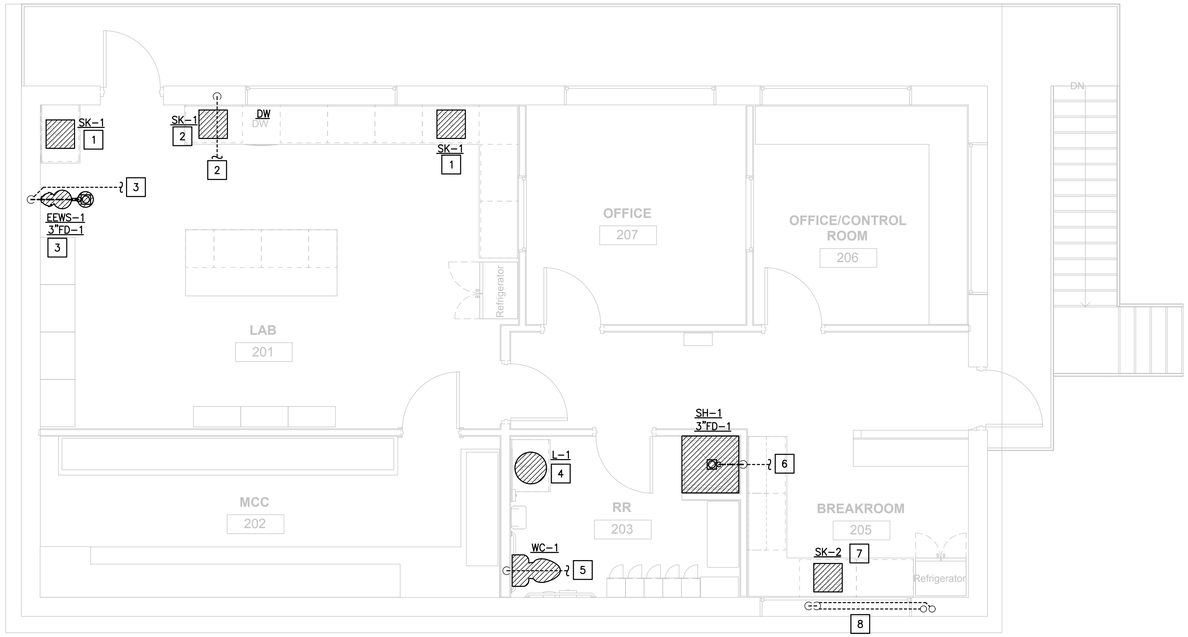
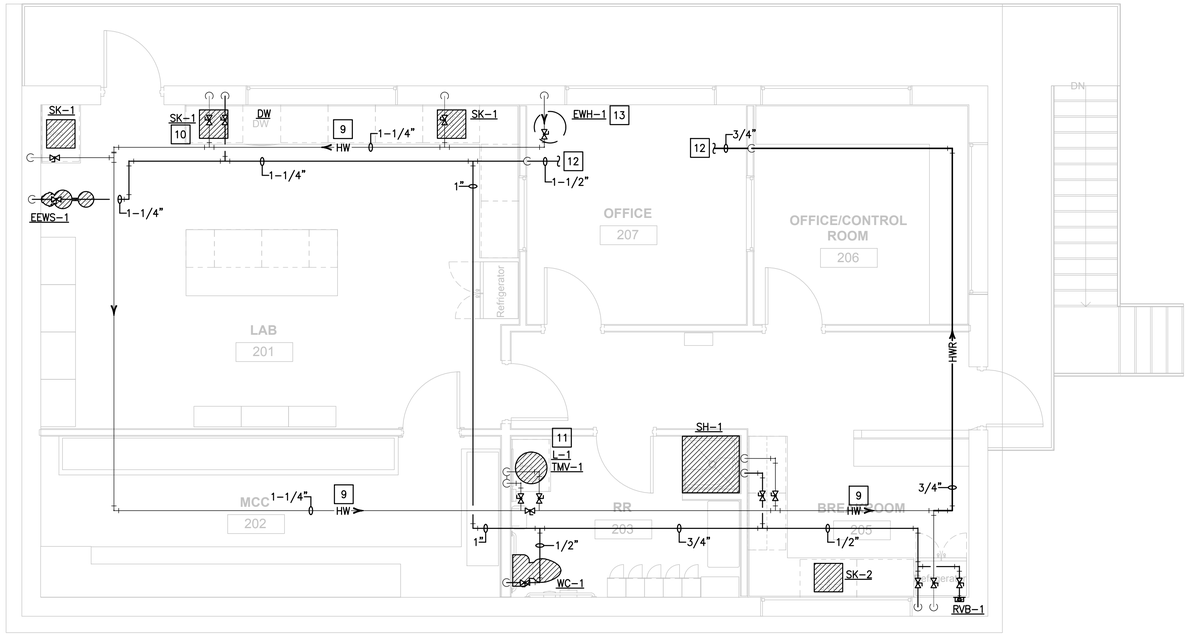


1 PLUMBING LAYOUT - SANITARY WASTE AND VENT

SCALE: 1/4" = 1'-0"



2 PLUMBING LAYOUT - DOMESTIC WATER

SCALE: 1/4" = 1'-0"

PLUMBING GENERAL NOTES: RENOVATION

1. COORDINATE CONNECTION OF BUILDING DOMESTIC WATER AND SANITARY WASTE UTILITIES WITH LOCAL UTILITY PROVIDERS AND PROVIDE CONNECTIONS IN ACCORDANCE WITH THEIR REQUIREMENTS. COORDINATE SIZE, TYPE, AND LOCATION OF DOMESTIC WATER METER ON SITE

2. WITH LOCAL UTILITY PROVIDER. PROVIDE IN ACCORDANCE WITH THEIR REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING FINISHED FLOOR ELEVATION.

3. FIELD VERIFY EXACT LOCATION, SIZE, DEPTH, DIRECTION OF FLOW, CAPACITY,

4. PIPE MATERIAL AND CONDITION OF SITE DOMESTIC WATER AND SANITARY WASTE PIPING PRIOR TO BEGINNING CONSTRUCTION TO ENSURE THAT PROPER CONNECTIONS TO AND EXTENSION OF SUCH UTILITIES CAN BE MADE. COORDINATE FINAL INVERT ELEVATIONS OF BUILDING SANITARY OUTFALLS AND

5. SITE PIPING WITH SITE UTILITY CONTRACTOR PRIOR TO CONSTRUCTION AND MAKE ADJUSTMENTS AS REQUIRED TO ENSURE PROPER CONNECTIONS TO SITE UTILITIES. PRIOR TO BEGINNING CONSTRUCTION, COORDINATE PLUMBING BACKFLOW

6. PREVENTION REQUIREMENTS WITH THE LOCAL CODE AUTHORITY AND PROVIDE AS DIRECTED. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING BELOW SLAB WITH

7. COLUMN FOOTINGS, GRADE BEAMS, UNDERGROUND PLUMBING AND ELECTRICAL UTILITIES, AND OTHER SUB-SURFACE BUILDING ELEMENTS. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH

8. MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTWORK AND CONDUIT. SHOULD A CONFLICT OCCUR THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO INSTALLING AN ALTERNATE PIPING PLAN. MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF

9. AND ALL FRESH AIR INTAKES. COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION

10. REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS, SPECIFICATIONS, AND MANUFACTURER RECOMMENDATIONS PRIOR TO ANY ROUGH-INS. DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL

11. DRAWINGS FOR DIMENSIONED LOCATIONS. CONTRACTOR TO COORDINATE ALL WORK WITH THE WORK OF OTHER TRADES TO

12. AVOID CONFLICTS AND TO MINIMIZE INTERRUPTION OF SERVICES. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN

13. SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE AND INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION. UPON COMPLETION OF WORK, THOROUGHLY ROD OUT AND FLUSH ALL SANITARY

14. PIPING TO ENSURE IT IS FREE FROM BLOCKAGES. CONTRACTOR SHALL PROVIDE SINK TAIL PIECE(S) FOR HVAC CONDENSATE AS 15. REQUIRED BY MECHANICAL CONTRACTOR. COORDINATE REQUIREMENTS WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO CONSTRUCTION.

