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CSP 26-003KB (BP022) – ADDENDUM No.02
Gym Renovations and Additions

FOR

Fort Bend Independent School District
2023 Bond Program

To access the complete Addendum:

https://fortbendisd.bonfirehub.com/portal/

Reviewed By: Signed by: Nancy Lane F77F1A85ABE744F... 10/21/2025
PROJECT MANAGER

Reviewed By: Signed by: Ryan Kiefer 1F973D1CC91A41D... 10/21/2025
DESIGN MANAGER

Reviewed By: Signed by: Brenda Garcia F7F6BD96D7C742E... 10/21/2025
DIRECTOR OF CONSTRUCTION

Approved By: Signed by: Daniel Bankhead AABFCACAE7E9453... 10/21/2025
EXECUTIVE DIRECTOR, DESIGN & CONSTRUCTION

Approved By: Signed by: DF25ADA7E416421... 10/21/2025
DIRECTOR, MATERIALS MANAGEMENT

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Stantec Architecture Inc.
910 Louisiana Street, Suite 2600, Houston TX 77002

ADDENDUM

Addendum Number Two (02)
TO PLANS AND SPECIFICATIONS FOR
CSP 26-003KB BP022 Gym Renovations
Fort Bend ISD
STANTEC Project Nos.: 214001246

STANTEC ARCHITECTURE INC.
910 Louisiana Street, Suite 2600
HOUSTON, TEXAS 77002



October 21, 2025

This Addendum is generally separated into sections for convenience; however, all contractors, subcontractors, material suppliers and other involved parties shall be responsible for reading the entire Addendum. Failure to list an item(s) in all affected sections of this Addendum does not relieve any party affected from performing per instructions, provided the information is set forth one time anywhere in the Addendum.

This document shall become attached to and part of the Construction Documents for the aforementioned project.

PRIOR APPROVAL

The following products and/or manufacturers have been approved for bidding on this job. All requirements of the specifications and drawings MUST be met by these products at no additional cost to the Owner. Only those products that are specified, or which are listed below, will be accepted on this project. Any products not meeting these requirements may be submitted via the Deviations Request Form process as described in the Div. 00 section: **Clarification for Package B of Fort Bend ISD CSP.**

GENERAL ITEMS

The following are items that may not be covered by a drawing or specification change

1. Answers to Questions from Bidders:
    a. It is our understanding that the existing fire alarm systems at Hunters Glen and Ridgegate ES are the Silent Knight 5820 panel, which is now "obsolete" and devices are not available. Would you please provide direction on how you would like for us to proceed with the fire alarm SoW at these campuses, due to the fact that these existing FA system are obsolete?

        Answer: Alternate 6A, 6B, & 6C have been added as an ADD ALTERNATE in anticipation of a full replacement of the Fire Alarm Control Panel at Hunters Glen, Palmer, and Ridgegate Elementary school. As Base Bid contractor is to

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price the addition of a local Fire Alarm Control Panel at Hunters Glen and Palmer ES, and the re-using of devices at Ridgegate Elementary School. Specifications 28 46 00 FIRE DETECTION & ALARM SYSTEM_ALTERNATE and 28 46 02 FIRE DETECTION & ALARM SYSTEM along with supplemental Fire Alarm Drawings were added in service of answering this question.

SPECIFICATIONS

1. **DIVISION 00 – OWNER DOCUMENTS:**
   a. REVISED FORT BEND ISD PACKAGE B ALTERNATES BID PROPOSAL FORM.

2. **01 23 00 ALTERNATES:**
   a. REVISED PART 3 EXECUTION – 3.1 SCHEDULE OF ALTERNATES.

3. **07 19 16 CONCRETE FLOOR CLEAR FINISH:**
   a. REVISED SECTION.

4. **09 65 66 RESILIENT ATHLETIC FLOORING:**
   a. REVISED SECTION.

5. **26 46 02 EXPANSION OF EXISTING FIRE DETECTION AND ALARM SYSTEM:**
   a. DELETE THIS SECTION IN ITS ENTIRETY.

6. **28 46 00 FIRE DETECTION AND ALARM SYSTEM(ALTERNATE):**
   a. ADD THIS SECTION IN ITS ENTIRETY.

7. **28 46 02 EXPANSION OF EXISTING FIRE DETECTION AND ALARM SYSTEM:**
   a. ADD THIS SECTION IN ITS ENTIRETY.

DRAWINGS

1. **CIVIL**

HUNTERS GLEN ES

- **a. C100 - HGES DEMOLITION PLAN**
  - i. REMOVED KEY NOTE X3 FOR THE EXISTING GATE THAT IS NOW TO REMAIN.
  - ii. INCLUDED ANOTHER KEY NOTE X2 FOR THE EXISTING FENCE/BACKSTOP TO BE RELOCATED.
  - iii. REMOVED KEY NOTES P2 AND P3 AS SHOWN ON MARKUPS FROM THE 100% BB SESSION
  - iv. REVISED KEY NOTES X2 TO BE X3 AS SHOWN ON MARKUPS FROM THE 100% BB SESSION
- **b. C200 – HGES LAYOUT & PAVING PLAN**
  - i. RELOCATED BACKSTOPS SHOWN AND REFER TO ARCH

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ii. PROVIDED ADDITIONAL HATCHES FOR PROPOSED PAVING
iii. PROVIDED GRASS-CRETE SURFACE FOR FIRE LANE
iv. UPDATED POND FOOTPRINT TO COMPLY WITH FBDD CRITERIA

c. C300 – HGES GRADING PLAN
i. PROVIDED ADDITIONAL ELEVATION CALL OUTS.
ii. REMOVED GRADING IN AREA WHERE FIRE LANE WAS ORIGINALLY PROPOSED NEARBY INDEPENDENCE BLVD.

d. C400 – HGES UTILITY PLAN
i. REVISED SANITARY SEWER ROUTING AND CONNECTION TO EXISTING INFRASTRUCTURE.
ii. REVISED STORM SEWER ROUTING
iii. REVISED POND LAYOUT AND CONFIGURATION

e. C500 – HGES DETENTION CALCULATIONS
i. ADDED NEW SHEET AS "DETENTION CALCULATIONS".

f. C600 – HGES SWPPP
i. NUMBERING OF SHEET HAS BEEN REVISED TO "C600".
ii. REVISED FILTER FABRIC LIMITS
iii. INCLUDED ROCK FILTER DAM
iv. REVISED CONCRETE TRUCK WASH ANS STABILIZED CONSTRUCTION ENTRANCE LOCATIONS.

g. C700 – HGES DETAILS (1 OF 3)
i. NAMING OF SHEET HAS BEEN REVISED TO "DETAILS (1 OF 3)".
ii. NUMBERING OF SHEET HAS BEEN REVISED TO "C700".
iii. PROVIDED CONCRETE PAVING DETAIL SECTIONS PER THE GEOTECH REPORT.

h. C800 – HGES DETAILS (2 OF 3)
i. NAMING OF SHEET HAS BEEN REVISED TO "DETAILS (2 OF 3)".
ii. NUMBERING OF SHEET HAS BEEN REVISED TO "C800".

i. C900 – HGES DETAILS (3 OF 3)
i. ADDED NEW SHEET AS "DETAILS (3 OF 3)".
ii. INCLUDED SAFETY END TREATMENT DETAIL.

j. C1000 – HGES FIRE LANE PLAN
i. NUMBERING OF SHEET HAS BEEN REVISED TO "C1000".

PALMER ES

a. C100 - PES DEMOLITION PLAN
i. INCLUDED ADDITIONAL KEY NOTES FOR SIDEWALK AND DRAINAGE DEMOLITION.
ii. PAVING LIMITS REVISED FOR EXISTING SIDEWALK TO PROPOSED GYM.
iii. EXISTING TREE IS SHOWN TO REMAIN
iv. SAWCUT LIMITS UPDATED WHERE PROPOSED CANOPY WILL BE LOCATED.
v. EXISTING TREES/SHRUBS NEARBY PROPOSED FIRE LANE ARE NOW SHOWN TO BE DEMOED.
vi. EXISTING GATE TO BE REMOVED WHERE FIRE LANE WILL BE LOCATED.
vii. INCLUDED WATER DEMOLITION KEY NOTES TO THE EXISTING WATER LINE PER EXISTING RECORD DRAWINGS.

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b. C200 – PES LAYOUT & PAVING PLAN
- i. UPDATED PAVING HATCHES
- ii. UPDATED DIMENSIONAL CALLOUTS

c. C300 – PES GRADING PLAN
- i. UPDATED GRADING CALLOUTS AND ELEVATIONS.
- ii. REVISED SWALE LIMITS.
- iii. REMOVED PROPOSED SANITARY MANHOLE.
- iv. REVISED NOTE NEARBY EXISTING PLAYGROUNDS ON THE WEST SIDE OF THE EXISTING BUILDING.

d. C400 – PES UTILITY PLAN
- i. UPDATED SANITARY SEWER DESIGN AND ROUTING TO TIE INTO EXISTING 4" SANITARY SEWER LINE.
- ii. UPDATED DOMESTIC WATER DESIGN AND ROUTING TO TAP INTO EXISTING 6" FIRE LINE NEARBY CROW VALLEY.
- iii. UPDATED FIRE WATER DESIGN AND ROUTING TO TAP INTO EXISTING 6" FIRE WATER LINE THAT IS SERVING THE SITE.
- iv. UPDATED STORM SEWER DESIGN AND ROUTING.
- v. PROVIDED TG AND FL INFORMATION.
- vi. INCLUDED ADDITIONAL WATER, SANITARY AND DRAINAGE KEY NOTES.

e. C500 – PES SWPPP
- i. UPDATED IPB LOCATIONS PER STORM REVISION.

f. C600 – PES DETAILS (1 OF 2)
- i. UPDATED TRENCH DRAIN DETAIL.
- ii. INCLUDED CONCRETE SIDEWALK EXPANSION JOINT DETAIL.

g. C700 – PES DETAILS (2 OF 2)
- i. INCLUDED DOMESTIC WATER METER AND BACKFLOW PREVENTER DETAILS.

h. C800 – PES FIRE LANE PLAN
- i. INCLUDED KEY NOTE W1 TO TIE INTO EXISTING ON-SITE 6" FIRE LINE.

ROSA PARKS ES

a. C200 - PES DEMOLITION AND LAYOUT PLAN
- i. INCLUDED INCLUDED "LIMIT OF WORK" BOUNDARY.

b. C300 – PES UTILITY PLAN
- i. INCLUDED INCLUDED "LIMIT OF WORK" BOUNDARY.
- ii. PROVIDED UPDATED SWALE SLOPES.
- iii. REMOVED PROPOSED INLETS AT BOTH NORTH AND SOUTH LOCATIONS TO BE LOCATED ON EXISTING STORM LINE.
- iv. REROUTED STORM DRAINAGE FROM NORTH AND SOUTH CANOPIES TO TIE INTO EXISTING GRATE INLETS.

c. C400 – PES GRADING PLAN
- i. INCLUDED INCLUDED "LIMIT OF WORK" BOUNDARY.
- ii. REMOVED TG CALLOUTS FOR PROPOSED INLETS THAT ARE NO LONGER IN SCOPE.
- iii. REVISED ELEVATIONS FOR PROPOSED SWALE.

d. C500 – PES SWPPP
- i. INCLUDED INCLUDED "LIMIT OF WORK" BOUNDARY.

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ii. REMOVED IPBS FOR PROPOSED INLETS THAT ARE NO LONGER IN SCOPE.

2. **LANDSCAPE**
   a. **NO ITEMS ISSUED**

3. **STRUCTURAL**

   a. **NO ITEMS ISSUED**

4. **ARCHITECTURAL**

HUNTERS GLEN ES

a. **G102 – HGES – CODE REVIEW AND LIFE SAFETY PLAN - GYMNASIUM**
   i. ADDED DETAIL LINE TO CLARIFY EXTENT OF FIRE RATING FOR EXTERIOR WALLS
b. **AS001 – HGES – WALKWAY COVER DETAILS**
   i. ADDED EXISTING ALUMINUM WALKWAY COVER AND DIMENSIONS SO THAT THE INLCUSION OF PAINTING THE ENTIRETY OF THE WALKWAY COVER COULD BE INCLUDED IN COST OF WORK
c. **AS101 – HGES ARCHITECTURAL SITE PLAN**
   i. ADDED PAINTING OF THE EXISTING ALUMINUM WALKWAY COVER TO THE SCOPE OF WORK
d. **AS103 – HGES – MOCK-UP WALL**
   i. ADDED SECTION AND DETAILING OF MOCK-UP WALL
e. **A103 – HGES – FLOOR PLAN -GYMNASIUM**
   i. ADDED PLAN DETAILS
   ii. RECTIFIED DIMENSIONS OF METAL SHELVING IN ROOMS HG102 & HG103
f. **A320 – HGES – EXTERIOR PLAN DETAILS**
   i. ADDED SHEET IN ITS ENTIRETY
g. **A322-HGES – EXTERIOR SECTION DETAILS**
   i. ADDED SHEET IN ITS ENTIRETY
h. **A323 – HGES – EXTERIOR PLAN DETAILS**
   i. ADDED SHEET IN ITS ENTIRETY
i. **A501 – HGES – FRAME ELEVATIONS & DOOR SCHEDULE**
   i. ADDED CLARIFYING DETAILS TO FRAME ELEVATIONS
   ii. RECTIFIED EXTERIOR ALUMINUM FRAME SIZING FOR FRAME TYPE B & C TO 2 ½" X 5"

PALMER ES

a. **G102 – PGES – CODE REVIEW AND LIFE SAFETY PLAN - GYMNASIUM**
   i. ADDED DETAIL LINE TO CLARIFY EXTENT OF FIRE RATING FOR EXTERIOR WALLS
b. **AS001 – PES – WALKWAY COVER DETAILS**
   i. ADDED DIMENSIONS TO EXISTING WALKWAY COVER SO THAT THE INLCUSION OF PAINTING THE ENTIRETY OF THE WALKWAY COVER COULD BE INCLUDED IN COST OF WORK

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c. **AS101 – PES ARCHITECTURAL SITE PLAN**
   i. ADDED CALLOUT CLARIFYING EXTENT OF EXISTING WALKWAY COVER
d. **AS103 – PES – MOCK-UP WALL**
   i. ADDED SECTION AND DETAILING OF MOCK-UP WALL
e. **A320 – PES – EXTERIOR PLAN DETAILS**
   i. MODIFIED PLAN DETAILS FOR CLARITY
f. **A322-PES – EXTERIOR SECTION DETAILS**
   i. ADDED SHEET IN ITS ENTIRETY
g. **A323 – PES – EXTERIOR PLAN DETAILS**
   i. ADDED SHEET IN ITS ENTIRETY
h. **A501 – HGES – FRAME ELEVATIONS & DOOR SCHEDULE**
   i. ADDED CLARIFYING DETAILS TO FRAME ELEVATIONS
   ii. RECTIFIED EXTERIOR ALUMINUM FRAME SIZING FOR FRAME TYPE B & C TO 2 ½" X 5"

RIDGEGATE ES

a. **A711 – RES – FURNISHINGS AND EQUIPMENT PLAN – CASEWORK**
   i. ADDED ADA SINK TO CASEWORK WITHIN COMPUTER ROOM 305
b. **A712 – RES – CASEWORK ELEVATIONS**
   i. REVISED ELEVATION C2 TO REFLECT ADA SINK AND BASE CABINET ALONG WITH SOAP AND PAPER TOWEL DISPENSERS

ROSA PARKS ES

a. No items issued

5. **MEP**

HUNTER GLEN ES

a. **SHEET M201-HGES MECHANICAL FLOOR PLANS**
   i. ADDED REFRIGERANT PIPE ROUTING FOR DMS-1.
   ii. ADDED FIRE DAMPERS.
   iii. REVISED GYMNASIUM DUCTWORK.
   iv. REVISED GRILLES AND REBALANCED SYSTEM.
b. **SHEET M301-HGES MECHANICAL SCHEDULE**
   i. UPDATED REMARKS FOR SRTU AND FANS.
   ii. UPDATED GRILLE SCHEDULE.
c. **SHEET M401-HGES MECHANICAL DETAILS**
   i. ADD THIS SHEET TO THE SET IN ITS ENTIRETY.
d. **SHEET E201-HGES ELECTRICAL FLOOR PLANS**
   i. RELOCATED PANELS TO COORDINATE WITH MECHANICAL CONDENSATE.
   ii. REMOVED PLAN NOTE 3 AND ASSOCIATED MOTORIZED DAMPER LOCATION.

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iii. ADDED BLOCK NOTE FOR MOTORIZED DAMPER POWER COORDINATION.

e. SHEET E301-HGES ELECTRICAL FLOOR PLANS – ALTERNATE

i. REMOVED PLAN NOTE 3 AND ASSOCIATED MOTORIZED DAMPER LOCATION.
ii. ADDED BLOCK NOTE FOR MOTORIZED DAMPER POWER COORDINATION.

f. SHEET P301-HGES PLUMBING ENLARGED PLAN – LEVEL 1 – NEW GYM

i. REDUCED SIZE OF STORM PIPING.

g. SHEET P302-HGES PLUMBING ENLARGED PLAN – LEVEL 1 – EXTENDED DAY LEARNING.

i. KEYNOTE ADDED TO SHOW SCOPE PER LAVATORY

h. SHEET P401-HGES PLUMBING ROOF PLAN

i. REVISED SIZES OF ROOF DRAINS AND OVERFLOW DRAINS.

i. SHEET P501-HGES PLUMBING DETAILS

i. REMOVED DETAIL # 2 AND 3.
ii. REMOVED UNNECESSARY NOTE FROM DETAIL # 16.

j. SHEET P601-HGES PLUMBING LEGENDS AND SCHEDULES

i. REMOVED TMV SPECIFICATIONS FROM FIXTURE L-1.
ii. REMOVED DUPLICATED STATEMENT ON FIXTURE FD-1.
iii. REVISED ROOF DRAIN AND OVERFLOW DRAINS SPECS & MODEL NUMBER.

k. SHEET FA100-HGES FIRE ALARM FLOOR PLAN

i. ADD THIS SHEET TO THE PROJECT IN ITS ENTIRETY.

l. SHEET FA201-HGES FIRE ALARM FLOOR PLAN - GYMNASIUM

i. ADD THIS SHEET TO THE PROJECT IN ITS ENTIRETY.

PALMER ES

a. SHEET M201-PES MECHANICAL FLOOR PLANS

i. ADDED REFRIGERANT PIPE ROUTING FOR DMS-1.
ii. ADDED FIRE DAMPERS.
iii. REVISED GYMNASIUM DUCTWORK.
iv. REVISED GRILLES AND REBALANCED SYSTEM.

b. SHEET M301-PES MECHANICAL SCHEDULE

i. UPDATED REMARKS FOR SRTU AND FANS.
ii. UPDATED GRILLE SCHEDULE.

c. SHEET M401-PES MECHANICAL DETAILS

i. ADD THIS SHEET TO THE SET IN ITS ENTIRETY.

d. SHEET E201-PES ELECTRICAL FLOOR PLANS

i. RELOCATED POWER FOR EF-1.
ii. REMOVED PLAN NOTE 3 AND ASSOCIATED MOTORIZED DAMPER LOCATION.

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iii. ADDED BLOCK NOTE FOR MOTORIZED DAMPER POWER COORDINATION.

e. SHEET E301-PES ELECTRICAL FLOOR PLANS – ALTERNATE

i. REMOVED PLAN NOTE 3 AND ASSOCIATED MOTORIZED DAMPER LOCATION.

ii. ADDED BLOCK NOTE FOR MOTORIZED DAMPER POWER COORDINATION.

f. SHEET E501-PES ELECTRICAL DETAILS, LEGENDS AND SCHEDULES

i. REMOVED EMERGENCY LIGHTING CONTROL DETAIL.

g. SHEET P301-PES PLUMBING ENLARGED PLAN – LEVEL 1 – NEW GYM

i. REDUCED SIZE OF STORM PIPING.

h. SHEET P302-PES PLUMBING ENLARGED PLAN – LEVEL 1 – EXTENDED DAY LEARNING.

i. KEYNOTE ADDED TO SHOW SCOPE PER LAVATORY

i. SHEET P401-PES PLUMBING ROOF PLAN

i. REVISED SIZES OF ROOF DRAINS AND OVERFLOW DRAINS.

j. SHEET P501-PES PLUMBING DETAILS

i. REMOVED DETAIL # 2 AND 4.

ii. REMOVED UNNECESSARY NOTE FROM DETAIL # 14.

k. SHEET P601-PES PLUMBING LEGENDS AND SCHEDULES

i. REMOVED TMV SPECIFICATIONS FROM FIXTURE L-1.

ii. REMOVED DUPLICATED STATEMENT ON FIXTURE FD-1.

iii. REVISED ROOF DRAIN AND OVERFLOW DRAINS SPECS & MODEL NUMBER.

l. SHEET FA100-PES FIRE ALARM FLOOR PLAN

i. ADD THIS SHEET TO THE PROJECT IN ITS ENTIRETY.

m. SHEET FA201-PES FIRE ALARM FLOOR PLAN - GYMNASIUM

i. ADD THIS SHEET TO THE PROJECT IN ITS ENTIRETY.

RIDGEGATE ES

a. SHEET P001-RES PLUMBING ENLARGED DEMOLITION FLOOR PLANS

i. REVISED KEYED NOTE #1.

b. SHEET P501-RES PLUMBING DETAILS

i. REMOVED DETAIL # 1, 2 AND 5.

c. SHEET FA100-RES FIRE ALARM COMPOSITE PLAN

i. ADD THIS SHEET TO THE PROJECT IN ITS ENTIRETY.

6. **TECHNOLOGY**

. **HUNTERS GLEN ES**

.

a. TECHNOLOGY - GYM – T101-HGES

i. ONE WALL PHONE WAS ADDED TO THE NEW IDF.

b. TECHNOLOGY - DETAILS – T502-HGES

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i. HEIGHTS WERE SPECIFIED FOR ACCESS POINT AND SECURITY CAMERA WALL MOUNT ROUGH-IN DETAILS.

c. TECHNOLOGY - AV DETAILS – T700-HGS

i. THE CAMERA SCHEDULE WAS UPDATED.
ii. MOUNTING DETAILS FOR THE S5 SEAKERS REPLAVED THE ROUGH-IN DETAILS FOR S6 AND S7 SPEAKERS.

. **PALMER ES**

.

a. TECHNOLOGY - GYM – T101-PES

i. ONE WALL PHONE WAS ADDED TO THE NEW IDF.
ii. ONE CAMERA WAS RELOCATED TO ACCOMMODATE CHANGES MADE TO AN MEP CHASE

b. TECHNOLOGY - DETAILS – T502-PES

i. HEIGHTS WERE SPECIFIED FOR ACCESS POINT AND SECURITY CAMERA WALL MOUNT ROUGH-IN DETAILS.

c. TECHNOLOGY - AV DETAILS – T700-PES

i. THE CAMERA SCHEDULE WAS UPDATED.
ii. MOUNTING DETAILS FOR THE S5 SEAKERS REPLAVED THE ROUGH-IN DETAILS FOR S6 AND S7 SPEAKERS.

. **RIDGEGATE ES**

.

a. TECHNOLOGY - GYM – T101-RES

i. ONE WALL PHONE WAS ADDED TO THE NEW IDF.

b. TECHNOLOGY - DETAILS – T502-RES

i. HEIGHTS WERE SPECIFIED FOR ACCESS POINT AND SECURITY CAMERA WALL MOUNT ROUGH-IN DETAILS.

c. TECHNOLOGY - AV DETAILS – T700-RES

i. KEYNOTE 3 WAS ADDED TO THE PLAN NORTH WALL ADJACEN TO KEYNOTE 8.
ii. KEYNOTE 3 NEXT TO CP1 AND BT WAS ADJUSTED TO SHWO IT EFFECTS BOTH DEVICES.

NUMBER OF ATTACHMENTS:

1. Narratives:
   a. Stantec, 8.5x11 = (9) pages
2. Specifications: 8.5x11 pages = (79) Pages
3. Drawings: 30" X 42" = (103) sheets

END OF ADDENDUM NUMBER TWO (02)

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SECTION AC
PACKAGE "B" ALTERNATE BID PROPOSAL FORM – CSP STIPULATED SUM

CSP No: 26-003KB **BP**022 - **BP Name:** Gym Renovations and Additions

FORT BEND INDEPENDENT SCHOOL DISTRICT

Submitted by: _____

Date: _____ Phone Number: _____

Vendors are required to respond to all requests identified in the Solicitation and indicate their acceptance or objection to the terms of the Solicitation and these General Provsisions must be clearly indicated in Vendor's Solicatiation Response. No-bid is deemed non-responsive by FBISD.

Having examined Proposal and Contract Documents prepared by Fort Bend ISD and Stantec Architecture, Inc. dated 9/24/2025 and having examined site conditions, the undersigned proposes to furnish all labor, equipment and materials and perform all work for the completion of the above-named project for the sum indicated below.

I. DESCRIPTION: Gym Addition/Renovation scope and associated site improvements, as well as interior renovation scope at 4 elementary school campuses: Hunters Glen, Palmer, Ridgegate, and Rosa Parks Elementary Schools.

Undersigned agrees to complete the work for the lump sum amounts of:

_____Dollars
(Amount written in words governs)

$_____
(Amount in figures)

II. PROJECT TIMELINES – Refer to Section V. for the construction calendar days associated with alternates.

The District anticipates that this project will take 423 calendar days to complete. Contractor agrees the work will be substantially completed within 423 calendar days from executed contract and issuance of Notice to Proceed.

Should the Contractor anticipate **lower** calendar days to complete this project, please indicate below. The District will consider contractor proposed lower calendar days and incorporate into contract if deemed appropriate.

CONTRACTOR'S PROPOSED DAYS TO COMPLETE
BP022_____ Base Proposal
BP022_____ Alternates
BP022_____ Base Proposal and Alternates
(Enter only if LOWER than District's proposed time)

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III. LIQUIDATED DAMAGES:

The undersigned understands that liquidated damages as defined in the Supplementary Conditions will be included in the form of Agreement Between Owner and Contractor and that the contractor will be bound thereto.

Contractor accepts the provisions of the Contract as to liquidated damages in the event of failure to complete the work on time. Liquidated damages shall be the sum of **$1,000.00** per day for each calendar day that Substantial Completion is delayed for each project.

Further, the Contractor acknowledges that additional liquidated damages in the sum of **$250.00** per day for each calendar day shall be imposed for non-completion of punch list items and contract close-out within sixty (60) calendar days after Substantial Completion.

IV. ALLOWANCES:

Allowances are to be included in the Contractor's base bid for each project in the following amounts:

A. TBD

Contractor should include allowance and markup in the base bid. Section 3.8 of the Supplementary Conditions defines the procedures for markups.

V. ALTERNATES

Refer to Division 01 23 00 for administrative and procedural requirements of Alternates.

Alternate No. 1 Base Bid Adjustment

The undersigned agrees to complete <u>all base bid work</u> and adjust the final base bid lump sum amount as follows:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐
2. _____Dollars
   (Amount written in words governs)
   $_____
   Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:
   _____

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Alternate No. 2 Deviations Request Form

If the owner elects to proceed with Alternate No. 2, the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐
2. _____Dollars
   (Amount written in words governs)
   $_____
   Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:
   _____

Alternate No. 3A Palmer ES – Metal Canopy at Playground

If the owner elects to proceed with Alternate No. 3A the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐
2. _____Dollars
   (Amount written in words governs)
   $_____
   Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:
   _____

Alternate No. 3B Palmer ES – Fabric Canopy at Hardtop Play Area

If the owner elects to proceed with Alternate No. 3B the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐
   _____Dollars
   (Amount written in words governs)
   $_____
2. Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:
   _____

Alternate No. 4 Rosa Parks ES – Stage Curtains

If the owner elects to proceed with Alternate No. 4 the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐
   _____Dollars
   (Amount written in words governs)
   $_____
2. Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:
   _____

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Alternate No. 5A Hunters Glen ES – Generator tie-in

If the owner elects to proceed with Alternate No. 5A the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐

_____Dollars
(Amount written in words governs)

$_____
2. Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:

_____

Alternate No. 5B Palmer ES – Generator tie-in

If the owner elects to proceed with Alternate No. 5B the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐

_____Dollars
(Amount written in words governs)

$_____
2. Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:

_____

Alternate No. 6A Hunters Glen ES – Fire Alarm replacement and smoke detectors

If the owner elects to proceed with Alternate No. 6A the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐

_____Dollars
(Amount written in words governs)

$_____
2. Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:

_____

Alternate No. 6B Ridgegate ES – Fire Alarm replacement and smoke detectors

If the owner elects to proceed with Alternate No. 6B the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

1. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐

_____Dollars
(Amount written in words governs)

$_____
2. Amount written in figures
3. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:

_____

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Alternate No. 6C Palmer ES – Fire Alarm replacement and smoke detectors

If the owner elects to proceed with Alternate No. 6C the undersigned agrees to complete the ADDITIVE work for the lump sum amounts of:

4. Add ☐ Deduct ☐ No Change ☐ Not Applicable ☐

_____Dollars
(Amount written in words governs)

$_____

5. Amount written in figures
6. Add ☐ Deduct ☐ No. of calendar days to adjust the Contract Time for this alternate:

_____

VI. UNIT PRICES – ALTERNATE BID

UNIT PRICES – Add Description

01	☐ add description	_____ add unit
02	☐ add description	_____ add unit
03	☐ add description	_____ add unit
04	☐ add description	_____ add unit
05	☐ add description	_____ add unit

VII. CHANGES IN THE WORK

The undersigned understands that changes in the work shall be performed in accordance with the Supplementary Conditions.

VIII. PROPOSAL EVALUATION WAIVER

By submitting a Proposal, the proposer indicated below agrees to waive any claim it has or may have against the Owner, Architect, Engineers, Consultants and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any proposal. The proposer further agrees the Owner reserves the right to waive any requirements under the proposal documents or the Contract Documents, acceptance or rejection of any proposals, and recommendation or award of the contract.

It is understood that the right is reserved by the Owner to reject any or all proposals, or waive any informalities in Receipt of Proposals.

The undersigned certifies that the amounts contained in this Competitive Sealed Proposal have been carefully checked and are submitted as correct and final; and additionally, agrees to comply with all provisions of the Proposal Form.

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The undersigned CONTRACTOR proposes and agrees, if this Proposal is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to complete all work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Proposal and in accordance with the Contract Documents.

CONTRACTOR accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Proposal Security. This Proposal will remain open for sixty (60) days after the day of Proposal opening. CONTRACTOR will sign the Agreement and submit the Contract Security and other documents required by the Contract documents within ten (10) calendar days after the date of the OWNER'S Notice of Award.

In submitting this Proposal, CONTRACTOR represents, as more fully set forth in the Agreement, that:

(a) Contractor has examined copies of all the Contract Documents and of the following addenda, receipt of which is hereby acknowledged, and also copies of the Advertisement or Invitation to Submit Proposal.

_____	**ADD-01**	dated _____	Total # pgs_____	**ADD-02**	dated _____	Total # pgs_____	
_____	**ADD-03**	dated _____	Total # pgs_____	**ADD-04**	dated _____	Total # pgs_____	
_____	**ADD-05**	dated _____	Total # pgs_____	**ADD-06**	dated _____	Total # pgs_____	
_____	**ADD-07**	dated _____	Total # pgs_____	**ADD-08**	dated _____	Total # pgs_____	

(b) CONTRACTOR has examined the site and locality where the work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions effecting cost, progress or performance of the work and has made such independent investigations as CONTRACTOR deems necessary.

(c) This PROPOSAL is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; CONTRACTOR has not directly or indirectly induced or solicited any other Contractor to submit a false or sham Proposal; CONTRACTOR has not solicited or induced any person, firm or a corporation to refrain from submitting a proposal; and CONTRACTOR has not sought by collusion to obtain for himself any advantage over any other Contractor or over OWNER.

Type of Proposer's Organization:

_____

(Corporation, Co-Partnership, Individual, etc.)

Proposer: _____

(Print or Type)

_____

Signature of Proposer

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Title of Office: _____

(Print or Type)

Legal Address: _____

(Print or Type)

_____

Zip Code: _____ Tel:(_____) _____

(Print or Type)

ATTEST:

_____

(Secretary, if Proposer is a Corporation

SEAL:
(If Corporation)

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DIVISION 1 – GENERAL REQUIREMENTS
Section 01 23 00 Alternates

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by Proposers and stated on the Proposal Form for certain work defined in the Proposal Requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the total addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum. Pricing for alternates may not be submitted or listed in the form of an allowance amount on the proposal form.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
2. Cost listed for each Alternate includes cost of related coordination, modification or adjustment.

B. Notification: Immediately following award of the Contract, Contractor shall prepare and distribute to each entity or person to be involved in the performance of the Alternate Work, a notification of the status of each Alternate scheduled herein. Indicate which alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates if any.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Contractor shall be responsible for any changes in the Work affected by acceptance of Alternates. Claims for additional costs or time extensions resulting from changes to the Work as a result of the Owner's election of any or all Alternates will only be considered if it is a deferred for later consideration.

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E. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. **Alternate No. 1 Base Bid Adjustment**
   1. Include any adjustment to Base Bid.

B. **Alternate No. 2 Deviations Request Form**
   1. Include any substitutions or deviations from the Base Bid.

C. **Alternate No. 3A Palmer ES - Metal Canopy at Playground**
   1. Provide new metal roof canopy for one playground. Scope to include canopy footings, downspout boots and storm utility tie-ins.

D. **Alternate No. 3B Palmer ES - Fabric Canopy at Hardtop Play Area**
   1. Replace fabric at existing shade cover at hardtop play area.

E. **Alternate No. 4 Rosa Parks ES - Stage Curtains**
   1. Replace all existing stage curtains at Rosa Parks Elementary School.

F. **Alternate No. 5A Hunters Glen ES –** Generator tie-in
   1. Provide emergency power distribution at the new gymnasium as detailed in the contract documents. Emergency power shall not be provided in the base proposal.

G. **Alternate No. 5B Palmer ES** – Generator tie-in
   1. Provide emergency power distribution at the new gymnasium as detailed in the contract documents. Emergency power shall not be provided in the base proposal.

H. **Alternate No. 6A Hunters Glen ES** – Fire alarm replacement and smoke detectors
   1. Full Fire Alarm system replacement with replacement of smoke detectors.

I. **Alternate No. 6B Ridgegate ES** - Fire alarm replacement and smoke detectors
   1. Full Fire Alarm system replacement with replacement of smoke detectors.

J. **Alternate No. 6C Palmer ES -** Fire alarm replacement and smoke detectors
   1. Full Fire Alarm system replacement with replacement of smoke detectors.

End of Section 01 23 00

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SECTION 07 19 16 – CONCRETE FLOOR CLEAR FINISH

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Water-based clear finish for new or existing interior concrete floors scheduled to remain exposed.
2. **Surface preparation at existing concrete slab areas.**

B. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete: Concrete slab-on-grade surfaces, curing agents, and floor hardeners.
2. Section 07 90 00 - Joint Protection: Sealants

1.2 SYSTEM DESCRIPTION

A. Applied Finish: Material to restrict moisture absorption and provide slip-resistant and abrasion-resistant finished appearance for interior concrete flooring indicated to remain exposed.

B. Floor Hardener: Provided and installed under the Concrete Section. Ensure that floor hardeners are completely cured prior to applying finish product of this Section.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit details of product description, tests performed, limitations to coating, and chemical properties including percentage of solids.

C. Samples: Of each substrate indicated to receive water repellent, 12 inches square, with specified repellent treatment applied to half of each sample.

D. Manufacturer's Installation Instructions: Submit special procedures and conditions requiring special attention, and cautionary procedures required during application.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements, including local requirements controlling the emission of VOCs.

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section for a minimum of three years.

B. Applicator: Company specializing in performing Work of this section with minimum three years' experience and approved by manufacturer for this application.

1.5 PRE-INSTALLATION MEETINGS

A. Section 01 81 19 – Project Meetings: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Protect product from freezing.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

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B. Do not apply coating when ambient or surface temperature is lower than 40 degrees F or higher than 100 degrees F.

1.8 WARRANTY

A. Section 01 77 00 – Closeout Procedures: Product warranties and product bonds.

B. Furnish manufacturer's written warranty for sealer/finish for a minimum of two-years after Substantial Completion of Project.

PART 2 - PRODUCTS

2.1 Manufacturers:

A. Euclid Chemical Company; www.euclidchemical.com.
B. Sika; usa.sika.com
C. W.R. Meadows; www.wrmeadows.com
D. Substitutions: Section 01 25 00 – Substitution Procedures.