PLUMBING KEYED NOTES: RENOVATION

1. REPLACE EXISTING SANITARY WASTE AND VENT AS NEEDED TO ACCOMMODATE NEW SK-1 FIXTURE AND DISHWASHER INSTALLATION. EXTEND/MODIFY EXISTING SANITARY/VENT IN CHASE AS NEEDED FOR NEW INSTALLATION. RE-USE EXISTING V.T.R. MODIFY HOT AND COLD WATER AS REQUIRED TO SERVE NEW FIXTURE(S).

2. NEW 2" SANITARY WASTE AND 2" VENT ROUGH-IN FOR NEW SK-1. EXTEND/MODIFY EXISTING SANITARY/VENT BELOW AND IN CHASE AS NEEDED FOR NEW INSTALLATION. CONNECT TO EXISTING BASE UTILITY LINES IN 1ST FLOOR CEILING ASSEMBLY. MODIFY EXISTING V.T.R. AS REQUIRED TO SERVE NEW FIXTURE(S).

3. NEW 3" SANITARY WASTE AND 2" VENT ROUGH-IN FOR NEW 3"FD-1 ADDED TO SERVE THE NEW EEWS-1. EXTEND/MODIFY EXISTING SANITARY/VENT BELOW AND IN CHASE AS NEEDED FOR NEW INSTALLATION. CONNECT TO EXISTING BASE UTILITY LINES IN 1ST FLOOR CEILING ASSEMBLY. MODIFY EXISTING V.T.R. AS REQUIRED TO SERVE NEW FIXTURE(S).

4. REPLACE EXISTING SANITARY WASTE AND VENT AS NEEDED TO ACCOMMODATE NEW L-1 FIXTURE INSTALLATION. EXTEND/MODIFY EXISTING SANITARY/VENT IN CHASE AS NEEDED FOR NEW INSTALLATION. RE-USE EXISTING V.T.R. MODIFY HOT AND COLD WATER AS REQUIRED TO SERVE NEW FIXTURE(S).

5. NEW 4" SANITARY WASTE AND 2" VENT ROUGH-IN FOR NEW WC-1 ADDED TO THE RESTROOM. EXTEND/MODIFY EXISTING SANITARY/VENT BELOW AND IN CHASE AS NEEDED FOR NEW INSTALLATION. CONNECT TO EXISTING BASE UTILITY LINES IN 1ST FLOOR CEILING ASSEMBLY. MODIFY EXISTING V.T.R. AS REQUIRED TO SERVE NEW FIXTURE(S).

6. NEW 3" SANITARY WASTE AND 2" VENT ROUGH-IN FOR NEW 3"FD-1 ADDED TO THE RESTROOM. EXTEND/MODIFY EXISTING SANITARY/VENT BELOW AND IN CHASE AS NEEDED FOR NEW INSTALLATION. CONNECT TO EXISTING BASE UTILITY LINES IN 1ST FLOOR CEILING ASSEMBLY. MODIFY EXISTING V.T.R. AS REQUIRED TO SERVE NEW FIXTURE(S).

7. NEW 2" SANITARY WASTE AND 2" VENT ROUGH-IN FOR NEW SK-2 ADDED TO THE BREAKROOM. EXTEND/MODIFY EXISTING SANITARY/VENT BELOW AND IN CHASE AS NEEDED FOR NEW INSTALLATION. CONNECT TO EXISTING BASE UTILITY LINES IN 1ST FLOOR CEILING ASSEMBLY. MODIFY EXISTING V.T.R. AS REQUIRED TO SERVE NEW FIXTURE(S).

8. PROVIDE LOOP VENTING TO SINK, REFER TO 8/P-201.

9. HOT WATER CIRCULATION LOOP IS ROUTED IN THE 1ST FLOOR CEILING ASSEMBLY. SHOWN FOR CLARITY.

10. NEW 1/2" HOT AND COLD ROUGH-IN FOR NEW SK-1. EXTEND/MODIFY EXISTING WATER LINES BELOW AND IN CHASE AS NEEDED FOR NEW INSTALLATION. CONNECT TO EXISTING BASE UTILITY LINES IN 1ST FLOOR CEILING ASSEMBLY.

11. HOT WATER DROP FOR SERVICE TO LAV(S), RUN RECIRCULATING LINE WITHIN 2 FEET OF HW ROUGH-IN FOR 2015 IECC COMPLIANCE. SIZE AS NOTED. REFER TO 4/P-201.

12. CONNECT TO EXISTING BASE UTILITY LINES, SIZE AS NOTED; MODIFY AS NECESSARY AND FIELD VERIFY FOR EXACT LOCATION.

13. NEW ELECTRIC WATER HEATER LOCATION ON 1ST FLOOR. REFER TO 5/P-201.

NOTE FOR CONTRACTORS:

THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO BID, PURCHASE, AND/OR INSTALLATION AND SHALL INCLUDE ANY ADDITIONAL COST ASSOCIATED WITH PROVIDING A COMPLETE PLUMBING SYSTEM.

THE CONTRACTOR SHALL REPORT ALL DEFICIENCIES AND/OR CODE COMPLIANT ISSUES TO THE ENGINEER DURING THE DEMOLITION PHASE FOR DESIGN REVISIONS PRIOR TO THE START OF CONSTRUCTION.

No. Revisions and Descriptions By Date

OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Project Title:

Drawing Title: **PLUMBING -DOMESTIC & SANITARY**

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STATE OF TEXAS
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12.29.21

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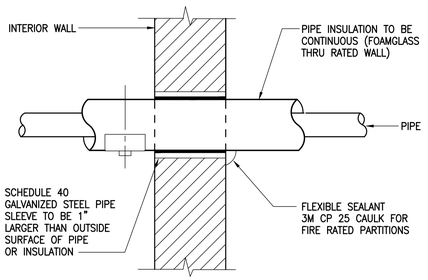
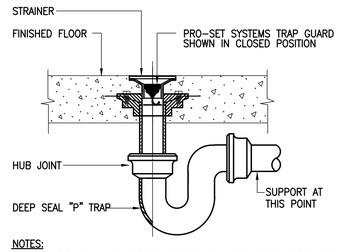
Sheet No. P102 of

Project No. 0109.21005

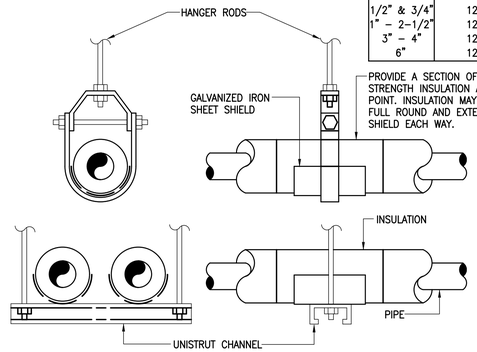


1 INTERIOR WALL PENETRATION
SCALE: NONE



NOTES:
1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.
2. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.
3. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. INSERT TRAP GUARD ONLY AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS TITE SEAL. FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

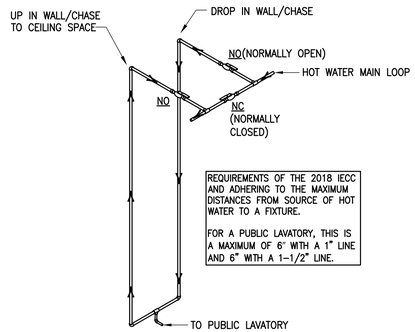
2 FLOOR DRAIN/SINK WITH TRAP SEAL PROTECTION
SCALE: NONE



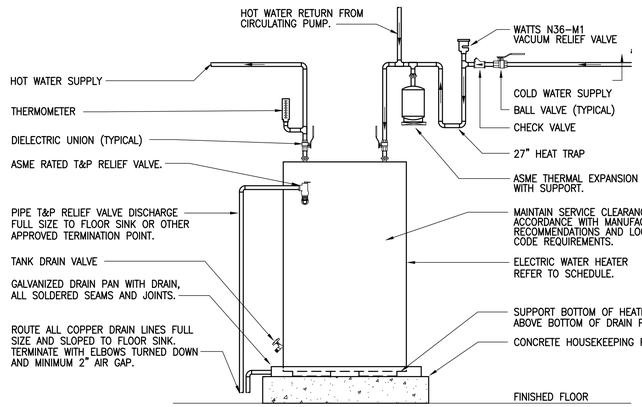
MINIMUM DIMENSIONS OF GALVANIZED SHEETMETAL PROTECTION SHIELDS AT PIPE HANGERS

NOMINAL SIZE PIPE	SHIELD LENGTH MIN. (IN.)	GAUGE THICKNESS
1/2" & 3/4"	12	18
1" – 2-1/2"	12	18
3" – 4"	12	18
6"	12	16

3 HANGER FOR WATER PIPING
SCALE: NONE



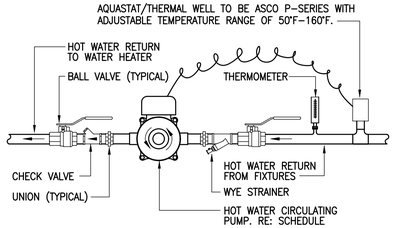
4 HOT WATER LOOP DETAIL
SCALE: NONE



NOTE: PROVIDE 1" FIBERGLASS PIPE INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.28 BTU PER INCH/HR x S.F. x °F ON ALL DOMESTIC WATER PIPING.

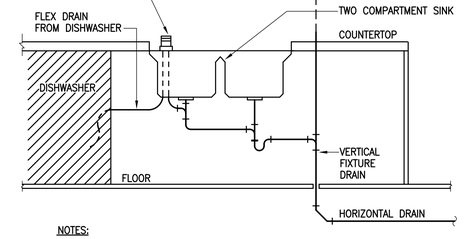
NOTE: INSTALL CIRCULATION PUMP IN ACCESSIBLE LOCATION.

5 ELECTRIC WATER HEATER PIPING
SCALE: NONE



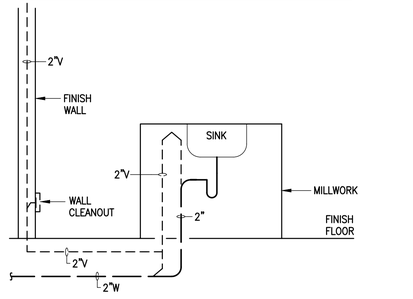
NOTES:
1. MOUNT PUMP IN AN ACCESSIBLE LOCATION.
2. PUMP SHALL RUN ONLY DURING OCCUPIED HOURS. PLUMBING CONTRACTOR SHALL PROVIDE TIME-CLOCK FOR INSTALLATION BY ELECTRICAL CONTRACTOR.
3. PROVIDE AQUASTAT ON HOT WATER RETURN LINE, WIRED TO START CIRCULATING PUMP WHEN LINE WATER TEMPERATURE DROPS 10°F BELOW DESIRED HOT WATER LOOP TEMPERATURE.

6 HOT WATER CIRCULATING PUMP
SCALE: NONE

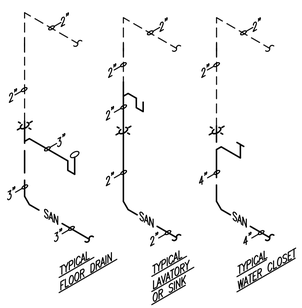


NOTES:
1. MAINTAIN ALL REQUIRED T.A.S. CLEARANCES.
2. PROVIDE 3/4" BRANCH WYE TAILPIECE FOR DISHWASHER WASTE. IS SPECIFIED AT THE SINK. REFER TO PLANS AND PLUMBING FIXTURE SPECIFICATION.
3. SINGLE COMPARTMENT SINK INSTALLATION IS SIMILAR.

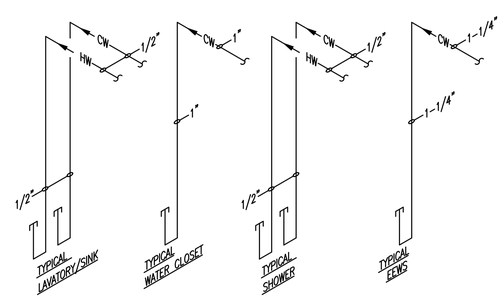
7 DISHWASHER CONNECTION
SCALE: NONE



8 LOOP VENTING DETAIL
SCALE: NONE



9 TYPICAL WASTE AND VENT RISERS
SCALE: NONE



10 TYPICAL DOMESTIC WATER RISERS
SCALE: NONE

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Project Title: OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Drawing Title: PLUMBING DETAILS

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STATE OF TEXAS
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Sheet No. P201 of