2.2 MATERIALS

A. Clear Finish: Water-based clear and colorless high solids type sealer and finish that is VOC-compliant.
1. Basis-of-Design: *Scofield Selectseal Plus* as manufactured by Sika.
2. VOC Content: less than 100 g/L.
3. Semi-Gloss or Gloss finish as selected.
4. High solids content; low odor.
5. Certified wet-slip resistant per UL 410.
6. Abrasion-resistant.
7. Apply at interior concrete floors scheduled to remain exposed.
8. Ensure compatibility with cured floor hardener provided under the Concrete Section.

2.3 MATERIALS – SURFACE PREPARATION

A. Crack and Patch Repair Mortar: A cementitious, polymer-modified, polishable repair mortar specifically formulated for use on concrete surfaces intended for grinding and sealing. Product shall be capable of being honed to match the texture and color of the surrounding concrete substrate as closely as possible.

B. Concrete Densifier and Hardener: A water-based, penetrating lithium silicate solution that chemically reacts with the concrete to increase surface hardness, improve abrasion resistance, and reduce dusting.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 31 13 – Project Coordination: Coordination and project conditions.

B. Verify joint sealants are installed and cured.

C. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter detrimental to application of coating.

D. Obtain product information from Contractor for curing agent that was used on floors scheduled to receive a clear finish coat to ensure that the proposed finish coat is compatible.

E. Test the surface of concrete before applying sealer/finish to ensure it absorbs drops of water within 20-30 seconds. Verify with the sealer/finish manufacturer whether a non-absorbing surface will require mild acid-etching prior to sealer/finish application.

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F. Examine the existing substrate following demo of existing flooring for conditions that may adversely affect the work of this section. Document and report to the Architect in writing any pre-existing conditions such as excessive cracking, spalling, oil saturation, or "ghosting" from previous flooring layouts. Be advised that such conditions may remain visible in the final finish and contribute to the floor's aesthetic character. Commencement of work implies acceptance of the substrate.

3.2 PREPARATION

A. Delay Work until concrete substrate is cured minimum of 60 days, and all other trades have completed work in the affected areas.

B. Remove loose particles and foreign matter. Remove oil or foreign substances that may interfere with appearance or performance of sealer/finish. Remove drywall compound and paint drips by scraping.

C. Remove any curing agents remaining on surface of new slabs. Ensure compatibility of curing agent and any installed joint sealants with proposed sealer/finish product.

D. Scrub and rinse surfaces with water and let dry while restricting foot traffic. Vacuum dry surface just prior to application of sealer/finish.

E. Test for pH level of substrate before applying. Do not apply to substrates with pH level outside of manufacturer’s recommended limits.

F. Protect adjoining work, including sealant bond surfaces at joints. Mask-off wall bases and adjoining surfaces of aluminum and glass if there is the possibility of water repellent being deposited on surfaces.

G. Coordination with Sealants and Hardeners:

1. Coordinate with concrete hardener or curing agent applied under the Cast-In-Place Concrete section to ensure compatibility.
2. Coordinate with sealant manufacturer to determine whether sealer/finish should be applied prior to or after installation of any joint sealants in concrete slab. Sealant joints installed prior to application of sealer/finish shall be fully cured.
3. Sealer/finish application may precede joint sealant installation only if sealant adhesion and compatibility have been tested and verified.

3.3 PREPARATION – EXISTING CONCRETE SLAB

A. Surface Cleaning and Grinding: Mechanically remove all existing adhesive residue, coatings, and contaminants from the concrete surface using planetary grinders with metal-bond diamond tooling. Do not use chemical stripping agents. Begin grinding with a coarse grit (30/40 grit) and proceed sequentially through finer grits to a minimum of a 70/80 grit finish to remove the initial surface layer and expose clean concrete.

B. Repair and Densification: Following the initial grinding passes, thoroughly vacuum the surface to remove all dust. Fill all dormant cracks, spalls, and pop-outs with the specified polishable repair mortar, troweling flush with the adjacent surface. Allow the patch material to cure per manufacturer's instructions. Apply the specified concrete densifier and hardener uniformly, allowing it to penetrate the surface in accordance with the manufacturer's written instructions.

3.4 HONING AND FINISHING

A. Honing: After the densifier has fully reacted, proceed with honing the surface using resin-bond diamond tooling. Progress through sequential grits, starting at 100 grit and continuing to a minimum of a 400-grit finish, or as required to achieve the appearance of the approved mockup.

B. Final Cleaning: Thoroughly clean the honed surface using an auto-scrubber with a

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neutral pH cleaning solution and clean water. Remove all slurry and allow the substrate to dry completely for a minimum of 24 hours before sealer application.

3.5 APPLICATION

A. Apply in accordance with manufacturer's instructions.

B. Apply a saturation coating of clear sealer/finish on indicated surfaces using foam, microfiber, or lamb's wood applicators. Cover all surfaces to remain exposed.

C. Apply second coat in accordance with manufacturer's directions for drying and scuffing of first coat. Final coat shall be free of lap or brush marks.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 77 00 – Closeout Procedures: Protecting installed construction.

B. Immediately remove sealer/finish from adjacent surfaces by methods as instructed by coating manufacturer. Repair damage to surfaces not indicated to receive sealer/finish.

END OF SECTION

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SECTION 09 65 66 - RESILIENT ATHLETIC FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Rubber athletic sheet flooring, adhesively-applied.
2. **Surface preparation at existing concrete slab areas.**

1.2 RELATED SECTIONS

A. Section 09 65 00 - Resilient Flooring: Rubber base for areas receiving Resilient Athletic Flooring.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Samples:
1. Submit manufacturer's complete set of color samples for initial selection.
2. Submit two 12’ x 12” samples of each color/pattern specified.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 77 00 – Closeout Procedures.

B. Operation and Maintenance Data: Submit maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years’ experience.

B. Installer: Company specializing in performing Work of this section with minimum three years’ experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Unroll sheet material and allow to relax in environmentally-controlled room for 24 hours prior to installation.

C. Section 01 60 00 - Product Requirements.

D. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

E. Store materials for not less than 48 hours prior to installation in area of installation at temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

1.7 EXTRA MATERIALS

A. Section 01 77 00 – Closeout Procedures: Spare parts and maintenance products.

B. Furnish additional 5% of packaged material for Owner’s future use for each type, color, and pattern of flooring installed.

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PART 2 - PRODUCTS

2.1 RUBBER FLOORING

A. Manufacturers:
1. Tarkett Sports, www.tarkettsportsindoor.com
2. Substitutions: Section 01 25 00 – Substitution Procedures.

B. Rubber Athletic Sheet Flooring: 100-percent recycled high-density rubber flooring.
1. Basis of Design*: Tarkett Ominisports*.
2. Color/texture as scheduled
3. Construction: Embossed, homogeneous product of vulcanized natural and synthetic rubbers with mineral aggregates, stabilizing agents, and pigmentation.
   a. Surface: Printed faux wood design coated with clear PVC and UV cured urethane treatment.
   b. Foam force reduction layer: High density closed cell PVC foam with honeycomb embossing.
   c. Intermediate Layers: Reinforced with a non-woven fiberglass grid for dimensional stability.
   d. Total Thickness: Layers vulcanized to form 0.27” (7.1 mm) overall thick sheet.
   e. Antimicrobial treatment.
4. Recyclability:
   a. Made from 30% recycled content and 100% manufacturing waste recycled.
   b. FloorScore certified.
5. Wear Layer: Type 1 – Grade 1 per ASTM F1303/F410.
6. Impact Resistance: Passes EN 1717.
7. Ball Rebound: >90% per ASTM F2772.
8. Fire Rating: Class I per ASTM E648.
9. Roll Width: 6’-6”.

2.2 ACCESSORIES

A. Primers and Adhesives: Waterproof; types approved by flooring manufacturer.

B. Seam Welding Rods: Matching color and compatible material provided by flooring manufacturer.

C. Game-Line and Marker Paint: Enamel or other approved product, compatible with flooring and recommended by flooring and paint manufacturers for use indicated.

1. Colors: As indicated, or if not indicated, as selected by Architect from manufacturer’s full range of line colors

D. Transition Strips: Beveled strips that transition smoothly from the surface of rubber athletic flooring to the adjacent flooring.

E. Rubber Base: Coved, 4-inch high as specified in Section 09 65 00.

2.3 MATERIALS – SURFACE PREPARATION AT EXISTING CONCRETE SLAB

A. Cementitious Patching Compound: A high-compressive strength, fast-setting, trowelable, cement-based compound designed for filling cracks, voids, and minor depressions in concrete. The product must be moisture-resistant and compatible with self-leveling underlayments and resilient flooring adhesives.

B. Self-Leveling Underlayment: A cement-based, pourable, and pumpable underlayment capable of creating a flat, smooth, and hard surface with a minimum compressive strength of 4,000 psi after 28 days. The underlayment must be suitable for receiving resilient sports flooring.

C. Moisture Mitication System: A 100% solids epoxy resin system or other system expressly approved in writing by the resilient sports flooring manufacturer,

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designed to suppress moisture vapor emissions to acceptable levels. Provide a system with a perm rating compliant with ASTM E96.

D. Primer: A liquid primer as required and produced by the manufacturer of the patching compound and self-leveling underlayment, used to seal the substrate and ensure a proper bond. As approved by the flooring manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Verify concrete floors are dry to maximum moisture content as recommended by manufacturer, and exhibit negative alkalinity, carbonization, and dusting. Maximum allowable amount of moisture emission from substrate is 3.0 pounds per 1,000 square feet in 24-hour period, and shall not exceed maximum allowable moisture content as recommended or allowed by flooring manufacturer. Perform calcium chloride testing on existing concrete subfloors and submit written test results to Architect prior to beginning installation of bonded flooring.

C. Verify floor surfaces are free of substances capable of impairing adhesion of new adhesive and finish materials.

D. Starting installation of flooring indicates installer’s acceptance of flooring substrate conditions.

E. Prior to commencing work, examine the substrate to confirm the complete removal of previous LVT flooring. Verify that all conditions comply with the requirements specified in the resilient sports flooring manufacturer's installation instructions. Report any adverse conditions, such as excessive structural cracking, spalling, or uncured concrete, to the Architect in writing. Commencement of surface preparation work shall constitute acceptance of the substrate by the Installer.

3.2 PREPARATION

A. Remove coatings, including curing compounds and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

B. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.

C. Prohibit traffic until filler is cured.

D. Clean substrate.

E. Apply primer as required to prevent "bleed-thru" or interference with adhesion by substances that cannot be removed.

F. Mechanically remove all residual adhesive, mastic, paint, curing compounds, and other foreign matter from the concrete surface. Chemical adhesive removers are not permitted. Utilize mechanical means such as diamond grinding or shot blasting to achieve a clean, porous, and profiled surface with a Concrete Surface Profile (CSP) of 2-3. The entire substrate shall be vacuumed with a HEPA-filtered vacuum to be free of all dust and debris.

G. Perform moisture testing in accordance with ASTM F2170 (In-Situ Relative Humidity) and ASTM F1869 (Anhydrous Calcium Chloride). If test results exceed the limits set by the resilient sports flooring manufacturer, notify the Architect and

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do not proceed until written instruction is received. If required, apply the specified moisture mitigation system according to the manufacturer's written instructions.

3.3 INSTALLATION – PRIMER

A. After cleaning and, if necessary, moisture mitigation, prime the entire concrete substrate with the specified primer. Fill all non-moving control joints, dormant cracks, and other surface imperfections with the specified cementitious patching compound and trowel flush with the adjacent surfaces. Apply the specified self-leveling underlayment at the required thickness to achieve a substrate that is flat to a tolerance of 1/8 inch in any 10-foot radius. Ensure the finished, prepared substrate is smooth, hard, and fully cured prior to commencing the installation of the new resilient sports flooring.

3.4 INSTALLATION – RUBBER FLOORING

A. Lay flooring with joints and seams parallel to building lines. Provide wall-to-wall lengths where possible to avoid end seams. Butt all seams tightly and stagger end seams.

B. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

C. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.

D. Install manufacturer’s pre-formed transition strips at exposed edges where flooring does not abut vertical surfaces.

E. Mask flooring at game lines and markers and apply paint to produce sharp edges.

F. At movable partitions, install flooring under partitions without interrupting floor pattern.

G. Section 01 77 00 – Closeout Procedures: Final cleaning.

H. Remove excess adhesive from floor, base, and wall surfaces without damage.

I. Clean, seal, and maintain resilient flooring products.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 77 00 – Closeout Procedures: Protecting installed construction.

B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended in writing by flooring manufacturer.

C. Do not move heavy or sharp objects directly over floor surfaces. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

D. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

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SECTION 28 46 00

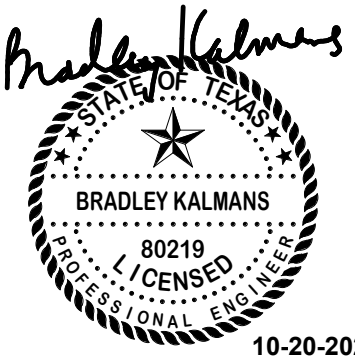
FIRE DETECTION AND ALARM SYSTEM (ALTERNATE)

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Provide all detailed engineering, documentation, materials and devices, installation, calibration, software programming and check-out necessary for a complete and fully operational fire detection and alarm system in accordance with the full intent and meaning of the drawings and specifications including, but not limited to, the following:

1. Supply, install and connect all hardware necessary to provide a complete and operational fire detection and alarm system.
2. Supply, install and wire all field hardware, fire alarm control panel, power supplies, power circuits, alarm initiating devices, audible and visual alarm devices, auxiliary control relays, signal initiating and signaling devices, conduits, wires, fittings and all accessories required for the system to perform as specified as required.
3. Supply, install, debug and test all software required to provide all software functions described in accordance with the full intent and meaning of the drawings and specifications.
4. Coordinate the work specified under this Section with other trades and contractors to assure a complete and fully operational system.



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B. The intent of fire detection and alarm system work is specified in this section and indicated on the drawings. The installing contractor shall design and provide a complete system, meeting the requirement of this specification. The Contractor shall provide all fire alarm and initiation devices required for a complete system acceptable to all governing authorities. Provide proper spacing and coverage of all devices.

C. Provide alternate pricing for the full replacement of existing system, with expansion into new and remodeled areas. Provide monitoring and control of all ancillary systems, per code requirements.

1.2 RELATED SECTIONS

A. Divisions 22, 23 and 26

B. Sprinkler Systems

C. Food Service

1.3 CODES / STANDARDS / REFERENCES (LATEST EDITIONS)

A. National Fire Protection Association (NFPA):

1.	NFPA1	Fire Code
2.	NFPA 13	Systems, Installation
3.	NFPA 17	Dry Chemical Extinguishing Systems
4.	NFPA 70	National Electrical Code
5.	NFPA 72	National Fire Alarm and Signaling Code.
6.	NFPA 80	Fire Doors and Fire Windows
7.	NFPA 90A	Standard for the Installation of Air Conditioning and Ventilating Systems.
8.	NFPA 92A	Smoke Control Systems
9.	NFPA 101	Life Safety code.

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10. NFPA 105 Smoke Control Door Assemblies
11. NFPA 1221 Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems.
12. NFPA 2001 Fire Extinguishing Systems, Clean Agent

B. UL: Underwriters Laboratories, Inc.
1. 217 Single and Multiple Station Smoke Detectors.
2. 268 Smoke Detectors for Fire Protective Signaling Services.
3. 864 Control Units for Fire Protective Signaling Services, 9th Edition.
4 864 Transient protection
5. 1480 Speakers for Fire Protective Signaling Systems
6. UL Fire Protection Equipment Directory.
7. UL Electrical Construction Materials Directory.

C. Factory Mutual P7825 Approval Guide

D. American National Standards Institute (ANSI).

E. National Electrical Manufacturer’s Association (NEMA).

F. Institute of Electrical and Electronic Engineers (IEEE).

G. Electronic Industries Association (EIA-232-C): Interface between Data Terminal Equipment and Data Communication Equipment Employing Serial Binary Data Interchange.

H. Requirements of American Disabilities Act (Public Law 101-336).

I. Local Accessibility Standards

J. State Fire Marshall or Requirements of Local Authorities having Jurisdiction

K. State Insurance Code

L. International Building and Fire Code Adopted by Local Authority Having Jurisdiction

M. Local & State Building Codes

N. In addition the above requirements, comply with all local codes. Where discrepancies exist between codes, drawings or specifications, the more stringent requirement shall prevail. Installation shall be subject to approval, inspection and test of applicable regulatory agencies.

1.4 MANUFACTURER’S, PLANNER’S AND INSTALLER’S QUALIFICATIONS

A. The manufacturer shall regularly and presently produce, as the manufacturer’s principle products, the equipment and material of the type and design specified for this project, and shall have manufactured the item for at least 5 years.

B. Manufacturer’s product shall have been in satisfactory operation on three installations of similar size, type and design as this project, for approximately 3 years.

C. Manufacturer shall submit at the time of bid a list of installations where the products have been in operation.

D. The installing contractor shall have been actively engaged in the business of designing,

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selling, installing, and servicing fire alarm systems for at least ten (10) years.

E. The entire Fire Detection and Alarm System shall be installed by an authorized representative of the Fire Alarm Manufacturer and certified by the manufacturer to distribute, sell, and install the specified fire alarm and smoke detection system. Include all components, elements, and testing and acceptance procedures.

F. If the submitted system is being supplied by an authorized distributor of the equipment manufacturer, the distributor shall have been actively engaged in the sale, installation and service of the type of system proposed for this project for a minimum of 10 years.

G. Any proposed installer who cannot show evidence of such qualifications may be rejected. The services of a technician provided and certified by the equipment manufacturer shall be provided to supervise the installation and tests of the system.

H. Furnish evidence there is an experienced and effective service organization, which carries a stock of repair parts for the system to be furnished.

I. The installing contractor shall be licensed by the State Fire Marshall to design, sell, install, and service fire alarm systems as required by the State Insurance Code.

J. The installing contractor shall have on his staff a minimum of two (2) Fire Alarm Planning Superintendent (APS) licensed by the State Fire Marshall's office for such purpose and under whose supervision installation, final connections, and check out will take place as required by the State Insurance Code.

K. The APS shall be a certified NICET Level III state licensed fire alarm planner under whose supervision system design shall take place. In lieu of a NICET certified state licensed fire alarm planner, the contractor or supplier may provide design supervision by a registered professional engineer, who regularly engages in the design of fire alarm systems as required by the Texas Board of Professional Engineers.

L. The installing contractor shall provide 24-hour, 365 days per year emergency service with factory trained, state licensed service technicians.