Project No. 0109.21005

PLUMBING LEGEND

SYMBOL	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
V	VENT PIPING ABOVE OR BELOW GRADE (V)
CW	COLD WATER PIPING (CW)
FIRE	FIRE PROTECTION WATER PIPING (FIRE)
HW	HOT WATER PIPING (HW)
HWR	HOT WATER RETURN PIPING (HWR)
GAS	NATURAL GAS PIPING (G)
GV	GAS VENT PIPING (GV)
	SHUT-OFF VALVE
	BALL VALVE (BV)
	GAS PLUG VALVE (GPV)
	HORIZONTAL SWING CHECK
	UNION
	Y-STRAINER
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	REDUCED PRESSURE BACKFLOW PREVENTER (RPZ)
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CLEANOUT (WALL OR CEILING) (CO)
	FLOOR CLEANOUT (FCO)
	EXTERIOR CLEANOUT WITH 18"x18"x4" CONCRETE PAD (ECO)
	TWO-WAY CLEANOUT (PROVIDE 18"x24"x4" CONCRETE PAD OUTSIDE)
	PRESSURE REDUCING VALVE (PRV)
	BRANCH CONNECTION OUT OF TOP
	BRANCH CONNECTION OUT OF BOTTOM
	BRANCH CONNECTION OUT OF SIDE
	WYE & 1/8TH BEND BRANCH CONNECTION
	WYE BRANCH CONNECTION
	HOSE BIBB
	PRESSURE GAUGE WITH COCK
	THERMOMETER
	GAS PRESSURE REGULATOR
	TEST COCK
	GAS METER
	WALL HYDRANT
VTR	VENT THROUGH ROOF
1	REFER TO KEYED NOTE
	FLOOR SINK (FS)
	FLOOR DRAIN (FD)
	HUB DRAIN (HD)
	ACCESS PANEL FOR TRAP PRIMER
AP	ACCESS PANEL LOCATION SYMBOL
	CONNECT NEW TO EXISTING
	DELTA CHANGE SYMBOL
	RISER FLAG

NOTE: NOT ALL SYMBOLS MAY APPLY TO THIS PROJECT.

PLUMBING SCOPE & SPECIFICATION

THE WORK OF THIS SECTION SHALL INCLUDE, BUT NOT BE LIMITED TO;

A. DOMESTIC HOT AND COLD WATER DISTRIBUTION SYSTEM TO SERVE ALL FIXTURES, AND EQUIPMENT.
B. SANITARY/GREASE WASTE AND VENT SYSTEM TO SERVE ALL FIXTURES AND EQUIPMENT.
C. NOT USED.

DRAWINGS ARE DIAGRAMMATIC; CONFIRM DIMENSIONS AND LOCATIONS IN THE FIELD, ADVISE OF MAJOR DISCREPANCIES.
GUARANTEE LABOR AND MATERIALS FOR ONE YEAR.
ADHERE TO ALL APPLICABLE LOCAL CODES AND REGULATIONS.
CONTRACTOR SHALL OBTAIN REQUIRED PERMITS AND PAY ALL FEES.

VALVES

VALVES SHALL BE MANUFACTURED BY NIBCO, HAMMOND, POWELL, STOCKHAM, WATTS OR EQUIVALENT APPROVED BY THE ENGINEER.
BALL VALVES SHALL HAVE CAST BRONZE BODY, BLOWOUT PROOF STEMS, FULL SIZE PORT, 316 STAINLESS STEEL TRIM, TEFLON SEAT AND SEAL AND THRUST WASHERS. VALVES 2" AND SMALLER SHALL BE NIBCO T-585-70-66 OR APPROVED EQUIVALENT.

UNIONS

UNIONS IN COPPER OR BRASS LINES SHALL BE BRASS, THREADED PATTERN UNIONS.

EXCAVATION

EXCAVATE TRENCHES FOR UNDERGROUND PIPING TO THE REQUIRED DEPTH.
CUT THE BOTTOM OF THE TRENCH OR EXCAVATION TO UNIFORM GRADE.
EXCAVATE 6" BELOW GRADE, FILL WITH BEDDING MATERIAL (SAND) AND TAMP WELL.
LAY OUT ALIGNMENT OF PIPE TRENCHES TO AVOID OBSTRUCTIONS. PROVIDE ASSURANCE THAT PROPOSED ROUTE OF PIPE WILL NOT INTERFERE WITH BUILDING FOUNDATION BEFORE ANY CUTTING IS BEGUN. SHOULD INTERFERENCE BE FOUND, CONTACT THE ARCHITECT/ENGINEER BEFORE PROCEEDING.

BACKFILL

BACKFILL SHALL NOT BE PLACED UNTIL THE WORK HAS BEEN INSPECTED, TESTED AND APPROVED. USE SUITABLE FRIABLE SOILS AS BACKFILL MATERIAL. DO NOT USE PEAT, SILT, MUCK, DEBRIS OR OTHER ORGANIC MATERIALS. DEPOSIT BACKFILL IN UNIFORM LAYERS. PLACE BACKFILL MATERIAL IN UNIFORM LAYERS, 8" MAXIMUM LOOSE MEASURE. COMPACT TO NOT LESS THAN 95% OF MAXIMUM SOIL DENSITY AS DETERMINED BY ASTM D698 STANDARD PROCTOR.

PLUMBING PIPING HANGER SPACING

MAXIMUM SPACING SHALL BE 10 FOOT.

CLEANING, TESTING AND ADJUSTING

THIS CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, INSTRUCTIONS, AND SUPERVISION REQUIRED FOR THE PERFORMANCE OF ALL TESTS, CLEANING, AND MAKING NECESSARY ADJUSTMENTS TO OPERATION OF ALL FIXTURES AND EQUIPMENT.

PIPING INSULATION

ALL COLD & HOT WATER PIPING, FITTINGS AND VALVES SHALL BE INSULATED WITH NOMINAL 1" WALL THICKNESS FIBERGLASS PIPE INSULATION, OR AN APPROVED EQUAL HAVING FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DENSITY OF 50 OR LESS WHEN TESTED BY ASTM E-84 METHOD.

PIPE INSULATION SHALL BE INSTALLED ACCORDING TO THE PROCEDURES OUTLINED BY THE MANUFACTURE.

FITTING COVER INSULATION SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDED PROCEDURES. SWEAT FITTINGS SHALL BE INSULATED WITH MITER CUT PIECES OF FIBERGLASS PIPE INSULATION THE SAME SIZE AS ON ADJACENT PIPING. THREADED FITTINGS SHALL BE INSULATED WITH SLEEVED FITTING COVERS FABRICATED FROM MITER CUT PIECES OF FIBERGLASS PIPE INSULATION ACCORDING TO THE MANUFACTURER'S SLEEVING SIZE RECOMMENDATIONS AND SHALL BE OVERLAPPED 2" AND SEALED TO THE ADJACENT PIPE INSULATION. ALL VALVES SHALL BE INSULATED WITH CUT PIECES OF FIBERGLASS PIPE INSULATIONS. ALL JOINTS AND MITER CUT PIECES ARE TO BE SEALED PER MANUFACTURER'S RECOMMENDATIONS.

SUPPORTING HANGERS SHALL BE DESIGNED TO RESIST COMPRESSION; SUPPORTING DEVICES SUCH AS SHORT WOOD DOWELS OR WOOD BLOCKS SHALL BE USED IN COMBINATION WITH GALVANIZED SHEET METAL HANGER SHIELDS. THE WOOD SUPPORTING DEVICES SHALL BE THE SAME THICKNESS AS THE INSULATION AND SEALED TO THE INSULATION WITH FACTORY APPROVED CONTACT ADHESIVE.

INSTALL THERMAL INSULATION ON CLEAN, DRY SURFACES AFTER ALL TESTING AND INSPECTION IS COMPLETED. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THESE SPECIFICATIONS AND WITH MANUFACTURER'S INSTRUCTIONS.

PIPE MATERIAL LIST

DOMESTIC WATER PIPING

ABOVE SLAB INSIDE THE BUILDING SHALL BE SEAMLESS ASTM B 88 TYPE L COPPER WATER TUBE WITH WROUGHT COPPER FITTINGS, ANSI B16.22. SOLDER MATERIAL SHALL BE 99.8% LEAD LEAD FREE AND COMPLIANT WITH THE "SAFE WATER DRINKING ACT". THE USE OF DRILLED-T CONNECTIONS IS NOT PERMITTED. PEX TUBING CONFORMING TO ALL STANDARD APPLICABLE CODE REQUIREMENTS FOR COMMERCIAL APPLICATIONS IS APPROVED AS ALTERNATE TO COPPER.

BELOW SLAB SHALL BE ASTM B 88 TYPE K COPPER WATER TUBE WITH WROUGHT COPPER FITTINGS, ANSI B16.22. ALL JOINTS SHALL BE BRAZED.

CONDENSATE AND INDIRECT DRAIN PIPING SHALL BE

TYPE M COPPER TUBING UP TO 1" ID, TYPE DWV TUBING AND COPPER FITTINGS FOR 1-1/4" AND LARGER SIZES, AND 95-5 SOLDER JOINTS. SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM D-1784-82 WITH SOLVENT WELDED JOINTS AND PEX TUBING CONFORMING TO ALL STANDARD APPLICABLE CODE REQUIREMENTS FOR COMMERCIAL APPLICATIONS IS APPROVED AS ALTERNATE IN NON-PLENUM AN/OR FIRE RATED AREAS.

SANITARY SOIL WASTE AND VENT PIPING SHALL BE

ABOVE SLAB INSIDE BUILDING SHALL BE SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM D-1784-82 WITH SOLVENT WELDED JOINTS.
IN AIR SUPPLY OR RETURN PLENUMS, AND/OR WHERE FIRE RATED WALLS, PARTITIONS, OR FLOORS ARE PENETRATED, CONTRACTOR SHALL PROVIDE NO-HUB CAST IRON SYSTEM CONFORMING TO CISPI STANDARD NO. 301-75. NEOPRENE GASKETS SHALL CONFORM TO ASTM STANDARD C564-75.

BELOW SLAB SHALL BE SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM D-1784-82 WITH SOLVENT WELDED JOINTS.

ELECTRIC WATER HEATER

ITEM NO.	TOTAL KW INPUT	GALS. PER HR. RECOVERY RATE 80°F RISE	STORAGE CAPACITY (GALLONS)	ELECTRICAL REQUIRED	STORED WATER TEMP	MANUFACTURER/ MODEL
EWH-1	4	20.0	50.0	208V, 1ø	140°	AO SMITH DURA-POWER DEN-52

NOTES:
1. PROVIDE HOT WATER EXPANSION TANK DOWNSTREAM OF CHECK VALVE ON COLD WATER SUPPLY. THERM-X-TROL ST-5.
2. PROVIDE WATER HEATER DRAIN PAN.
3. CONTRACTOR SHALL FOLLOW ALL APPLICABLE CODE REQUIREMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

HOT WATER CIRCULATION PUMP

ITEM NO.	PUMP TYPE	FLOW RATE (GPM)	HEAD (FT)	ELECTRICAL REQUIRED	MOTOR (HP)	MANUFACTURER / MODEL
CP-1	IN-LINE	1.0	25.0	120V, 1ø	1/8	TACO / 009-SF5-IFC

NOTES:
1. PUMP SHALL BE LEAD-FREE AND COMPLIANT WITH THE "SAFE DRINKING WATER ACT".
2. MOUNT PUMP IN AN ACCESSIBLE LOCATION.
3. PUMP SHALL RUN ONLY DURING OCCUPIED HOURS. PLUMBING CONTRACTOR SHALL PROVIDE TIME-CLOCK FOR INSTALLATION BY ELECTRICAL CONTRACTOR.
4. PROVIDE AQUASTAT ON HOT WATER RETURN LINE, WIRED TO START CIRCULATING PUMP WHEN LINE WATER TEMPERATURE DROPS 10°F BELOW DESIRED HOT WATER LOOP TEMPERATURE.

THERMOSTATIC MIXING VALVES

ITEM NO.	INLET HOT WATER TEMP (°F)	OUTLET MIXED WATER TEMP (°F)	MINIMUM FLOW (GPM)	DESIGN FLOW (GPM)	PRESSURE DROP @ DESIGN FLOW (PSI)	VALVE FINISH	MANUFACTURER / MODEL NO.
TMV-1	140°	110°	0.5	0.5-2.5	5.0	ROUGH BRONZE	WATTS USG-B-M1

NOTES:
1. MAKE WATER CONNECTIONS TO THERMOSTATIC MIXING VALVE(S) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE PIPE INCREASERS AND/OR VALVES AS REQUIRED.

SHOCK ARRESTORS

P.D.I. SYMBOL	FIXTURE UNITS	CHAMBER LENGTH	SWEAT CONNECTION
A	1-11	9-5/8"	1/2"
B	12-32	11-3/4"	3/4"
C	33-60	14-11/18"	1"
D	61-113	12-3/8"	1"
E	114-154	15-3/8"	1"
F	155-330	17-3/8"	1"