M. Material shall be new and in perfect condition when installed.

N. Electrical or electronic equipment provided under this Division which has been damaged, exposed to weather, or is, in the opinion of the Architect/Engineer otherwise unsuitable because of improper fabrication, storage, or installation, shall be removed and replaced with new equipment, at no additional cost to the owner.

O. Quality Control Assurance:
1. All components of the fire alarm system shall be products of an Underwriters Laboratories, Inc. listed fire alarm manufacturer, and shall bear the UL Label. Partial listing shall not be acceptable.
2. All components of the fire alarm systems shall use the most current technology available.
3. Only new parts shall be installed at the time of initial installation and to repair the system during the warranty period. No reconditioned parts shall be used.
4. All devices shall be tested and certified that they meet or exceed the “Service Life Expectancy Rating” as outlined by UL and NFPA.

1.5 COORDINATION

A. It shall be the responsibility of the installing contractor to coordinate all requirements

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surrounding installation of the fire alarm system with all other trades.

B. Contractor shall schedule a pre-construction meeting with Owner/Architect regarding the Fire Detection and Alarm System.

1.6 DEFINITIONS

A. General: Wherever mentioned in this specification or on the drawings, the equipment, devices and functions shall be defined as follows:
1. Alarm Signal: A signal, which signifies a state of emergency requiring immediate action and immediate notification of the Fire Department. These are signals such as:
a. The operation of a manual station.
b. The operation of a fire suppression system switch.
2. Pre-Alarm Signal: A signal, which indicates a detection device, has operated. These signals require and immediate response, but do not require immediate notification of the Fire Department.
3. Supervisory Signal: A signal, which signifies the impairment of fire protection system, which may prevent its normal operation.
4. Trouble Signal: A signal, which indicates that a fault, such as an open circuit or ground, has occurred in the system.
5. Alarm Zone: An alarm initiating device or combination of devices connected to a single alarm initiating device circuit.
6. Pre-Alarm Zone: A detector or group of detectors connected to a single detector circuit, which can send an alarm to the central control panel.
7. Supervision Zone: A supervisory signal initiating device or combination of such devices connected to a single supervisory signal circuit.
8. Communication Zone: A fire alarm indicating device or series of devices arranged to visually and/or audibly indicate a fire alarm signal.

1.7 SUBMITTALS

A. Contractor shall meet with Owner’s Fire Alarm System representative prior to submission of formal/final shop drawings to Architect to allow the Owner and Architect to review a preliminary draft copy of the submittal to verify compliance with the specifications and any detailed requirements of the project. After the draft submittal has been reviewed by the Architect / Owner / Engineer, and formal shop drawings have been reviewed by Architect and returned to the Contractor, the required pre-construction meeting shall take place with Owner / Architect / Engineer.

B. Before the final set of shop drawings are submitted to Architect / Engineer, submit drawings to the jurisdictions for approval. All approvals shall be noted on the drawings or by letter from the authorities having jurisdiction (AHJ).

C. All preliminary and as-built design drawings and supporting documentation shall include: Floor Plan Drawings, riser diagrams, control unit wiring diagrams, point to point wiring diagrams, and typical wiring diagrams as described herein.
1. Name of Owner and Occupant
2. Date
3. Location, including street address.
4. Provide a complete written, item-by-item, line-by-line, specification review stating compliance or deviation in full description.
5. Device Legend
6. Input/output programming matrix
7. Licensed Designer Information – Registered Professional Engineer or Alarm Planning Superintendent (APS)

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8. Battery calculations
9. Notification appliance circuit voltage drop calculations
10. Floor Plan
    a. Floor identification
    b. Point of compass
    c. Correct graphic scale
    d. All walls and doors
    e. All partitions extending to within 15 percent of ceiling height
    f. Room descriptions
    g. Fire alarm device / component locations
        1) Signal notification devices
        2) Initiation devices
        3) Smoke control systems
        4) Initiation of automatic extinguishing equipment
        5) Doors that unlock or close automatically
        6) Zone verification for detection devices
        7) Fire/Smoke damper control
        8) Fire alarm panel location
        9) Fire alarm annunciators
        10) Control valves to Fire Protection System
        11) Duct smoke detectors
        12) Supervisory devices
        13) Elevator location
        14) Elevator recall system location
    h. Location of fire alarm primary power connections
    i. Location of monitor/control interfaces to other systems
    j. Riser locations
    k. Methods for compliance with NFPA 72 24.3.13 for survivability (emergency voice systems) as required in NFPA 72 12.4 where applicable.
    l. Ceiling height and ceiling construction details
    m. Fire alarm system riser diagram
        1) General arrangement of the system, in building cross-section
        2) Number of risers
        3) Type and number of circuits in each riser
        4) Type and number of fire alarm components/devices on each circuit, on each floor or level
11. Control unit wiring diagrams shall be provided for all control equipment, power supplies, battery chargers, and annunciators and shall include the following:
    a. Identification of control equipment depicted
    b. Location(s)
    c. All field wiring terminals and terminal identification
    d. All indicators and manual controls, including the full text of all labels
    e. All field connections to supervising station signaling equipment, releasing equipment, and fire safety control.
    f. Typical Wiring Diagram shall be provided for all initiating devices, notification appliances, remote light emitting diodes (LEDs), remote test stations, and end-of-line and power supervisory devices.
12. Complete system bill of material of all hardware components.
13. Detailed system operational description. Any specification differences and deviations shall be clearly noted and marked.
14. Submittal sheets sequentially numbered with the format: sheet number of number total. For example: 1 of 3.
15. Complete set of manufacturer’s operating instructions, circuit diagrams and the information necessary for proper installation, operation and maintenance.
16. Manufacturers catalog cut sheets shall be provide for each piece of equipment with the appropriate model or part number highlighted in cases where multiple model

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numbers or part numbers are shown.

17. Fire detection and alarm system's panel configuration complete with peripheral devices, batteries, power supplies, and interconnection diagrams.
18. Indicate visual alarm device initial candela setting required for coverage.
19. Sample of proposed graphic/text annunciation.

1.8 OPERATION AND MAINTENANCE MANUALS

A. Submit complete sets of operation and maintenance manuals. Manual, less as-builts, and sign-off sheets, shall be provided upon completion of the work. Approval of the manual will be required prior to substantial completion.

B. The Operation and Maintenance Manual shall consist of the following:
1. The manual shall include the names, addresses and telephone numbers of each Contractor installing products, and of the nearest service representative for each product. The manual shall have a Table of Contents and tab sheets. Update manuals to include modifications made during installation, checkout and acceptance. The manual shall include the sections described in the following paragraphs.
2. The Functional Design Section shall identify the operational requirements for the system and explain the theory of operation, design philosophy, and specific functions. Hardware and software functions, interfaces, and requirements shall be provided for system operating modes.
3. The Hardware Section shall describe equipment provided, including general description and specifications, installation and checkout procedure, electrical schematics and layout drawings. Alignment and calibration procedures, manufacturer's repair parts list indicating source of supply, interface definition, signal identification and wiring diagrams. Also, include a complete parts list of all components as well as a list of recommended spare parts. The spare parts list shall include, for each item, the manufacturer's name, the model of the part, and serial number, if appropriate, and a physical and electrical description of the part.
4. The Software Section shall describe programming and testing, starting with a system overview and proceeding to a detailed description of each software module, to instruct the user on programming or reprogramming any portion of the system and other information necessary to enable proper system usage.
5. The Operation Section shall provide instructions for operation of the system, including system start-up procedures, use of system and applications software, alarm presentation (where applicable), failure and recovery procedures, preventive maintenance schedule, parameter schedules and sequence definition, and system access requirements.
6. The Maintenance Section shall provide descriptions of maintenance for equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.
7. The Shop Drawings section shall include copies of all approved shop drawings and submittal materials updated to "AS BUILT".

1.9 AS-BUILT DRAWINGS

A. Prepare and submit detailed "As-Built" drawings. The drawings shall include certified test of the system, testing and acceptance sign-off sheets, and other items specified elsewhere to be performed after initial submission of operation and maintenance manuals, complete wiring diagrams showing connections between all devices and equipment, both factory and field wired. Include a riser diagram and drawings showing the as built location of all devices and equipment. The drawings shall show the system as installed, including all deviations from both the project drawings and the approved shop drawings. The drawings shall be prepared on uniform sized sheets, the same size as the

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project drawings. The plan drawings shall be 11x17 inch and inserted in the specified Operations and Maintenance Manuals. Provide electronic copies in PDF and Autocad.dwg format.

1.10 OPERATIONAL INSTRUCTIONS

A. Provide a typeset printed or a laser jet printed instruction card mounted behind a lexan plastic or glass cover in a stainless steel or aluminum frame. Install the frame in a conspicuous location observable from the Fire Alarm Control Panel (FACP). The card shall show those steps to be taken by an operator when a signal is received as well as the functional operation of the system under all conditions, normal, alarm, and trouble. The instructions shall be approved by the Architect/Engineer before being posted.

1.11 WARRANTY

A. The fire alarm system, including labor and material, shall be free from defects in workmanship and materials, under normal use and service, for a period of one year from the date of substantial completion. Major components including but not limited to the main fire alarm panel, sub-panels, panel extenders, power supplies and emote annunciators. Any equipment or workmanship shown to be defective shall be repaired, replaced or adjusted during normal working hours at no cost to the owner within 4-hour notification. Any equipment replaced shall be complete with full factory warranty for that part beginning on the date of installation.

B. Repair services and replacement parts for the system to be furnished under this Contract shall be available for a period of ten years after the date of final acceptance. Service during the warranty period shall be provided within four hours after notification and all repairs shall be corrected within 24 hours after notification throughout the warranty specified in this section.

C. The installing contractor shall provide 24 hour, 365 days per year emergency service with factory trained, state licensed service technicians.

D. The equipment manufacturer shall be represented by a local service organization and the name of such shall be furnished to the Owner, Architect, and Engineer.

E. Provide a certified fire alarm test of the complete system no earlier than 30 days prior to the end of the warranty period and correct any and all items to bring the system to an approved status at no cost to the Owner. Clean all smoke detectors and replace all defective parts at no cost to the Owner.

F. Guarantee labor, materials, and equipment provided under this contract against all defects for a period of one year after the date of final acceptance and receipt and approval of “As-Built” drawings and schematics of all equipment.

G. All manufacturer’s warranties which extend past final completion shall be fully transferred to the Owner.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturers acceptable contingent upon Products’ compliance with the specifications:
1. Silent Knight by Honeywell – (SK Series only)
2. Farenhyt by Honeywell – (IDP Protocol only)
3. Notifier by Honeywell

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2.2 SYSTEM DESCRIPTION

A. System shall be a completely multiplexed addressable fire detection and alarm system, tested and left in first class operating condition. Voice evacuation systems where required or specified, shall have voice alarm notification wherever audible notification is required.

B. The system shall provide communication with initiating and control devices individually. All of these devices shall be individually annunciated at the fire alarm control panel. Annunciation shall include the following conditions for each point:
1. Alarm
2. Trouble.
3. Open
4. Short
5. Device missing/failed.

C. System circuits shall be wired as follows: Initiating device circuit (IDCs) shall be Style B, indicating appliance circuit (IACs) shall be Style Y, and signal line circuit (SLCs) shall be Style 4 as describe in NFPA 72.

D. The system shall contain independently supervised initiating device circuits. The alarm activation of any initiation circuit shall not prevent the subsequent alarm operation of any other initiation circuit. All addressable loops shall have loop isolation protection devices to maintain partial fire alarm system integrity should a fault occur. A loop isolation device shall not exceed a maximum of 20 devices.

E. There shall be supervisory service initiation device circuits for connection of all sprinkler water flow switches and valves. Device activation shall cause a general alarm at the fire alarm control panel. Each flow and tamper switch shall have an individual address.

F. There shall be independently supervised and independently fused indicating appliance circuits for all alarm signaling devices. Disarrangement conditions of any circuit shall not affect the operation of other circuits.

G. Auxiliary manual controls shall be supervised so that an “off normal” position of any switch shall cause an “off normal” system trouble.

H. The incoming power to the system shall be supervised so that any power failure must be audibly and visually indicated at the fire alarm control panel. A green “power on” LED shall be displayed continuously while incoming power is present at the building fire alarm control panel.

I. The system batteries shall be supervised so that a low battery condition or disconnection of the battery shall be audibly and visually indicated at the building fire alarm control panel.

J. The system modules shall be electrically supervised for module placement. Should a module become disconnected, the system trouble indicator shall illuminate and the audible trouble signal shall sound.

K. The system shall have provisions for disabling and enabling all circuits individually for maintenance or testing purposes.

L. The system shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in a normal or supervisory mode for a period of 24

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hours with 20 minutes of alarm operation at the end of this period as a minimum. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. If batteries are fully discharged, the charger shall recharge them back to full charge in four hours.

M. All external circuits requiring system operating power shall be 24 VDC and shall be individually fused at the respective fire alarm control panel.

N. All addressable devices shall have the capability of being disabled or enabled individually from the fire alarm control panel.

O. A maximum of 75 percent capacity of addressable devices shall be multi-dropped from a single pair of wires. Systems that require factory reprogramming to add or delete devices within the capability of the designed system are unacceptable. Expansion of the designed system shall be accomplished by factory reprogramming.

P. The communication format to the addressable devices shall be a completely digital poll/response protocol to allow t-tapping of the circuit wiring. A high degree of communication reliability must be obtained by using parity data bit error checking routines for address codes and check sum routines for the data transmission portion of the protocol.

Q. Each addressable device must be uniquely identified by an address code. The system must verify that proper type device is in place and matches the desired software configuration. All remote or external panels shall have an individual address for monitoring.

R. Wiring type, distances, survivability, and wiring configuration types shall be approved by the equipment manufacturer. The system shall allow a line distance of up to 2,500 feet to the furthest addressable device on a Style Y circuit. Plenum rated fire alarm cable shall have an outer jacket insulation color of red. Minimum wire size shall be #18 AWG.

S. Each panel extender shall have an individual address.

2.3 FIRE ALARM CONTROL PANEL (FACP)

A. The FACP shall be capable of communicating with the types of addressable devices specified below. It shall display only those primary controls and displays essential to operation during a fire alarm condition. Keyboards or keypads shall not be required to operate the system during fire alarm conditions. Panel shall support a minimum of 500 addressable points.

B. The fire alarm control panel (FACP) shall be fully enclosed in a lockable steel enclosure as specified herein. All operations required for testing or for normal care and maintenance of the system shall be performed from the front of the enclosure. If more than a single unit is required to form a complete control panel, the unit enclosures shall match exactly. The system shall operate at 24 VDC.

C. Panel shall be large enough to accommodate all components and also to allow ample gutter space for interconnection of all panels as well as all field wiring. Each enclosure and each component shall be identified by an engraved red laminated phenolic resin nameplate. Lettering on the nameplate shall not be less than 1" high. Individual components and modules within the cabinets shall be identified by engraved laminated phenolic resin nameplates.

D. A local audible device shall sound during alarm, trouble, or supervisory conditions. This

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audible device shall sound differently during each condition to distinguish one condition from another without having to view the panel. This audible device shall also sound during each key press to provide an audible feedback to ensure that the key has been pressed properly.

E. The following primary controls shall be visible through a front access panel:
1. Minimum 3-lines, minimum 40 alphanumeric characters per line display.
2. Individual red system alarm LED.
3. Individual yellow supervisory service LED.
4. Individual yellow trouble LED.
5. Green “power on” LED.
6. Alarm acknowledge key.
7. Trouble acknowledge key.
8. Alarm silence key.
9. System reset key.
10. Additional control buttons as directed by Owner.

F. Under normal condition, the front panel shall display a “SYSTEM IS NORMAL” message and the current time and date.

G. Should an abnormal condition be detected, the appropriate LED (Alarm, Supervisory or Trouble) shall flash. The panel audible signal shall pulse for alarm conditions and sound steady for trouble and supervisory conditions.

H. The alphanumeric display shall provide the following information relative to the abnormal condition of a point in the system.
1. 40-character custom location label.
2. Type of device (i.e. smoke, pull station, water flow).
3. Point status (i.e. alarm, trouble).
4. Addressed device physical location to correspond to the actual graphic room numbers.

I. Alarm conditions shall be displayed on the alphanumeric display. The top line of 40 characters shall be the point label and the second line shall be the device type identifier. The system alarm LED shall flash on the control panel until the alarm has been acknowledged. Once acknowledged, this same LED shall latch on. A subsequent alarm received from another zone shall flash the system alarm LED on the control panel. The alphanumeric display shall show the new alarm information.

J. Each independently supervised circuit shall include a discrete readout to indicate disarrangement conditions per circuit.

K. Acknowledgment for each abnormal condition shall be provided. Acknowledge keys shall not be pass code protected. Acknowledge keys shall be protected by the locked enclosure only. After all points have been acknowledged, the LEDs shall glow steady and the audible device be silenced. The total number of alarms, supervisory and trouble conditions shall be displayed, along with a prompt to review each list chronologically. The end of the list shall be indicated by the message, “END of LIST”.

L. Pressing the appropriate acknowledge button shall display the first unacknowledged condition in the appropriate list (either alarm, supervisory or trouble), and shall require another acknowledge button for each subsequent alarm condition. Press to acknowledge shall only silence the displayed point.

M. Alarm silencing:
1. Should the “Alarm Silence” button be pressed, all audible alarm signals shall

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cease operation.

2. Visual signals shall not be extinguished during alarm silence inhibit mode.

N. System reset:
1. The “System Reset” button shall be used to return the system to its normal state after an alarm condition has been remedied. The alphanumeric display or reset LED shall step the user through the reset process with simple English Language messages.
2. Should an alarm condition continue to exist, the system shall remain in an abnormal state. System control relays shall not reset. The audible device and the alarm LED shall be on.
3. Should the alarm silence inhibit function be active, the System Reset and alarm silence key shall be ignored.

O. Additional function keys, or their equivalent, shall be provided to access status data and control the function for the following points:
1. HVAC - Bypass
2. Indicating appliance circuits bypass
3. Auxiliary relays points bypass
4. All other input/output points bypass.
5. Additional control buttons as directed by Owner.

P. The following status data or their equivalent shall be available:
1. Primary state of point.
2. Device, PID and card type information.
3. Current priority of outputs.
4. Disable/enable status.
5. Verification tallies of initiating devices.
6. Automatic/manual control status of output points.
7. Acknowledge status.
8. Relay status.

Q. LED supervision: Where provided, all slave module LEDs shall be supervised for burnout or disarrangement. Should a problem occur the alphanumeric display shall display the module and LED location numbers to facilitate location of that LED.