PLUMBING FIXTURE SCHEDULE

PLAN MARK	WASTE /TRAP	VENT	CW	HW	DESCRIPTION
WC-1 ♿	4"	2"	1/2"	--	WATER CLOSET: AMERICAN STANDARD: CADET 3 RIGHT HEIGHT 3378.128ST.020 (T.A.S. COMPLIANT). FLOOR MOUNTED, WHITE VITREOUS CHINA, ELONGATED BOWL, 16-1/2" HIGH, FULLY GLAZED 2-1/8" TRAPWAY, 1.28-GPF, 12" ROUGH-IN. TOILET SEAT: AMERICAN STANDARD OPEN FRONT, LESS COVER, HIGH IMPACT SOLID PLASTIC, SELF SUSTAINING CHECK HINGES.
L-1	2"	2"	1/2"	1/2"	UNDERCOUNTER LAVATORY: AMERICAN STANDARD: OVALYN 9482.000.020 (T.A.S. COMPLIANT). WHITE VITREOUS CHINA, 16-3/4" OVAL, REAR OVERFLOW. ELECTRIC SENSOR FAUCET: DELTA 590LF-LGHGMHDF 0.5 GPM AERATOR. ROUGH-INS, FAUCET INSTALLATION, AND FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PLUMBING CONTRACTOR TO PROVIDE STRAINER, ESCUTCHEONS AT WALL, SUPPLIES AND STOPS, ETC. AS REQUIRED IN ORDER TO PROPERLY INSTALL FIXTURE.
SK-1	2"	2"	1/2"	1/2"	UNDERCOUNTER MTD SINK: FISHER SCIENTIFIC FISHERBRAND 16WX18LX10.5D STAINLESS STEEL ELECTRIC SENSOR FAUCET: ZURN Z6920-XL ROUGH-INS, FAUCET INSTALLATION, AND FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PLUMBING CONTRACTOR TO PROVIDE STRAINER, ESCUTCHEONS AT WALL, SUPPLIES AND STOPS, ETC. AS REQUIRED IN ORDER TO PROPERLY INSTALL FIXTURE.
SK-2	2"	2"	1/2"	1/2"	UNDERCOUNTER MTD SINGLE COMPARTMENT SINK: KRAUS STANDART PRO 23" FAUCET: DELTA THEODORA SINGLE HANDLE PULL DOWN KITCHEN FAUCET. ROUGH-INS, FAUCET INSTALLATION, AND FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PLUMBING CONTRACTOR TO PROVIDE STRAINER, ESCUTCHEONS AT WALL, SUPPLIES AND STOPS, ETC. AS REQUIRED IN ORDER TO PROPERLY INSTALL FIXTURE.
SK-3	2"	2"	1/2"	1/2"	UNDERCOUNTER MTD HAND SINK: FISHER SCIENTIFIC FISHERBRAND 16WX18LX10.5D STAINLESS STEEL FAUCET: DELTA THEODORA SINGLE HANDLE PULL DOWN KITCHEN FAUCET. ROUGH-INS, FAUCET INSTALLATION, AND FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PLUMBING CONTRACTOR TO PROVIDE STRAINER, ESCUTCHEONS AT WALL, SUPPLIES AND STOPS, ETC. AS REQUIRED IN ORDER TO PROPERLY INSTALL FIXTURE.
SH-1	2"	2"	1/2"	1/2"	SHOWER ENCLOSURE: SELECTED BY ARCHITECT/OWNER. CONTROLS: DELTA 14291O-SS ROUGH-INS, INSTALLATION, AND FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PLUMBING CONTRACTOR TO PROVIDE ALL NECESSARY SUPPLIES REQUIRED TO PROPERLY INSTALL FIXTURE. COORDINATE INSTALLATION AND ORIENTATION WITH ARCHITECTURAL DRAWINGS.
EEWS-1	2"	2"	1-1/4"	--	EMERGENCY EYE WASH/SHOWER: GUARDIAN GBF1994 STAINLESS STEEL BARRIER FREE COMBINATION EYE/FACE WASH AND SHOWER SAFETY STATION.
FD-1	3"	2"	--	--	FLOOR DRAIN: MI-FAB F1000 BOTTOM OUTLET CAST IRON BODY, ADJUSTABLE 6" DIAMETER NICKEL BRONZE STRAINER WITH VANDAL PROOF SCREWS. PROVIDE PRO-SET SYSTEMS, INC. TRAP GUARD FACTORY FITTED TO MATCH EACH FLOOR DRAIN BY SIZE, MODEL, AND MANUFACTURER.
RVB-1	--	--	1/2"	--	REFRIGERATOR VALVE BOX: GUY GRAY BIM-875. REFRIGERATOR VALVE BOX, 10-3/4" X 9", 16 GAUGE STEEL W/EPOXY FINISH, 5/8" O.D. SWEAT CONNECTION.
AF-1	--	--	--	1/2"	DOMESTIC HOT WATER CIRCULATION AUTOMATIC FLOW CONTROL DEVICE: GRISWOLD CONTROLS: 3K02L. LEAD-FREE AUTOMATIC FLOW CONTROL DEVICE COMPLIANT WITH THE "SAFE DRINKING WATER ACT". FLOWRATE = 1.0 GPM.
WCO	REFER TO PLANS	--	--	--	WALL CLEANOUT: MIFAB C1440-RD6. CAST IRON CLEANOUT FERRULE WITH BRONZE RAISED HEAD PLUG AND ROUND STAINLESS STEEL COVER PLATE WITH CENTER SECURING SCREW.
FCO	REFER TO PLANS	--	--	--	FLOOR CLEANOUT: MIFAB C1100-R-1. FOR CARPETED FLOORS PROVIDE MIFAB C1100-RC. CAST IRON BODY WITH SECONDARY O-RING TEST SEAL AND ADJUSTABLE COMBINED ACCESS COVER/ PLUG TOP ASSEMBLY WITH PRIMARY GASKET SEAL, AND ROUND SCORIATED NICKEL BRONZE COVER.
ECO	REFER TO PLANS	--	--	--	EXTERIOR CLEANOUT: MIFAB C1100-XR-4. EXTERIOR CLEANOUT TO GRADE, CAST IRON BODY WITH SECONDARY SECONDARY O-RING TEST SEAL AND ADJUSTABLE COMBINED ACCESS COVER/PLUG TOP ASSEMBLY WITH PRIMARY GASKET SEAL, AND ROUND SCORIATED VANDAL RESISTANT DUCTILE IRON TRACTOR TYPE COVER. IF LOCATED IN ASPHALT OR DIRT PROVIDE 18" X 18" X 4" CONCRETE PAD FOR SINGLE CLEANOUT AND 24" X 18" X 4" CONCRETE PAD FOR DOUBLE CLEANOUT.

NOTE:
1. CONTRACTOR SHALL VERIFY ALL PLUMBING FIXTURES SELECTIONS WITH OWNER/ARCHITECT PRIOR TO PURCHASE AND INSTALLATION.

No.	Revisions and Descriptions	By	Date

Project Title:
OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TX 77515

Drawing Title:
PLUMBINGSPECS & SCHEDULES

Drawn By: MB
Checked By: MP
Scale: As indicated
Date: 12/29/2021

STATE OF TEXAS
COOPER GILL
128999
LICENSED
PROFESSIONAL ENGINEER
12.29.21

MRB group
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Sheet No.
P301
of

Project No.
0109.21005

POWER SYMBOLS LIST

XX" OR AC	DUPLEX RECEPTACLE 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
XX", AC, OR UC GFI	DUPLEX RECEPTACLE GFCI 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER UC - UNDER COUNTER
XX" GFI WP	DUPLEX RECEPTACLE GFCI WEATHERPROOF 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
XX",OR AC USB	DUPLEX USB CHARGING RECEPTACLE 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
XX" OR AC	DOUBLE DUPLEX RECEPTACLE 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
XX" OR AC GFI	DOUBLE DUPLEX GFCI RECEPTACLE 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
XX"OR AC	SIMPLEX RECEPTACLE 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
XX"OR AC	SPLIT WIRED DUPLEX RECEPTACLE 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
XX"OR AC	SPLIT WIRED DUPLEX RECEPTACLE W/ EACH RECEPTACLE SWITCHED 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER
30	SINGLE RECEPTACLE , 30 AMP REFER TO PLAN NOTES FOR MOUNTING LOCATION INFORMATION
40	SINGLE RECEPTACLE , 40 AMP REFER TO PLAN NOTES FOR MOUNTING LOCATION INFORMATION
	SPECIAL PURPOSE OUTLET REFER TO PLAN NOTES FOR MOUNTING LOCATION INFORMATION
XX#	BRANCH PANELBOARD, SURFACE MOUNTED. REFER TO PANLE SCHEDULE FOR MORE INFORMATION DASHED LINE INDICATES REQUIRED WORKING CLEARANCE
TX-PP#	TRANSFORMER DASHED LINE INDICATES REQUIRED WORKING CLEARANCE
	PUSH BUTTON PROVIDED BY GC.REFER TO PLAN NOTES FOR MOUNTING LOCATION INFORMATION.
DS/1	FUSED DISCONNECT, 240V RATED, 200A/3P FRAME, (3) 150A FUSES, FACTORY INSTALLED GROUNDING KIT, NEMA 1, UL LISTED. PROVIDE WITH AT LEAST (1) SET EACH OF N.O. AND N.C. CONTACTS TO INTERFACE WITH ANCILLARY SYSTEMS. PROVIDE WITH RK1 FUSES.
DS/2	FUSED DISCONNECT, 240V RATED, 30A/3P FRAME, 20A FUSES, FACTORY INSTALLED GROUNDING KIT, NEMA 1, UL LISTED.

LIGHTING CONTROL SYMBOLS LIST

$	SINGLE POLE SWITCH
$3	THREE WAY SWITCH
$4	FOUR WAY SWITCH
$K	KEY OPERATED SWITCH
$LV	LOW VOLTAGE SWITCH
$D	LOW VOLTAGE DIMMING SWITCH
OS	OCCUPANCY SENSOR, WALL MOUNTED SWITCH
MX/1 $	MANUAL MOTOR STARTER SWITCH WITH MELTING ALLOY TYPE THERMAL OVERLOAD RELAY, TOGGLE OPERATED, SINGLE POLE, SINGLE THROW, RATED 1 HP MAXIMUM AT 120V, NEMA 1 ENCLOSURE, UL LISTED
MX/2 $	MANUAL MOTOR STARTER SWITCH WITH MELTING ALLOY TYPE THERMAL OVERLOAD RELAY, TOGGLE OPERATED, SINGLE POLE, SINGLE THROW, RATED 1 HP MAXIMUM AT 120V, NEMA 1 ENCLOSURE, UL LISTED
OS	OCCUPANCY SENSOR IF ARROW IS SHOWN, OCCUPANCY SENSOR SHALL BE WALL MOUNTED IN CORNER AT THE SAME ELEVATION AS LIGHT FIXTURES
PC	PHOTO SENSOR
DL	DAYLIGHT SENSOR, CEILING MOUNTED
LCP	PROGRAMMABLE LIGHTING CONTROL PANEL

SYSTEMS SYMBOLS LIST

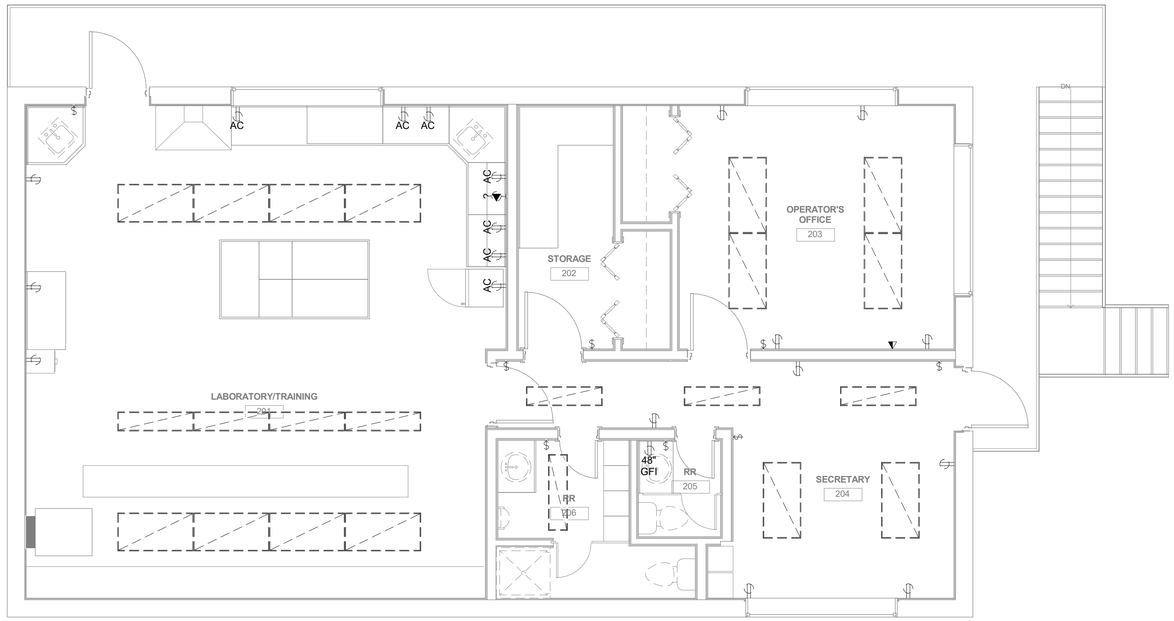
T	THERMOSTAT
XX"	TELECOMMUNICATION OULTET ROUGH-IN, FLUSH MOUNT ON WALL OR AS NOTED IN PLANS. 18" - STANDARD MOUNTING HEIGHT XX" - INDICATED MOUNTING HEIGHT AC - ABOVE COUNTER TV - INDICATES WALL MOUNTED DATA FOR TV. COORDINATE HEIGHT WITH OWNER CLG.TV - INDICATES CEILING MOUNTED DATA FOR TV
TV	TELECOMMUNICATION OULTET ROUGH-IN FOR CABLE TV, FLUSH MOUNT ON WALL OR AS NOTED IN PLANS. COORDINATE HEIGHT WITH OWNER PRIOR TO ROUGH-IN CLG.TV - INDICATES CEILING MOUNTED DATA FOR TV
	EXIT SIGN

BRANCH PANEL NAME	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN OCP	AIC RATING
P1	120/240 Single	1	3	100 AMPS	90 A	EXISTING
	CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS, K=KITCHEN, E=EQUIPMENT					MOUNTING: SURFACE
ROOM:						ENCLOSURE: NEMA 1
FED FROM:						FEED: EXISTING

LOAD	CODE	POLE	BKR	CKT #	A	B	CKT #	BKR	POLE	CODE	LOAD
EXISTING LOAD	--	1	--	1	0 VA / 0 VA		2	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	3		0 VA / 0 VA	4	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	5	0 VA / 0 VA		6	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	7		0 VA / 0 VA	8	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	9	0 VA / 0 VA		10	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	11		0 VA / 0 VA	12	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	13	0 VA / 0 VA		14	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	15		0 VA / 0 VA	16	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	17	0 VA / 0 VA		18	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	19		0 VA / 0 VA	20	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	21	0 VA / 0 VA		22	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	23		0 VA / 0 VA	24	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	25	0 VA / 0 VA		26	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	27		0 VA / 0 VA	28	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	29	0 VA / 0 VA		30	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	31		0 VA / 0 VA	32	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	33	0 VA / 0 VA		34	--	1	--	EXISTING LOAD
EXISTING LOAD	--	1	--	35		0 VA / 720 VA	36	20 A	1	R	OFFICE 207 RCPTS
BREAKROOM RCPTS	R	1	20 A	37	360 VA / 2794...		38	35 A	2	M	ACCU-2
BREAKROOM RCPTS	R	1	20 A	39		360 VA / 2794...	40	--	--	--	--
REFRIGERATOR	R	1	20 A	41	180 VA / 0 VA		42				
				TOTAL LOAD:	3288 VA	3795 VA					
				TOTAL AMPS:	27 A	32 A					

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	MOUNTNG	LAMP	VOLTAGE	WATTAGE
EM1	EMERGENCY	EELP	OEM-LED	WALL	LED	120 V	4 W
EX1	EXIT SIGN	EELP	XE-2-R-W-EM	WALL	LED	120 V	5 W
F1	FLAT PANEL	ALS	LPA-2-C-WH-UD	LAY-IN	LED	120 V	32 W
F1E	FLAT PANEL	ALS	LPA-2-C-WH-UD-EMB-700	LAY-IN	LED	120 V	32 W
R1	DOWNLIGHT	ALS	DL-15-40-F-WH-S	SURFACE	LED	120 V	15 W
S1	STRIP	ALS	IL-4-30-40-F-JM-W-UD	SURFACE	LED	120 V	30 W