R. System trouble reminder: should a trouble condition be present within the system and the audible trouble signal silenced, the trouble signal shall resound at pre-programmed time intervals to act as a reminder that the fire alarm system is not 100% operational. Both the time interval and the trouble reminder signal shall be programmable.

S. The fire alarm control panel features shall include, but not be limited to:
1. Setting of time and date.
2. LED testing.
3. Alarm, trouble, and abnormal condition listing.
4. Enabling and disabling of each monitor point separately.
5. Activation and deactivation of each control point separately.
6. Changing operator access levels.
7. Walk test enable.
8. Running diagnostic function.
9. Displaying software revision level.
10. Displaying historical logs.
11. Displaying card status.
12. Point listing.
13. For maintenance purposes, the following lists, or their equivalent, shall be available from the system program and/or the point lists menu:

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a. All points list by address.
b. Monitor point list.
c. Signal list.
d. Auxiliary control list.
e. Feedback point list.
f. LED/switch status list.
g. Additional control buttons as directed by Owner.

14. Fire Drill:
    a. Fire drill activation switch shall activate all audio/visual devices only. Fire drill shall not enter into the alarm sequence of operation, shall not close smoke or fire/smoke dampers, shall not deactivate any HVAC systems, kitchen hoods, etc.
    b. Activation of any trouble or alarm condition shall supercede the evacuation drill.
    c. Fire drill shall be canceled by the system reset key, alarm silence, or drill key.
15. Scrolling through menu options or lists shall be accomplished in a self-directing manner. These controls shall be located behind an access door.
16. The alphanumeric display shall have an alpha numeric, back-lighted LCD, LED, or gas plasma display. The display shall support numeric and both upper and lower case letters. Lower case letters shall be used for soft key titles and prompting the user. Upper case letters shall be used for system status information. A cursor shall be visible when entering information.
17. The system shall be capable of being tested by one person. The actuation of the “enable walk test” program at the fire alarm control panel shall activate the “Walk Test” mode of the system, which shall cause the following to occur:
    a. The remote monitoring circuit connection shall be bypassed.
    b. Control relay functions shall be bypassed.
    c. The control panels shall show a trouble condition.
    d. The panel shall be capable of selecting either: the alarm activation of any initiation device causing the audible signals to activate for two seconds or the alarm activation of any initiation devices causing the audible signals to code a number of pulses to match the zone number.
    e. The panel shall automatically reset itself after signaling is complete.
    f. Any momentary opening of an initiating or indicating appliance circuit wiring shall cause the audible signals to sound for 4 seconds indicating a trouble condition.
    g. The control panel shall be capable of supporting up to 8 separate testing groups whereby one group of points may be in a testing mode and the other (non-testing) groups may be active and operate as programmed per normal system operation. After testing is considered complete, testing data may be retrieved from the system in chronological order to ensure device/circuit activation.
    h. Should the walk test feature be on for an inappropriate amount of time, it shall revert to the normal mode automatically.
18. Provide three (3) access levels with level 3 being the highest level. Level 1 action shall not require a pass code. Pass codes shall consist of up to ten (10) digits. Changes to pass codes shall only be made by Level 3 authorized personnel.
    a. When entering a pass code, the digits entered shall not be displayed. All key presses shall be acknowledged by a local audible sound and/or visual “*” in the 80 character display.
    b. When a correct pass code is entered, the new access level shall be in effect until the operator manually logs out or the keypad has been inactive for ten (10) minutes.
    c. Should an invalid code be input, access shall be denied.
    d. Access to a level shall only allow the operator to perform all actions

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within that level plus all actions of lower levels, not higher levels.

e. The following keys/switches, or their equivalent shall have access levels associated with them:
Set time/date.
Manual control
Disable/enable
Clear historical alarm log
Clear historical trouble log
Walk test
Change alarm verification

f. The following keys/switches shall not be pass code protected and shall be protected by the lockable enclosure:
Alarm Silence
System Reset
Acknowledge

19. The fire alarm system shall allow for loading and editing special instructions and operating sequences as required. The system shall be capable of being reprogrammed to accommodate system expansion and facilities changes in operation. All software operations shall be stored in a non-volatile programmable memory within the fire alarm control panel. Loss of primary and secondary power shall not erase the instructions stored in memory.

20. Resident software shall allow for full configuration of initiating circuits so that additional hardware shall not be necessary to accommodate changes in, for instance, sensing of normally open contact devices to sensing of normally closed contact devices, or from sensing of normally open contact devices to sensing a combination of current limited and non-current limited devices on the same circuit and being able to differentiate between the two, or changing from a non-verification circuit to a verification circuit or vice-versa.

21. Resident software shall also allow for configuration of indicating appliance and control circuits so that additional hardware shall not be necessary to accommodate change in, for instance changing a non-coded indicating appliance circuit to a coded circuit.

22. The main fire alarm panel shall have the resident ability to store a minimum of 600 system events in chronological order of occurrence. Event history shall include all system alarms, troubles, operator actions, unverified alarms, circuit/point alterations, and component failures. Events shall be time and date stamped. Events shall be stored in non-volatile buffer memory. Access to history buffer shall be secured via 5-digit password security code. The system shall have the capability of recalling alarms and trouble conditions in chronological order for the purpose of recreating an event history. Loss of primary or secondary power shall not erase the events stored in the memory. Each recorded event shall include the time and date of that event’s occurrence.

a. The following Historical Alarm log events shall be stored:
Alarms
Alarm acknowledgment
Alarm silence
System reset
Alarm historical log cleared

b. The following historical trouble log events shall be stored:
Trouble conditions
Supervisory alarms
Trouble acknowledgment
Supervisory acknowledgment
Alarm verification tallies
Walk tests results
Trouble historical log cleared

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23. Alarm verification shall be by device, whereby only verification from the same device will confirm the first activation and cause the alarm sequence to occur.
24. The control panel shall have the capability to display the number of times (tally) a device has gone into a verification mode. Should this verification tally reach a pre-programmed number, a trouble condition shall occur.
25. The control panel shall have a dedicated supervisory service LED and a dedicated supervisory service acknowledge key. Pressing the supervisory service acknowledge key shall silence the supervisory audible signal while maintaining the supervisory service LED “ON” indicating the off-normal condition.
26. Activation of an auxiliary bypass key shall override the selected automatic functions.
27. The system shall have keys that will allow the operator to display all alarms, troubles, and supervisory service conditions including the time of each occurrence.
28. RS-232-C output: the fire alarm control panel shall be capable of operating remote generic consumer type printers; output shall be ASCII from an EIA RS-232-C connection with an adjustable baud rate. Each RS-232-C port shall be capable of supporting and supervising a remote display and printer. Data amplifiers shall be used to increase data line distance when required.
29. Panel shall be sized to accommodate all required equipment. Panel shall be equipped with locks and transparent door, providing freedom from tampering yet allowing full view of the various displays and controls.

T. The fire alarm control panel shall have a 25% spare initiating point and battery capacity for future use.

U. The power supply shall provide all control panel and peripheral power needs with filtered power as well as unregulated 24VDC power for external audio-visual devices. The audio-visual power shall be increased as needed by adding additional modular expansion power supplies. All power supplies shall be designed to meet UL and NFPA requirements for POWER-LIMITED operation on all external signaling lines, including initiating circuits and indicating circuits. Design the system power supplies and power trunk wiring for all annunciation devices required, and to add a minimum of five (5) 110cd visual devices in the future. Individual design loading shall not exceed 70% of power supply and system wiring capacity.
1. Input power shall be 120VAC 60Hz. The power supply shall provide internal supervised batteries and automatic charger. The power supply shall provide positive and negative ground fault supervision, battery/charger fail condition, AC power fail indicators. The power supply shall also provide supervision of modular expansion power supplies as may be required.
2. Surge protection shall be integral to the control panels.
3. Each power supply shall be monitored and have an individual address.

V. Digital Fire Alarm Communicator:
1 Two line primary and secondary telephone line connections
2. Automatically seizes telephone line.
3. Automatic verification between panel and receiving station.
4. Transmits common trouble and supervisory conditions.
5. Dialer status LED.
6. Multiple communication formats including Ademco Contact ID.
7. Dual tone multi-frequency (DTMF) or Pulse modes.
8. Programming password protected.
9. UL approved.

W. IP Internet and Digital Cellular Communicator:
1. UL 864 listed

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2. Supervise IP Ethernet connection every 90-seconds or less
3. Upload/Download capable
4. Transmit all signals and information from the DTMF communicator

X. Detector sensitivity shall be programmable from the control panel from the following sensitivities: 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 and 3.7% obstruction. Detectors shall be able to be programmed to alert a trouble signal at a lower obstruction and shall report an alarm if the smoke density increases to a predetermined set point. Control Panel and Detectors shall be capable of “Day-Night” automatic sensitivity adjustments.

Y. Control Switches:
1. Acknowledge/step Switch
2. Signal Silence Switch
3. System Reset Switch
4. System Test Switch
5. Lamp Test

Z. Automatic Detector Test: The system shall include a special automatic detector test feature, which permits reading and adjustment of the sensitivity of all intelligent detectors from the main control panel. An automatic detector test shall occur automatically fourteen times each twenty-four hour period or be initiated manually from the FACP as desired. In addition, the automatic test feature shall also permit the functional testing of any "intelligent" detector or addressable interface device individually from the main control panel. Automatic detector test sequencing shall be terminated upon receipt of an alarm condition. Detector test shall report all unprogrammed devices installed and report all programmed devices not installed.

AA. Emergency voice alarm communication system:
1. The emergency voice and tone communication system shall be a pre-built system and shall only require two wires from a polarity reversal circuit or a dry contact for activation. It shall supervise the NO dry contact (if used) and provide a form C trouble relay activation in the event of a system fault. The Voice Communication System shall incorporate minimum 50 watts true RMS amplifiers for both tone and speech amplification. The system shall have a load capacity of up to 100 watts. Optionally, the Voice Communication System shall be capable of providing 50 watts of audio with full backup. The Voice Communication System shall be capable of operating as a stand-alone system or follow the activation of the fire alarm/suppression system. The Voice Communication System shall include a regulated power supply and shall be capable of charging and housing its own batteries. There shall be no need to calculate the load requirements or draw any energy from the fire alarm/suppression system. The Voice Communication System shall come with one speaker supervisory zone as a standard and shall be capable of supervising any combination of up to 11 speaker and/or strobe monitoring modules.
2. A full set of control switches including an all call, tone interrupt, trouble silence and reset shall be available at the Voice Communications System. The Voice Communications System control panel shall also have a green POWER ON LED, a red ALARM LED, a yellow BROWN OUT LED and a yellow SYSTEM TROUBLE LED.
3. The Voice Communication System shall be able to detect a short on any speaker or strobe zone during the normal and alarm mode. The shorted zone shall be isolated from the system and a dedicated LED on the supervised zone shall indicate the short circuit condition. The system shall produce an audible and visual signal indicating that a trouble condition has occurred. Similarly an open circuit shall create a trouble condition and corresponding LED annunciation at the affected zone and at the main control module. Zones that are not shorted or

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opened shall remain operational.

4. The Voice Communications System shall be able to detect a brownout condition on the AC supply. In the brownout condition the Voice Communication System shall activate a dedicated LED and an audible trouble signal. Ground faults shall activate the system trouble LED and the audible trouble signal, as well as specific LEDs indicating negative and positive ground faults.
5. The Voice Communication System shall be field configurable for 25 or 70.7 volt RMS audio output via program jumpers.
6. The Voice Communication System shall have a digital message player / recorder. The digital message player / recorder shall be capable of storing alert and evacuation tones as well as an emergency voice message. It shall be possible to modify the digital message and tones in the field using a built-in acoustic microphone or headphone jack connected to an audio device. There shall be no need for the burning of eproms in order to program the digital message player / recorder. The digital message player / recorder shall be supervised by the Voice Communication System. The Voice Communications System shall provide a backup evacuation tone in the event of a digital message player / recorder failure.
7. An alarm condition shall cause an audible signal and a red LED to activate. A Voice Communication System with a digital message player / recorder shall produce an ALERT tone followed by an emergency voice message, and in turn followed by an ALARM tone. The number of tone repetitions shall be configurable by the setting of DIP switches on the digital message player / recorder.
8. The sheet metal enclosure shall include a hinged deadfront allowing easy access to all the Voice Communication System components for the purposes of wiring, setting the system configuration and servicing. A door with a key lock shall be part of the Voice Communication System enclosure.

2.4 FIELD DEVICES

A. All devices shall be supervised for trouble conditions. The fire alarm control panel shall be capable of displaying the type of trouble condition (open, short, device missing/failed). Should a device fail, it shall not hinder the operation of other system devices.

B. Visual Signals:
1. Strobe lights shall be of the electronic flashing strobe type and operate on 24 VDC. The strobe light shall be capable of producing 75 candela on axis to comply with ADA and UL 1638 requirements, and 15, 30, or 110 candela to comply with UL 1971 requirements. Visual signals in common areas of illumination shall have synchronized flash. Provide white with red letters.
2. All wall mounted visual devices installed in gymnasiums, corridors shall have a protective cover.

C. Combination Alarm Signal and High Intensity Visual Signals:
1. Strobe lights shall operate on 24 VDC. The strobe light shall be capable of producing 75 candela on axis to comply with ADA requirements, and 15, 30 or 110 candela to comply with UL 1971 requirements. Visual signals in common areas of illumination shall have synchronized flash. Each unit shall provide a Code 3 Temporal tone. The horn shall be capable of an output of 95dB at 10', and intensity adjusted accordingly for the area of coverage. Electronic Mini-Sounder or horn set on low setting shall be provided in interior rooms 900 square feet or less. Mini-sounder shall not be used in any corridors, mechanical electrical rooms and similar large spaces and areas of high ambient noise level. Provide white with red letters.
2. All combination audio / visual devices mounted in student toilets / restrooms, gymnasiums, and student locker / dressing rooms shall have a protective cover.

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3. The audible emergency alarms shall produce a sound that exceeds the prevailing sound level in the room or space by at least 15 dba or shall exceed any maximum sound level with a duration of 60 seconds by 5 dba, whichever is louder with or without protective cover. Sound levels for alarm signals shall not exceed 110 dba at the minimum hearing distance from the audible appliance.

D. Exterior Audible / Visual Signal:
1. Provide semi-flush mounted, molded of high impact red thermoplastic and listed for exterior weatherproof locations.

E. Combination Voice Signal and High Intensity Visual Signals:
1. Strobe lights shall operate on 24 VDC. The strobe light shall be capable of producing 75 candela on axis to comply with ADA requirements, and 15, 30 or 110 candela to comply with UL 1971 requirements. Visual signals in common areas of illumination shall have synchronized flash.
2. If required to be wall mounted in student toilets, gymnasiums, corridors, student locker / dressing rooms provide wire guard protective cover.
3. The visual signal lens housing shall be white with red lettered FIRE or as approved by Architect. The speaker and visual signal shall be mounted to a common white speaker baffle. The visual signal shall flash at a rate of minimum of 1 Hz and maximum of 3 Hz, and shall use a strobe type lamp or other high intensity long life light source. The lamp intensity shall be a minimum of 75 candela.
4. The speaker shall be UL 1480 compatible with the control equipment. Unit shall operate within a temperature range of 150°F to -30°F. High output speakers, UL minimum 87dB at 10 feet with speaker taps of .33.66/1.25/2.5 watts. Standard output speakers, UL 75-81 dB at 10 feet with speaker taps of .5/1/1.75/2.75 watts. Capacitor for line supervision.

F. Ceiling mounted recessed mounted speakers shall be UL 1480 compatible with the control equipment. Unit shall operate within a temperature range of 150°F to -30°F. UL minimum 78-87 dB at 10 feet with speaker taps of .25, .5/1.0/2.0 watts. Round, white baffle in gypboard or plaster ceilings, provide 2x2 lay-in grid with UL enclosure, tile bridge supports when recessed in lay-in ceiling tiles Capacitor for line supervision.

G. Surface mounted speakers shall be UL 1480 compatible with the control equipment. Unit shall operate within a temperature range of 150°F to -30°F UL minimum 100 dB at 15 watts at 10 feet. Speaker taps via 7-position selector switch, 25-vol., .48/.94/1.8/7.5/15 watts. Fully enclosed wiring terminals. Capacitor for line supervision. Raco #911 Series Life Safety Appliance back box and adapter, or appliance manufacturer back box.

H. Manual Pull Station: Addressable pull stations shall contain electronics that communicate the station’s status (alarm, normal) to the control panel over two wires which also provide power to the pull station. They shall be manufactured from high impact red Lexan with white lettering. Station shall mechanically latch upon operation and remain so until manually reset by opening with a key common to all system locks. Pull stations shall be double action without glass rods. The front of the station shall be hinged to a back plate assembly and shall be opened with a key to reset the station. The key shall be common with the control panels. The addressable manual station shall have address setting programmed electronically and automatically from the fire alarm control panel. Manual stations shall be designed for semi-flush (surface) mounting on standard electrical box. All pull stations units shall have a protective cover, STI Stopper II #STI-1130 surface mounted cover with local alarm horn. Provide STI, Weather Stopper II #STI3150 for locations where dampness, water or dust is present, and in Natatoriums, except when mounted next to main FACP, staff supervised locations and remote annunciators. Verify cover does not interfere with the operation or key reset function.

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I. Intelligent Photoelectric Smoke Detectors:
1. The detectors shall use the photoelectric principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the ANALOG level of smoke density. The detector shall provide automatic sensitivity "drift" compensation. The detector shall also provide a "maintenance alert" feature whereby the detector shall initiate a trouble condition should the unit’s sensitivity approach the outside limits of the normal sensitivity window.
2. The detectors shall provide address-setting means electronically and automatically at the control panel and programmed for alarm verification.
3. The detectors shall provide operational status and alarm state LED. Under normal conditions, the LED shall flash, indicating the detector is operational and in regular communication with the control panel. An output connection shall also be provided in the base for connecting an external remote alarm LED.
4. The detector shall be semi-flush ceiling mounted and be provided with modular detector head with twist-lock base. No radioactive material shall be used.
5. Voltage and RF transient suppression techniques shall be employed as well as smoke signal verification circuit and an insect screen.