1 ELECTRICAL DEMO PLAN
1/4" = 1'-0"
0' 4' 8' 16'

Project Title:
OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TEX 77515

Drawing Title:
ELECTRICAL GENERAL INFORMATION

Drawn By: Author
Checked By: Checker
Scale: AS NOTED
Date: 12/29/2021

STATE OF TEXAS
COOPER GILL
128999
LICENSED
PROFESSIONAL ENGINEER
12/29/2021

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Project No:
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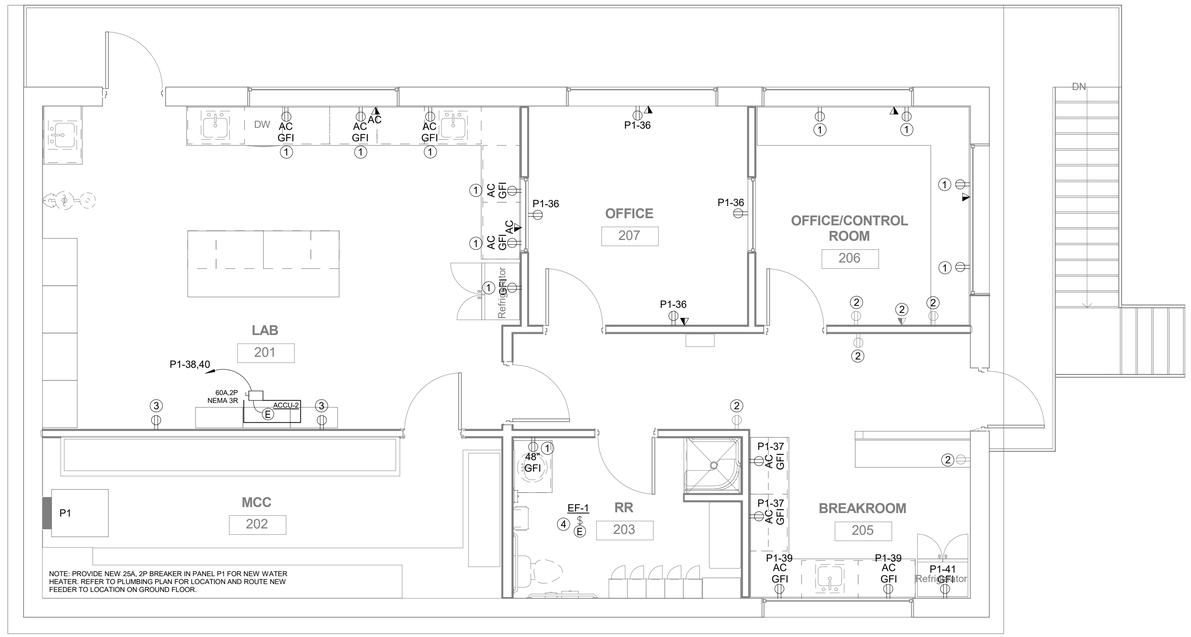
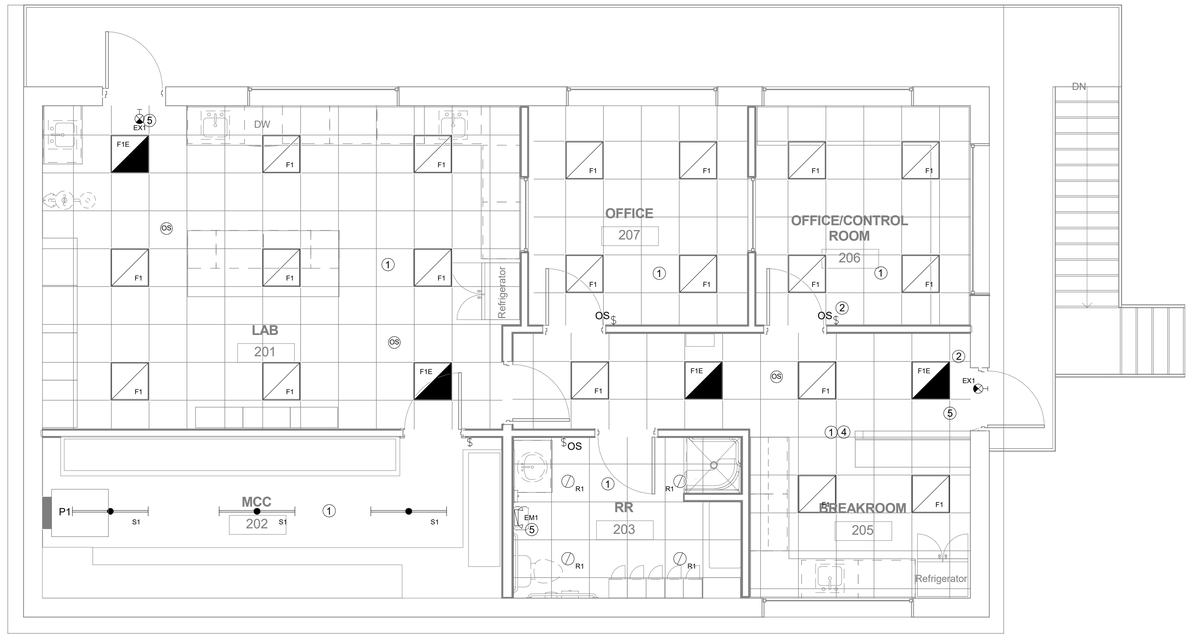


1 ELECTRICAL POWER & DATA PLAN

1/4" = 1'-0" 0' 4' 8' 16'

ELECTRICAL POWER & DATA PLAN NOTES

1. CONNECT NEW DEVICE TO EXISTING CIRCUIT
2. DEVICE IS EXISTING TO REMAIN
3. CONNECT NEW DEVICES TO CLOSEST EXISTING CIRCUIT
4. CONNECT EF-1 TO LIGHTING CIRCUIT IN RESTROOM



2 ELECTRICAL LIGHTING PLAN

1/4" = 1'-0" 0' 4' 8' 16'

ELECTRICAL LIGHTING PLAN NOTES

1. CONNECT ALL LIGHTING TO EXISTING LIGHTING CIRCUIT(S)
2. SWITCH LOCATION IS EXISTING TO REMAIN. PROVIDE NEW SWITH AS SHOWN
3. CONNECT NEW DEVICES TO CLOSEST EXISTING CIRCUIT
4. LIGHT FIXTURES IN HALLWAY AND BREAKROOM 205 ON 3-WAY SWITCHES AS SHOWN
5. EXTEND UNSWITCHED LEG OF CIRCUIT TO FIXTURE.

No.	Revisions and Descriptions	By	Date

Project Title:
OYSTER CREEK WWTP
474 COUNTY RD 609
ANGLETON, TEX 77515

Drawing Title:
ELECTRICAL NEW WORK PLANS

Drawn By: KSF
Checked By: CG
Scale: AS NOTED
Date: 12/29/2021

STATE OF TEXAS
COOPER GILL
128999
LICENSED
PROFESSIONAL ENGINEER
12/29/2021

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