J. Duct photoelectric smoke detectors:
1. Detectors shall be analog addressable type.
2. To minimize nuisance alarms, detectors shall have an insect screen and be designed to ignore invisible airborne particles or smoke densities that are below the factory set alarm point. No radioactive material shall be used.
3. Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the control panel.
4. Voltage and RF transient suppression techniques shall be employed as well as smoke signal verification circuit and an insect screen.
5. Remote alarm/power LED indicator with test switch shall be provided. Unit shall be wall or ceiling mounted in readily visible and accessible area near the location of detector; exact location of unit to be approved by the Architect/Engineer.
6. Detectors shall operate on the same principles and exhibit the same basic characteristics as area type photoelectric smoke sensors. The detector shall operate in air velocities of 300 FPM to 4,000 FPM. Each detector shall interface directly to the system SLC loop without the requirement of interface zone modules.
7. The unit shall consist of a clear molded plastic enclosure (or remote mounted LED status indicator shall be provided next to the smoke detector) with integral conduit knockouts to provide visual viewing of detector/sensor for monitoring sensor operation and chamber condition. The duct housing shall be provided with gasket seals to insure proper seating of the housing to the associated ductwork. Each unit's sampling tubes shall extend the width of the duct and be provided with porosity filters to reduce sensor/chamber contamination.
8. The detectors shall provide alarm and power status indication by LED. Under normal conditions, the LED shall flash, indicating the detector is operational and in regular communication with the control panel. Steady illumination of the LED shall indicate that the control panel has detected and verified an alarm condition. An output connection shall also be provided in the base for connecting an external remote alarm LED.
9. The detectors shall provide address setting means electronically and automatically from the control panel and programmed for alarm verification.

K. Intelligent Thermal Detectors:
1. The detectors shall use dual electronic thermostats to measure temperature levels in its chamber and shall, on command from the control panel, send data to the panel representing the analog temperature level.

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2. The detectors shall provide address-setting means electronically and automatically at the control panel.
3. The detectors shall provide operational status and alarm state LED. Under normal conditions, the LED shall flash, indicating the detector is operational and in regular communication with the control panel. An output connection shall also be provided in the base for connecting an external remote alarm LED.
4. The detector shall be semi-flush ceiling mounted and be provided with modular detector head with twist-lock base.
5. Thermal Detectors shall be combination rate-of-rise and fixed-temperature- rated at 135°F for areas where ambient temperatures do not exceed 100°F and shall be 200°F for areas where ambient temperatures exceed 100°F but not 150°F. The fixed temperature element shall consist of a fusible alloy retainer and actuator shaft. Detectors shall have a smooth ceiling rating of 2,500 square feet. Detectors shall be located as specified and where required by local code authority.
6. Provide fixed temperature 190°F detector in kitchen and kiln room in lieu of combination rate-of-rise / fixed-temperature type.

L. Addressable Carbon Monoxide Detection:
1. System sensor #CO1224 with addressable identification of the CO Detector’s alarm and trouble contact status. UL listed to Standard 2075 Standard for Gas and Vapor Detectors and Sensors.
2. Unit to be powered by the fire alarm system non-resettable 24 VDC supervised power supply.
3. Electro-chemical CO detection.
4. Integral 85db local alarm with local hush/test switch for silence or test.
5. Alarm contacts and trouble contacts for detector trouble, loss of power, and end of life.

M. Auxiliary AHU Relays: Air Products model MR-101C relays shall be provided for HVAC and AHU control and interface. Relays shall be heavy-duty type with contacts rated up to 10 amps at 120V AC, 60 HZ. Relays shall be provided with NEMA I dust cover assembly and be provided with DPDT contacts as well as activated LED indicator.

N. Voltage sensing relays: Addressable control modules for voltage sensing relay interface shall be FCM-1.

O. Monitor Module:
1. Addressable monitor modules shall be provided where required to interface to contact alarm devices.
2. The monitor module shall provide address-setting means electronically and automatically at the control panel. A status/alarm LED shall be provided which shall indicate that the monitor module is operational and in regular communication with the control panel, and indicate detection of an alarm condition.

P. Control Module
1. Control/relay modules shall be provided where required to provide audible alarm interface and/or relay control interface. The control module may be optionally wired as dry contact (form C) relay.
2. The control module shall provide address-setting means electronically and automatically at the control panel. A status/alarm LED shall be provided which shall indicate that the control module is operational and in regular communication with the control panel and indicate when the device is actuated via the fire alarm control panel.

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Q. Auxiliary Interface Points: All auxiliary input points (fire suppression hoods, water flow, fire pump, AHU shut-down points, tamper switches, fire extinguishing systems etc.) shall be connected as required, and addressed as a separate initiating point of annunciation at the fire alarm panel and any remote annunciator as required.

R. Water flow switches / Valve supervisory switches shall be provided and installed by the fire protection contractor and connected by the fire alarm contractor. Wiring of these field devices to the fire alarm system shall be the responsibility of the fire alarm contractor. It is the responsibility of this contractor to ensure the proper function of the system. Each fire protection zone (flow switch) and (Valve switch) shall be addressed electronically and automatically at the control panel as a separate point of annunciation at the fire alarm panel. Coordinate exact location with fire protection contractor and civil drawings.

S. Beam detectors:
1. Microprocessor based beam detectors, consisting of a separate transmitter and matching receiver.
2. Coverage up to 350 ft. X 60 ft.
3. LED status indicators for normal (green), alarm (red), and trouble (yellow).
4. The detectors shall provide address setting means electronically and automatically at the control panel.

2.5 VESDA – VERY EARLY WARNING ASPIRATING SMOKE DETECTION SYSTEM

A. Approved Manufacturers:
1. System Sensor (FASAST) – Detection devices for Cooler / Freezer areas 200 square feet or larger, atriums / high ceiling areas with difficult access.
2. Xtralis (VESDA) – Detection devices for Cooler / Freezer areas 200 square feet or larger, atriums / high ceiling areas with difficult access.

B. The system shall consist of highly sensitive LASER-based Smoke Detectors with aspirators connected to networks of sampling pipes, intelligent filtration arrangement with fail-safe operation, sub-sampling probe (inertial separator), built-in clean air zero capability, local USB configuration port and Ethernet networking port. VESDA detection system shall be networked with the specified Notifier Fire Alarm Control Panel.

C. Design Requirements
1. The system shall consist of an air sampling pipe network to transport air to the detection system, supported by calculations from a computer-based design modeling tool.
2. It shall be tested and approved to cover up to 2,000m^2 (20,000 sq.ft).
3. It shall have a built-in simple user interface indicating alarm and fault status and include a reset / disable button.
4. It shall provide absolute smoke detection.
5. It shall be approved to provide very early warning smoke detection and provide four alarm levels corresponding to Alert, Action, Fire 1 and Fire 2. These levels shall be programmable and able to be set at sensitivities ranging from 0.05-20% obs/m (0.016–6.4% obs/ft.).
6. The detector shall be specifically designed for industrial applications.
7. It shall consist of a highly sensitive LASER-based smoke detector with in-field clean air zero capability, aspirator, intelligent filter and secondary filter.
8. It shall be modular, with field replaceable detection chamber, aspirator, intelligent filter and secondary filter.
9. It shall have four pipe inlets for sample air.
10. It shall incorporate per pipe ultrasonic flow monitoring and provide staged airflow faults.

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11. It shall have a built-in and field replaceable intelligent filter placed after the flow monitoring circuitry.
12. Intelligent filter shall:
    a. Dilute the sampled air for prolonged detector life.
    b. Combine sample air from all pipe inlets.
    c. Divide sampled air into filtered clean air and unfiltered air before mixing them together.
    d. Use HEPA filter with more than 99% efficiency for filtered clean air i.e. removing more than 99% of contaminant particles of 0.1microns or larger, to provide clean air for dilution.
    e. Use a mesh/screen for the unfiltered air for protection against lint type of particles.
    f. Be fail-safe and supervised for correct operation with built-in capability to alert for when replacement is required.
    g. Maintain consistent detector sensitivity over time.
    h. Have ultrasonic airflow monitoring of the unfiltered sampled air through the intelligent filter.
13. It shall have a field replaceable aspirator after the intelligent filter where the diluted sampled air flows through the aspirator prolonging its life.
14. The aspirator shall be a purpose-designed rotary vane air pump. It shall be capable of allowing for multiple sampling pipe runs up to 360m (1,200ft) in total, (4 pipe runs per detector) with a transport time per applicable local codes.
15. It shall have a sub-sampling probe (inertial separator) after the aspirator for reduced dust intake in to the detection chamber.
16. It shall have a secondary foam filter after the sub-sampling probe (inertial separator) where the sub-sampled air flows through the foam filter prolonging detection chamber life. The foam filter shall be capable of filtering particles in excess of 20 microns from the sampled air.
17. It shall have a field replaceable smoke detection chamber which stores the calibration values with the chamber assembly.
18. It shall have capability for in-field clean air zero to provide absolute smoke detection.
19. It shall have capability to measure blockages in the air path in to or out of the detection chamber.
20. It shall have an enclosure rating of IP54.
21. The detector shall allow for direct wall mounting or using a supplied mounting plate.
22. It may be inverted as required in specific applications.
23. It shall be self-monitoring for filter contamination.
24. It shall be configured via local USB port with Ethernet port for remote monitoring.
25. It shall have Fire and Fault relay outputs in addition to three configurable relays. The relays shall be software programmable to the required functions and must be rated at 2 AMP at 30 VDC.
26. It shall have at least one general purpose input (GPI).
27. It shall have Power In and Power Out connections to allow powering more than one detector from one power supply.
28. Optional equipment may include a dedicated Xtralis VSM graphics package.
29. It shall report any fault on the unit by using configurable fault relay outputs or via PC based configuration and monitoring system.
30. The detector shall have built-in event and smoke logging. It shall store smoke levels, alarm conditions, operator actions and faults. The date and time of each event shall be recorded. Each detector (zone) shall be capable of storing up to 18,000 events.

D. Programming Requirements

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Using either USB or Ethernet port the detector shall allow programming of:

1. IP address and related fields to support Ethernet based networking
2. Four smoke threshold alarm levels
3. Time delays
4. Configurable relay outputs for remote indication of detector conditions
5. Holidays and day/night changeover times
6. Major and minor airflow fault limits
7. Aspirator speed
8. General purpose input function
9. Alarm and fault latching

E. Sampling Pipe

1. The sampling pipe shall be smooth bore. Normally, pipe with an outside diameter (OD) of 25mm or 1.05” and internal diameter (ID) of 21mm or ¾” should be used.
2. The pipe material should be suitable for the environment in which it is installed. VESDA pipe material shall be UL 1887 Plenum rated CPVC).
3. All joints in the sampling pipe must be air tight and made by using solvent cement, except at entry to the detector.
4. The pipe shall be identified as Air Sampling/Aspirating Smoke Detector Pipe along its entire length at regular intervals not exceeding the manufacturer’s recommendation or that of local codes and standards.
5. All pipes shall be supported at not less than 1.5m (5ft) centres, or that of the local codes or standards.
6. The far end of each trunk or branch pipe shall be fitted with an end-cap and made air-tight by using solvent cement. Use of an end-cap will be dependent on ASPIRE2 calculations.

F. Sampling Holes

1. Sampling holes shall not be separated by more than allowed for conventional point detectors as required by 30 feet as local codes and standards. Intervals may vary according to calculations. For NFPA the maximum allowable distance is 30ft.
2. Each sampling point port shall be identified in accordance with Codes or Standards.
3. Provide per manufacturer’s recommendations and standards in relation to the number of sampling points and the distance of the sampling points from the ceiling or roof structure and forced ventilation systems.
4. Sample port size shall be as specified by ASPIRE2 calculations.

G. Detection Alarm Levels:

The laser based ASD system shall have four (4) independently programmable alarm thresholds. The four alarm levels may be used as follows:

Alarm Level 1 (Alert)
: Activate a visual and audible alarm in the fire risk area.

Alarm Level 2 (Action)
: Activate the electrical/electronic equipment shutdown relay and activate visual and audible alarms in the Security Office or other appropriate location.

Alarm Level 3 (Fire 1)
: Activate an alarm condition in the Fire Alarm Control Panel to call the Fire Monitoring Service and activate all warning systems.

Alarm Level 4 (Fire 2)
: Activate a suppression system and/or other suitable countermeasures.

The alarm level functions as listed are possible scenarios. Program as directed by Owner to the best utilization of these facilities for each application and the requirements of local A.H.J.

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H. Initial Detection Alarm Settings
1. Alarm Level 1 (Alert) 0.2% obs/m (0.064% obs/ft.)
2. Alarm Level 2 (Action) 0.3% obs/m (0.096% obs/ft.)
3. Alarm Level 3 (Fire 1) 0.40% obs/m (0.128% obs/ft.)
4. Alarm Level 4 (Fire 2) 2.0% obs/m (0.64% obs/ft.)

I. Initial (factory default) Alarm Delay Thresholds
Initial (factory default) settings for the alarm delay threshold shall be:
1. Alarm Level 1 (Alert) 10 seconds
2. Alarm Level 2 (Action) 10 seconds
3. Alarm Level 3 (Fire 1) 10 seconds
4. Alarm Level 4 (Fire 2) 10 seconds

J. Fault Alarms: The Detector Fault relay shall be connected to the appropriate alarm zone on the Fire Alarm Control Panel (FACP) in such a way that a Detector Fault would register a fault condition on the FACP. The Minor Fault and Isolate relays shall also be connected to the appropriate control system. Provide as required by local Codes, Standards or Regulations.

K. Power Supply and Batteries: The system shall be powered from a regulated supply of nominally 24V DC. The battery charger and battery shall comply with the relevant Codes, Standards or Regulations. Typically 24 hours standby battery backup is required followed by 30 minutes in an alarm condition.
1. UL 1481 Listed -provided the power supply and standby batteries have been appropriately sized / rated to accommodate the system’s power requirements.
2. Provide 120-volt 20-amp circuit from the life safety branch panel to each power supply.

2.6 AUXILIARY EQUIPMENT MONITORING

A. The fire alarm system shall monitor for alarm, supervisory, and trouble conditions; and annunciate the status of the following equipment when provided, or is existing to remain, as part of this project. A failed status shall activate the trouble alarm.
1. Emergency Generator: Run Status
2. Emergency Generator: Trouble Signal
3. Fire Pump: Run Status
4. Fire Pump: Trouble Signal
5. Emergency Service Communications Systems, as required by NFPA 72 and NFPA 1221.

2.7 MAGNETIC DOOR HOLDERS, AUTOMATIC FIRE DOORS / SHUTTERS, AND SECURITY GRILLES AND INTERIOR SPACE CONTROLLED ACCESS EGRESS DOORS WITH AUTOMATIC EMERGENCY EGRESS ELECTRIC LOCK EMERGENCY RELEASE

A. Magnetic fire door hold open devices, interface for automatic roll down fire doors/shutters, and interface for security grilles and controlled access egress doors with emergency egress shall be provided. Coordinate with Division 8 and Architectural Drawings for exact location.

B. The operation of any alarm in the fire alarm system shall cause the following:
1. Release of the magnetic fire door holding devices, permitting the fire doors to be closed by the door closer.
2. Permit the automatic roll down fire doors/shutters to close automatically.
3. Permit the security grilles with emergency egress to open automatically.
4. Unlock the electrically controlled access doors in all interior spaces.

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C. The magnetic door holders, automatic roll down fire doors/shutters, security grilles, and interior electrically controlled access doors with emergency egress, shall be associated with two smoke detectors located on the ceiling with one on either side of the fire door/shutter, security grille opening, or interior egress path electrically controlled door. The operation of either of these detectors shall also cause the magnetic holder to release the fire door, the automatic fire door/shutter to close, and the security grille with emergency egress to open.

D. The operation of smoke detectors associated with a magnetic door holder, automatic roll down fire door, security grille, or electrically controlled access door shall transmit a pre-alarm signal to the fire alarm panel.

2.8 REMOTE ALPHA-NUMERIC DISPLAY ANNUNCIATORS

A. Remote alpha-numeric annunciator(s) to annunciate all system events and duplicate the displayed status at the main FACP. The annunciator(s) shall be an alphanumeric display similar to the main FACP and operate via the system RS485 or RS232 serial output terminal from the main FACP. The unit shall operate from FACP 24VDC power and function during system power failure while the system resides on standby batteries. The remote annunciator(s) shall include:
1. Integral time-date clock
2. System reset
3. System silence
4. System acknowledge
5. Display/step switch
6. Integral trouble buzzer
7. LCD contrast adjust
8. Fire Drill Operation
9. Owner’s list of all additional remote annunciator control buttons.

B. Annunciator shall upon command display the first system alarm, last alarm, and system alarm count. The following primary controls shall be visible through a front access panel:
1. 80 character alphanumeric display, LCD, LED, or gas plasma
2. Individual red system alarm LED
3. Individual yellow supervisory service LED
4. Individual yellow trouble LED
5. Green “POWER ON” LED
6. Alarm acknowledge key
7. Trouble acknowledge key
8. Alarm silence key
9. System reset key
10. LED test

2.9 REMOTE PAGING UNIT

A. Remote all-call paging unit or to activate one of the pre-recorded messages over the speaker circuits.

2.10 PRINTER AND PRINTER STAND

A. A high impact dot matrix printer shall be provided. The printer shall provide hard-copy printout of all changes in status of the system and shall time-stamp such printouts with the current time-of day and date. The printer shall be wide carriage with 80-characters per line and shall use standard pin-feed paper. The printer shall communicate with the control panel using as interface complying with EIA standard RS-232. Printer shall be capable of operating on parallel or serial outputs. Power to the printer shall be 120VAC at

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60Hz. The printer shall print all status information including status, address, event history and programmed custom ID message.

1. High speed, bi-directional.
2. Serial or parallel interface.
3. Front panel interface.
4. Supports modems for remote installation.
5. LED status indicators.
6. RS-232 direct cable supervised.
7. Printer self test mode.
8. 9-Pin, impact, dot matrix printer with minimum speed of 232 characters per second.

B. Printer Stand:

1. Steel and laminate construction
2. Two shelves for paper storage
3. 28H x 26W x 20 Inches deep
4. Locking casters

2.11 REMOTE PAGING UNIT

A. Remote all-call paging unit or to activate one of the pre-recorded messages over the speaker circuits.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Installation shall include the delivery, storage, setting in place, fastening to the building structure, interconnection of the system components, alignment, adjustment and all other work, whether or not expressly specified, which is necessary to result in a tested and operational system.

B. All installation practices shall be in accordance with, but not limited to, the specifications and drawings. Installation shall be performed in accordance with the applicable standards, requirements and recommendations of NFPA 72 and the National Electrical Code and any authorities having jurisdiction. Proper protection against corrosion shall be provided on all electrical equipment in accordance with the requirements of the National Electrical Code. The installation shall conform to all manufacturers' recommendations.

C. All equipment shall be firmly secured in place unless requirements of portability dictate otherwise. Fastenings and support shall be adequate to support their loads with a safety factor of at least three.

D. All boxes, equipment, etc., shall be plumb and square. The contractor must take such precautions as are necessary to prevent and guard against electrostatic hum, to supply adequate ventilation, and to install the equipment to provide reasonable safety for the operator.

E. Visual displays, GUIs, or other indicators for main fire alarm panel and all remote annunciators shall be at maximum 66 inches AFF.

F. All remote booster and associated equipment panels shall be mounted with top of enclosure maximum 66 inches AFF.

G. In the installation of equipment and cables, coordinate with Architectural drawings for possible conflicts with millwork, casework, marker boards, furniture, lockers, etc., and

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notify the architect of any discrepancies. Verify modifications before proceeding with installation.

H. Mount end-of-line resistor for each box circuit in backbox located at the last manual alarm station or automatic initiating device in a circuit. Mark device accordingly in the field.

I. Provide three dedicated Cat 6 cables from MDF/IDF to fire alarm panel. Cable shall be installed in 3/4" conduit. Two cables for phone POT lines and one Ethernet data connection.

J. Upright and/or Wall Post-Indicating Valve: Provide conduit and wiring from fire alarm control panel to post-indicating valve if electronically supervised, coordinate exact location of PIV with fire sprinkler contractor prior to rough-in. Coordinate final location with Civil Drawings and Fire Protection Contractor. Where equipment is located inside a vault, stub required conduit inside vault, turn up and cap.

K. Contractor shall submit on completion of system verification, a point-by-point check list indicating the date and time of each item inspected and issue a certificate confirming that the inspection has been completed and the system is installed and functioning in accordance with the Specifications prior to date of substantial completion.

L. Provide remote alphanumeric display annunciators in the administrative area in constantly attended area, as required by the local AHJ, and additional annunciators where indicated on the drawings as directed by Architect / Owner.

M. Alarm devices shall be ceiling mounted unless indicated specifically otherwise. Alarm devices in Mechanical, Electrical, Communications, IDF / MDF Rooms and Central Plant shall be wall mounted and coordinated with other equipment, piping and ductwork.

N. Provide combination speaker strobes. Provide strobe only alarms when additional speaker placement will compromise voice intelligibility. Provide horn/strobes in coolers and freezers.

O. Detectors shall be installed per NFPA 90A and be listed with the fire alarm control panel.

P. Auxiliary Equipment Monitoring Wiring and connection to equipment shall be the responsibility of the fire alarm contractor.

Q. Power for magnetic door holders shall be provided from the nearest receptacle circuit wired through fire alarm relay.

R. Smoke detectors shall be mounted to a 4-inch octagon box with hanger bar or with box secured to building structure.

S. Provide power via 120-volt, 20-Amp dedicated circuits with lock-on provisions at the respective circuit breaker for the main fire alarm control panel, each panel extender and each remote power supply at no additional cost to the Owner. The complete fire alarm system shall be powered under emergency power when emergency life safety power is available at the project site. When emergency life safety power is not available at the project site, power shall originate from the nearest available 120-volt panel. Label 120V circuit origination (i.e.: “120-Volt Circuit ELA-3”)

T. Provide smoke detectors in the following locations:
1. All paths of egress and adjoining spaces within the same HVAC envelope including but not limited to: corridors, hallways, stairs, lobbies, and elevator landings.

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2. At each electrical room, telecommunications/data room, elevator machine room, kiln room, and mechanical room not subject to un-treated or un-filtered outside air.
3. At each computer lab/room.
4. At each library, library office and library ancillary areas.
5. At each storage room, stock room, or warehouse space.
6. At each pre-K and kindergarten classrooms.
7. At nurse's area/clinic and patient care/cot areas.
8. At each men's and women's restroom/toilet
9. At each administrative work room or copy room.
10. At each student toilet / restroom. Provide STI protective cover. Do not locate over plumbing fixtures or near partitions.
11. At each special needs, life skills, adaptive behavior, developmental classrooms or similar designated areas without food preparation or cooking equipment.

U. Provide heat/thermal detectors in the following locations:
1. At each electrical room, telecommunications/data room, elevator machine room and mechanical room subject to un-treated or un-filtered outside air.
2. At each janitor's/custodial closets and laundry rooms.
3. At each commercial kitchen and adjoining storage rooms; at each food preparation area.
4. At each employee break room/lounge.
5. At each vocational shop.
6. At each science, physics, chemistry, or biology classroom and their associated preparation and storage rooms.
7. At each special needs, life skills, adaptive behavior, developmental classrooms or similar designated areas with food preparation or cooking equipment.

V. Provide carbon monoxide detection and smoke detection devices in all areas designated as day-care for minors.

W. Provide duct smoke detectors in all air handling units with air volumes of 2,000 cfm or larger. Where duct smoke detectors are installed above ceilings, provide external remote status/alarm LED mounted flush with ceiling in close proximity to the duct detector location. If space is open without ceiling, wall mount remote status/alarm LED in close proximity to the detector between 96 and 108-inches AFF, or as directed by Owner.

X. Provide duct smoke detectors on outside air units only as required by local Code and / or A.H.J.

Y. Provide VESDA type detectors at the following locations when appropriate:
1. Atriums to avoid exposed conduits.
2. High ceiling areas 25 feet and higher where maintenance of spot type detectors will be difficult.
3. Skylights to avoid exposed conduits.
4. Coolers/Freezers 200 square feet and larger.

Z. Provide manual pull stations at each exterior exit and at each exit from all floors only if required by local AHJ or if the building is not fully sprinklered. Provide one manual pull station at the central reception area as directed by Owner.

AA Provide weatherproof exterior audio/visual alarm devices mounted on the building at the exact location as directed by Architect:
1. Main entry.
2. Courtyards and outdoor assembly areas adjacent to the building.
3. Mechanical yards adjacent to the building.

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4. Covered playgrounds or covered assembly areas adjacent to the building.
5. Additional locations where indicated on drawings.
6. Outdoor paved play areas.

BB. Provide audio and visual alarm devices in all areas normally occupied by students or minors and all common use areas.

CC. Provide carbon monoxide detection in classrooms and other instructional spaces served by a fuel-burning appliance, fuel-burning HVAC equipment (including roof mounted equipment), or with gas fuel outlets for connection to portable fuel-burning space heaters and appliances such as Bunsen burners which are typically used in laboratories or science classrooms.

3.2 CABLE AND BOXES INSTALLATION

A. All fire alarm wiring to be red. All fire alarm circuits shall be identified at each termination and at each 25 feet between terminations. Minimum 18 AWG wire size for data communications, minimum 14 AWG wire size for alarm circuits. Provide minimum 24 inch service loop for every device.

B. All circuits shall be protected to avoid interruption of service due to short-circuiting or other conditions, which might adversely affect the connected devices. Each individual signaling circuit shall be classified as a circuit pair.

C. All cabling in racks, cabinets and junction boxes shall be neatly strapped, dressed and adequately supported. Cable installation shall conform to good engineering practices and to the standards of the National Electrical Code.

D. Cables shall be terminated with the proper connector required for the associated operation of the equipment to which it is connected. Screw terminal blocks shall be furnished for all cables, which interface with racks, cabinets, consoles or equipment modules.

E. All cables within a rack, console or junction box shall be grouped according to the signals being carried to reduce signal contamination.

F. Where shielded conductors enter a panel or enclosure, and where power wiring exists, provision shall be made to provide physical isolation of signal and power conductors.

G. Supply and install all fittings and accessories whether or not they are specified, required for proper, safe and reliable operation of the system.

H. All wire shall be installed in an approved conduit/raceway system (except where permitted by NEC and the local authority having jurisdiction). Maximum conduit fill shall not exceed 40%.

I. Minimum conduit size shall be 3/4" EMT with insulated bushings. Install conduit per engineered shop drawings. All conduit terminations in all boxes shall have insulated bushings, and shall enter or exit the panel from the top only.

J. Systems utilizing open wiring techniques with low smoke plenum cable shall provide conduit in all inaccessible locations, inside concealed walls, all mechanical/electrical rooms, or other areas where wiring might be exposed to view and or subject to damage.

K. All vertical wiring and all main trunk/riser wiring shall be installed in a complete raceway/conduit system. All riser boxes shall be adequately sized for the number of

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conductors transversing the respective box as well as the number of terminations required.

L. All junction boxes containing fire alarm wiring are to be painted red and labeled.

M. All plenum wiring is to be installed parallel and perpendicular to the building structure. Cable shall be bundled with plenum rated cable zip ties on a maximum of 2'-6". Install cable in D-ring hangers, secured to the structure at a maximum of 5' on center. Cable shall not lie on ceiling grid or ceiling tiles, light fixtures, piping, ductwork, or foreign equipment.

N. The system ground is to be connected to the local ground bus. Under no conditions shall the AC neutral either in a power panel or in receptacle outlets be used for a reference ground.

O. All wiring shall be in accordance with NFPA 72, the National Electrical Code, and Local Codes. All wiring sizes shall conform to recommendations of the equipment manufacturer, and as indicated on the engineered shop drawings.

P. All wire shall be UL Listed FPL for limited energy (300V) and fire alarm applications and shall be installed in conduit. Limited energy FPLP or MPP wire may be run open in return air ceiling plenums provided such wire is UL Listed for such applications and is of the low smoke producing fluorocarbon type and complies with NEC Article 760 and approved by the local authority having jurisdiction.

Q. No other wiring shall be bundled with or run in the same conduit as fire alarm wiring.

3.3 FINISHES

A. Main Fire Alarm Panel color shall be approved by Owner / Architect.

3.4 ALARM SYSTEM SEQUENCE OF OPERATION

A. General:
1. All fire alarm circuits shall be electrically supervised.
2. Automatic response functions shall be accomplished by the first device initiated. Alarm functions resulting from initiation by the first device shall not be altered by subsequent alarms. An alarm signal shall be the highest priority. A pre-alarm signal shall have second priority and supervisory or trouble signals shall have third and fourth level priority. Signals of a higher level priority shall take precedence over signals of lower priority even though the lower priority condition occurred first.

B. Fire alarm operating sequences shall be as follows:
1. Activation of any automatic detector, manual station, fire suppression system, sprinkler flow switch or any other system required by NFPA 72 to be monitored to initiate an alarm condition shall cause the location of the alarm to be identified in an audible and visual manner at the building fire alarm control panel (FACP), and shall initiate the following events:
a. The system common alarm LED on the CPU Module shall flash. The internal audible trouble device shall sound. Acknowledging the alarm condition shall silence the audible trouble device and revert the flashing common alarm LED to a steady state.
b. The alphanumeric display shall indicate all applicable information associated with the alarm/trouble condition including: device location based on actual room graphic name and number (not architectural plan

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names and numbers), device type, and time of alarm. Location and zoning messages shall be custom field programmed to respective premises. Provide abbreviations when required to fit the alarm panel's display format (verify exact requirements with Owner). Below are some examples which first indicate the physical location of the device hardware – then the TYPE of device at the end of the descriptor label:

1) "Corr 1100 at Rm 1102 - SMOKE" (at Room number shall be the nearest room door to the device).
2) "Corr 1200 at Rm 1203 - PULL STATION" (at Room number shall be the nearest room door to the device).
3) "Mech Rm 1352 AHU-11 - DUCT SMOKE"
4) "Mech Rm 1467 - WATERFLOW SWITCH"
5) "Mech Rm 1589 - TAMPER SWITCH"
6) "Kitchen 1623 - HOOD FIRE SUPPRESSION SYSTEM"
7) "MDF 1733 - DAS RADIO POWER SUPPLY"
8) "Mech 1855 for Atrium 1863 - VESDA SMOKE"

c. Any remote or local annunciator LED's associated with the alarm point shall be illuminated as herein specified.
d. The remote signaling connection shall be activated relaying the alarm signal to an approved central station (central station connection and service provided by Owner). Point ID and descriptor must be sent and received.
e. All automatic events programmed to the alarm point shall be executed and the associated indicating devices and/or outputs activated.
f. De-activate local sound reinforcement systems that are not UL listed nor integrated with the fire alarm system control panel for providing fire alarm or mass notification instructions. Building wide public address systems shall remain active only for manual mass notification. Public address system auxiliary audio inputs used for background music or other remote non-emergency audio sources shall be silenced to only allow priority level manual mass notification using the public address system.
g. Activate all audible/visual alarm devices. Where prerecorded voice announcement is required or specified, the prerecorded announcement shall be preceded with attention tone(s), followed by the approved prerecorded announcement and continue in a cycle until the system is reset. Manual voice announcement shall interrupt the prerecorded cycle and the prerecorded cycle shall resume automatically after three minutes.
h. De-activate all HVAC systems including low speed high volume (LSHV) circulating blade type fans.
i. De-energize the kitchen hood supply/exhaust fans as required by local authority having jurisdiction.
j. Close all related smoke dampers.
k. Close all related smoke/fire dampers.
l. Release all magnetic door hold open devices.
m. Release the electric strike, unlocking, but not unlatching, locked doors controlled by an access control system.
n. Release Counter Shutters and hold-open devices on all fire and smoke doors.
o. Open all security grilles with emergency egress.
p. Activate to close all related fire and smoke doors and shutters.
q. Activate signaling connection to the elevator as required by the local authority having jurisdiction.
r. Signal the building automation system and Owner's security/police personnel as directed by Owner/Architect. The audible alarms shall be inhibited from being silenced for a period of 3 minutes after commencing

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operation unless alarm is acknowledged, and appropriate action has been taken.

s. Activate automatic recall operation of elevators as required by local authority having jurisdiction.

t. Record all events on the system printer.

2. Activation of duct mounted smoke detector on the HVAC equipment, or a smoke detector mounted in the return/supply air stream of any fan shall shut down all units as required by NFPA. The activation of one of these detectors shall send an alarm signal to the control panel and also initiate the Alarm Sequence of Operation.

3. Activation of a control valve supervisory switch shall initiate the following events:

a. The activation of any sprinkler valve supervisory (tamper) switch shall activate the system supervisory service audible signal and illuminate the LED at the building fire alarm control panel (FACP). Differentiation between valve tamper activation and opens and/or grounds on the initiation circuit wiring shall be provided.

b. Activation of a sprinkler system control valve supervisory switch shall not prevent the events listed under Article 3.4.

c. Restoring the valve to the normal position shall cause the supervisory service audible signal to pulse, indicating the restoration to normal position. The supervisory service reset key shall be provided to silence the audible signal.

4. Activation of the smoke detector and heat detector in the elevator machine room and at top of elevator shaft shall cause the elevators' controllers to be tripped by way of the shut trip breaker, and shall also initiate the events listed under Article 3.4.

5. Any subsequent fire alarm shall reactivate the alarm indicating appliances and activate the respective control sequences described above.

6. Upon silencing the alarm, all visible alarm devices shall remain active until system reset and all local sound reinforcement systems de-activated by the fire alarm system shall resume normal operation.

7. Upon reset of the fire alarm control panel, HVAC units shall be capable of being started, and resume normal operation.

C. Activation of the manual evacuation (drill) switch shall operate the alarm indicating appliances and de-activate local sound reinforcement system without causing other control circuits to be activated. However, should true alarm occur, all alarm functions should occur as described.

D. ALARM VERIFICATION shall be field programmed for each respective detector. Global verification will not be acceptable. The verification sequence is activated after a "check" procedure and the panel will wait a field programmable delay period (0-50 seconds) then proceed to re-sample the detector for continued presence of smoke. If the alarm condition still exists or a non-verified device is actuated during the verification period, the system will then initiate all alarm sequences specified herein. The system shall incorporate the ability to log in memory the number of verification events that have occurred for each selected device.

3.5 EQUIPMENT IDENTIFICATION

A. Each panel or equipment enclosure shall be provided with a permanently engraved or embossed or silkscreen identification and information tags. The tags shall include the following information:

1. Name of manufacturer.
2. Manufacturer's equipment description.
3. Serial number and model number.

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4. Voltage and current rating.
5. Power circuit source identification with panel name and circuit number.
6. Additional labeling inside panels: Provide stick-on label with white background indicating installation date (MM/DD/YY) on each battery.

B. All addressable devices shall be labeled with point and module number. Provide label maker style label on base of device. Provide additional address label on exterior of duct detector housings in addition to label on the duct detector component inside. Verify exact requirements with Owner.

C. All alarm notification devices and end of line resistors shall be labeled with their alarm circuit number and panel name.

3.6 SPARE PARTS AND TOOLS

A. Interchangeable Parts: All spare parts furnished shall be directly interchangeable with the corresponding components of the installed system. Spare parts shall be packaged and identified by nameplate, tagging, or stamping. Spare parts shall be delivered to the site in unopened cartons for storage as directed by the Owner.

B. Spare Parts: Provide minimum of two, or 5% of building total, whichever is greater unless noted otherwise.
1. Spare shut down modules
2. Spare detectors of each type in the system
3. Spare alarm indicating devices of each type in the system
4. Spare manual pull stations
5. Spare protective covers of each type in the system.
6. Spare relays/controls required for connection to smoke and fire/smoke dampers
7. Devices listed above are to be installed as directed by Architect/Engineer or local code authorities at no additional cost to the Owner. Unused spare parts are to be parts for Owner’s cabinet.

C. Provide two copies of the final software programmed into the fire alarm system.

D. One box of printer paper.

E. Parts list: Furnish a list, in duplicate, of all other parts and accessories the manufacturer of the system recommends to be stocked for maintenance.

3.7 KEYS

A. Keys and locks for all equipment shall be identical. Provide not less than six keys of each type required. Identify keys by an appropriate number stamped on each key or on a metal tag attached thereto. Provide a key numbering chart in each operation and maintenance manual furnished.

3.8 SMOKE DAMPERS AND FIRE/SMOKE DAMPERS

A. Smoke dampers and combination fire/smoke dampers shall be controlled by an automatic alarm initiating device. Smoke dampers installed to isolate the air handling system shall be arranged to close automatically when the system is in alarm.

B. Coordinate motor operator voltage with supplier.

C. Open all dampers prior to starting air handling equipment.

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D. Provide 120V power from nearest general purpose 20A receptacle circuit as required, or as noted otherwise.

3.9 GRAPHIC FLOOR PLANS FOR AHJ SITE PERMITTING INSPECTION AND OWNER USE

A. It is the intent of these specifications that the fire alarm system shall pass AHJ inspection on the first try. The fire alarm system shall be fully functional, commissioned, and mapped both on fire alarm graphic maps and fire alarm annunciator device descriptions to fully and correctly described the device type and detailed location. Provide color coded floor plans detailed with project name, actual room names, actual graphic room numbers as directed by the Owner and adequate information to direct people to the fire alarm devices in alarm and to exits with non-fading floor plan media. Do not use architectural plan room names and numbers. Fire alarm maps shall include all relevant building information and fire alarm device information as required for the local AHJ permitting site walk-through inspection.

B. Each plan shall clearly relate the room numbers on the annunciator to the area description on the floor plan. All fire alarm devices located to correspond with the annunciator. Indicate location of all end-of-line resistors.

C. Provide two color coded floor plans for Owner’s use that shall be solvent welded in acrylic plastic.
1. Mount in an extruded aluminum frame next to the main fire alarm control panel and annunciator in main office. Minimum size 30x42 inches. Coordinate exact location with Architect / Owner.
2. Provide a minimum 11 x 17 inch graphic print of building showing all rooms by graphic room numbers. Print shall show all detectors, major equipment and active detection devices. Print shall be framed in an extruded aluminum frame (24”x36”) with clear plastic cover. Graphic shall be prepared in AutoCad version 2014 or newer. Data file (xxx.dwg) of graphic shall be provided as a part of the project.

D. Install graphic floor plans as directed by Architect/Owner prior to substantial completion. Each area or room designation shall be verified with the fire alarm device during testing.

3.10 OPERATING INSTRUCTIONS

A. Coordinate with Owner for appropriate off-site monitoring service and communication technology to be used. Provide all necessary programming for interfacing with the Owner’s on-site and off-site remote signaling receiving station, including programming of descriptors and addresses at the receiving station.

B. Provide Fire Alarm System Operating Instructions for the following items including, but not limited to:
1. Alarm Signal
   a. How to open panel door
   b. What to read and follow the instruction on display
   c. How to acknowledge alarm
   d. How to silence the signals
   e. How and when to reset the system
   f. How to return system to normal operation
2. Trouble / Supervisory
   a. How to open panel door.
   b. What to read and follow the instruction on display
   c. How to acknowledge trouble condition
   d. Appropriate personnel to respond

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C. Provide laminated instructions in extruded aluminum frame. Mount adjacent to the Fire Alarm Control Panel and remote annunciator panel(s) for ready reference.

3.11 ADDITIONAL REQUIREMENTS

A. The contractor is to ensure all areas of the building are covered with visual and audio alarm devices for occupant notification of a fire alarm, including remote portable or temporary buildings.

B. Coordinate door hold devices with door and door hardware.

C. Provide interface with and coordinate shunt-trip circuit breakers and control devices with kitchen hood fire control systems and elevator equipment.

D. Alarm circuit power supplies and circuiting shall be designed and installed to accept an additional five (5) 110cd visual devices for future expansion. The initial design shall not exceed 70% of the rated power supply and circuit capability.

E. Install system event printer as directed by Owner/Architect.

F. Provide programming or re-programming of all hot keys as directed by Owner including, but not limited to, fire drill, AHU shutdown bypass, horn/strobe disable, elevator test.

G. Provide one dedicated alarm circuit booster panel and audio amplifier for (future) portable (temporary) building(s) at designated portable building location, at exit door to portable building location.

H. Provide one dedicated addressable initiating device circuit with a minimum capacity of 50 devices for (future) portable (temporary) building(s) to the nearest man building egress discharge to the designated portable building location. Provide 100 feet of cable coiled and marked “FACP-INITIATING PORTABLES” above an accessible ceiling.

I. Provide printer and printer stand at main FACP; exact location as directed by Owner / Architect.

J. Replace the existing fire alarm system with new fire alarm system at existing buildings: The existing fire alarm system shall remain fully operational until the new system is fully operational. Do not remove existing field devices until transition to fully operational new system as required by the Fire Marshall. The existing system shall be fully tested by the contractor prior to construction and a written report given to Owner indicating any operational deficiencies in the existing system. Owner will, or provide direction to correct any operational deficiencies, and afterwards, the contractor will take responsibility of maintain the existing system full functionality until the new fire alarm system is fully operational and accepted by the AHJ.

3.12 COMMISSIONING THE SYSTEM

A. The installing contractor shall be responsible for verifying that each component of the system is fully operational and in conformity with the specifications. He shall also be responsible for insuring that all elements function together as a system in accordance with the specifications.

B. A state licensed NICET II minimum and factory trained technical representative of the manufacturer shall supervise the final control panel connections and testing of the system. Upon completion of the acceptance tests, the owner and/or his representatives

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shall be instructed in the proper operation of the system.

C. The installing contractor shall functionally test each and every device in the entire system for proper operation and response. Field testing shall include voice intelligibility as required by the latest edition of NFPA 72 Any items found not properly installed or non-functioning shall be replaced or repaired and retested. The final test indicating a fully functional fire alarm system shall be recorded and an electronic Excel and printed copy submitted to the Architect, Engineer and Owner.

D. The installing contractor shall provide a complete written report in electronic form and printout of the functional test and intelligibility test of the entire system. A copy of the test report shall be provided with the Maintenance and Operation Manuals. The test report shall be signed and dated by the licensed fire alarm superintendent responsible for supervising the final system test and checkout. This test shall be witnessed and accepted by the Owner two weeks prior to testing for the local Fire Marshall to allow time to make corrections, prior to testing for the AHJ.

E. After the Owner has accepted the fire alarm system, the installing contractor's fire alarm superintendent shall test the entire system in the presence of the local authorities having jurisdiction. The contractor shall be responsible for making any changes, adjustments, or corrections, as may be required by the local authorities. The Contractor shall affix his certification label and installation certificate to the interior of the main fire alarm control panel. This test shall not be used to de-bug or correct deficiencies of the system.

F. The testing and Owner’s acceptance shall be performed within 30 days after the fire alarm installation is completed. The test shall be performed by a minimum of two qualified fire alarm system technicians acceptable to the authority having jurisdiction. The test which is a comprehensive 100 percent inspection and test of all fire alarm system equipment shall include the following:
   1. Fire alarm control equipment: a visual and functional test of the fire alarm control and auxiliary control equipment.
   2. A visual inspection shall be conducted to establish that all electrical connections and equipment, as required, are properly installed and operating.
   3. A functional fault simulation test shall be conducted on all relevant field wiring terminations to ensure that wiring is properly supervised as required.
   4. Indicators shall be tested to ensure proper function and operation.
   5. Control panel auxiliary functions shall be functionally tested to verify proper operation.
   6. Control panel supervisory and alarm current readings shall be taken to verify that the control panel has the appropriate power supplies and standby batteries to operate the system as required. A three-minute general alarm stress test, both under AC power and standby power, shall be conducted to further ensure complete operation of the system.
   7. Fire alarm peripheral devices; All fire alarm peripheral devices shall be functionally tested and the location and testing information recorded for each device.
   8. Manual initiating devices:
      a. Each manual fire alarm station shall be functionally tested for alarm operation.
      b. Each manual fire alarm station shall be functionally tested for proper wiring supervision.
   9. Automatic initiating devices:
      a. Each automatic initiating device shall be activated in accordance with manufacturer’s instructions to ensure proper operation.
      b. Each automatic initiating device shall be functionally tested for proper wiring supervision.

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c. Each automatic initiating device shall be inspected to ensure proper placement and mounting as required by specifications.

10. Alarm signaling devices:
    a. Each alarm signaling device shall be tested and decibel reading taken at 10' from the device and recorded to ensure proper operation. Each area's voice alarm signaling devices shall be tested for intelligibility.
    b. Each alarm signaling device shall be functionally tested for proper wiring supervision.
    c. Decibel reading shall be taken to ensure that the alarm signal level can be clearly heard in all areas of the facility.
    d. All visual alarm indicators shall be functionally tested to ensure proper operation and that they are clearly visible.
11. Elevators: Each elevator shall be tested and automatic recall function verified.
12. Reporting: Upon completion of the initial verification audit, a report shall be sent to the Architect/Engineer indicating that all fire alarm equipment has been tested and is in 100 percent operation. The report shall also contain the audit testing information as to the location and operational status of each peripheral device. The 100 percent audit shall be performed by a factory-trained representative. The report shall include the voice intelligibility performance in each area and indicate compliance with NFPA and local AHJ requirements.

G. It is the intent of these specifications and of the Architect/Engineer that a continued program of system maintenance is to be provided by the Owner in compliance with NFPA 72. It is mandatory that the installing Contractor provide such services and make available these services to the Owner upon completion of the project.

H. Upon completion of installation and full acceptance testing, submit NFPA 72 certificate of compliance that the total fire alarm system, including any subsystems, is fully functional and that the components are UL listed for function intended.

3.13 SUBSTANTIAL COMPLETION

A. Final acceptance of the FIRE ALARM SYSTEM by the owner, local code authorities and Occupancy Permit has been issued.

B. All fire alarm system shop drawings, test reports, operating and maintenance manuals, maps and as-built drawings shall be submitted in electronic format to and accepted by the Architect / Owner prior to date of substantial completion.

C. Acceptance by County or Local Fire Marshall.

3.14 TRAINING

A. Provide training course to all fire personnel assigned by Owner's Representative. The training shall include a course syllabus and hands-on participation. Training shall be conducted on a system identical to the one being installed on this project. The system shall be able to perform all system operations and simulate all types or forms of alarm conditions.

B. Provide a video of the training program to the Owner's Representative to be used for periodic refresher course, training of the local fire department and for training of new employees.

C. The training course shall include, in addition to the above, a system overview, and a review of the operation and maintenance manual.

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D. The instructor shall be factory trained and shall be thoroughly familiar with all parts of the installation on which instruction is to be given. The instructor shall be trained in operating theory as well as in practical operation and maintenance work.

END OF SECTION

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SECTION 28 46 02
EXPANSION OF EXISTING FIRE DETECTION AND ALARM SYSTEM

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Provide all detailed engineering, documentation, materials and devices, installation, calibration, software programming and check-out necessary for a complete and fully operational fire detection and alarm system in accordance with the full intent and meaning of the drawings and specifications including, but not limited to, the following:



10-20-2025

1. Supply, install and connect all hardware necessary to provide a complete and operational fire detection and alarm system.
2. Supply, install and wire all field hardware, power supplies, power circuits, alarm initiating devices, audible and visual alarm devices, auxiliary control relays, signal initiating and signaling devices, conduits, wires, fittings and all accessories required for the system to perform as specified as required. Use and expand the existing fire alarm control panel.
3. Supply, install, debug and test all software required to provide all software functions described in accordance with the full intent and meaning of the drawings and specifications.
4. Coordinate the work specified under this Section with other trades and contractors to assure a complete and fully operational system.

B. The intent of fire detection and alarm system work is specified in this section and indicated on the drawings. The installing contractor shall design and provide a complete system, meeting the requirement of this section. The Contractor shall provide all fire alarm and initiation devices in new and renovated areas required for a complete system acceptable to all governing authorities. Provide proper spacing and coverage of all devices.

C. Scope of work:
1. Hunter's Glen Elementary School
   a. Remove and protect existing fire alarm devices in ELP Building; re-install devices after completion of construction.
   b. Provide new fire alarm system to current code requirements (Silent Knight 6820EVS) for New Gym Addition; tie into existing system in main building for monitoring and dialing. Trouble and alarm monitoring between systems must be demonstrated prior to acceptance of the fire alarm system.
2. Palmer Elementary School
   a. Remove and protect existing fire alarm devices in ELP Building; re-install devices after completion of construction.
   b. Provide new fire alarm system to current code requirements (Silent Knight 6820EVS) for New Gym Addition; tie into existing system in main building for monitoring and dialing. Trouble and alarm monitoring between systems must be demonstrated prior to acceptance of the fire alarm system.
2. Ridgegate Elementary School
   a. Remove and protect existing fire alarm devices in area of construction; re-install devices after completion of construction.

1.2 RELATED SECTIONS

A. Divisions 22, 23 and 26

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B. Fire Suppression Systems

1.3 CODES / STANDARDS / REFERENCES (LATEST EDITIONS)

A. National Fire Protection Association (NFPA):

1.	NFPA1	Fire Code
2.	NFPA 13	Systems, Installation
3.	NFPA 17	Dry Chemical Extinguishing Systems
4.	NFPA 70	National Electrical Code
5.	NFPA 72	National Fire Alarm and Signaling Code.
6.	NFPA 80	Fire Doors and Fire Windows
7.	NFPA 90A	Standard for the Installation of Air Conditioning and Ventilating Systems.
8.	NFPA 92A	Smoke Control Systems
9.	NFPA 101	Life Safety code.
10.	NFPA 105	Smoke Control Door Assemblies
11.	NFPA 1221	Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems.
12.	NFPA 2001	Fire Extinguishing Systems, Clean Agent

B. UL: Underwriters Laboratories, Inc.

1.	217	Single and Multiple Station Smoke Detectors.
2.	268	Smoke Detectors for Fire Protective Signaling Services.
3.	864	Control Units for Fire Protective Signaling Services.
4	864	Transient protection
5.	1480	Speakers for Fire Protective Signaling Systems
6.	UL Fire Protection Equipment Directory.	
7.	UL Electrical Construction Materials Directory.	

C. Factory Mutual P7825 Approval Guide

D. American National Standards Institute (ANSI).

E. National Electrical Manufacturer’s Association (NEMA).

F. Institute of Electrical and Electronic Engineers (IEEE).

G. Electronic Industries Association (EIA-232-C): Interface between Data Terminal Equipment and Data Communication Equipment Employing Serial Binary Data Interchange.

H. Requirements of American Disabilities Act (Public Law 101-336).

I. Local Accessibility Standards, Codes, and Ordinances

J. State Fire Marshall or Requirements of Local Authorities having Jurisdiction

K. State Insurance Code.

L. National Building Code.

M. International Building and Fire Code adopted by Local Authority Having Jurisdiction

N. Uniform Building Code.

O. Local & State Building Codes.

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P. In addition the above requirements, comply with all local codes. Where discrepancies exist between codes, drawings or specifications, the more stringent requirement shall prevail. Installation shall be subject to approval, inspection and test of applicable regulatory agencies.

1.4 MANUFACTURER'S, PLANNER'S AND INSTALLER'S QUALIFICATIONS

A. The manufacturer shall regularly and presently produce, as the manufacturer's principle products, the equipment and material of the type and design specified for this project, and shall have manufactured the item for at least 5 years. All components of the system shall be UL compatible with the existing main fire alarm control panel. Manufacturer of all components shall match existing manufacturers of similar or same type components unless otherwise specified or noted on the drawings.

B. The installing contractor shall have been actively engaged in the business of designing, selling, installing, and servicing fire alarm systems for at least ten (10) years.

C. The entire Fire Detection and Alarm System shall be installed by a factory authorized representative of the existing main fire alarm control panel and certified by the manufacturer to distribute, sell, and install the specified fire alarm and smoke detection system. Include all components, elements, and testing and acceptance procedures.

D. If the submitted system is being supplied by an authorized distributor of the equipment manufacturer, the distributor shall have been actively engaged in the sale, installation and service of the type of system proposed for this project for a minimum of 10 years.

E. Any proposed installer who cannot show evidence of such qualifications may be rejected. The services of a technician provided and certified by the equipment manufacturer shall be provided to supervise the installation and tests of the system.

F. Furnish evidence there is an experienced and effective service organization, which carries a stock of repair parts for the system to be furnished.

G. The installing contractor shall be licensed by the State Fire Marshall to design, sell, install, and service fire alarm systems as required by the State Insurance Code.

H. The installing contractor shall have on his staff a minimum of two (2) Fire Alarm Planning Superintendent (APS) licensed by the State Fire Marshall's office for such purpose and under whose supervision installation, final connections, and check out will take place as required by the State Insurance Code.

I. The APS shall be a certified NICET Level III state licensed fire alarm planner under whose supervision system design shall take place. In lieu of a NICET certified state licensed fire alarm planner, the contractor or supplier may provide design supervision by a registered professional engineer, who regularly engages in the design of fire alarm systems.

J. The installing contractor shall provide 24-hour, 365 days per year emergency service with factory trained, state licensed service technicians.

K. Material shall be new and in perfect condition when installed.

L. Electrical or electronic equipment provided under this Division which has been damaged, exposed to weather, or is, in the opinion of the Architect/Engineer otherwise unsuitable because of improper fabrication, storage, or installation, shall be removed and replaced

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with new equipment, at no additional cost to the owner.

1.5 COORDINATION

A. It shall be the responsibility of the installing contractor to coordinate all requirements surrounding installation of the fire alarm system with all other trades.

1.6 DEFINITIONS

A. General: Wherever mentioned in this specification or on the drawings, the equipment, devices and functions shall be defined as follows:
1. Alarm Signal: A signal, which signifies a state of emergency requiring immediate action and immediate notification of the Fire Department. These are signals such as:
a. The operation of a manual station.
b. The operation of a fire suppression system switch.
2. Pre-Alarm Signal: A signal, which indicates a detection device, has operated. These signals require and immediate response, but do not require immediate notification of the Fire Department.
3. Supervisory Signal: A signal, which signifies the impairment of fire protection system, which may prevent its normal operation.
4. Trouble Signal: A signal, which indicates that a fault, such as an open circuit or ground, has occurred in the system.
5. Alarm Zone: An alarm initiating device or combination of devices connected to a single alarm initiating device circuit.
6. Pre-Alarm Zone: A detector or group of detectors connected to a single detector circuit, which can send an alarm to the central control panel.
7. Supervision Zone: A supervisory signal initiating device or combination of such devices connected to a single supervisory signal circuit.
8. Communication Zone: A fire alarm indicating device or series of devices arranged to visually and/or audibly indicate a fire alarm signal.

1.7 SUBMITTALS

A. Before the shop drawings are submitted to Architect / Engineer, submit drawings to the Authority Having Jurisdiction for approval. All approvals shall be noted on the drawings or by letter from the Authority Having Jurisdiction. Submit copies of the Authority Having Jurisdiction approved shop drawings to the Architect for review.

B. Fire alarm submittal shall be bound and separate from all other submittals. The installing contractor and/or equipment supplier shall provide complete and detailed shop drawings and include:
1. Provide a complete written, item-by-item, line-by-line, specification review stating compliance or deviation in full description.
2. Complete point-to-point wiring diagrams of new equipment.
3. Complete floor plan drawings locating all new system devices and existing panels used for expansion.
4. Complete system bill of material.
5. Detailed system operational description. Any specification differences and deviations shall be clearly noted and marked.
6. Provide a complete description of system operation.
7. Manufacturer’s installation instruction.
8. Bound form with contractor's name, supplier's name, project name, state fire alarm license, Fire Alarm Planning Superintendent license and all Technician(s) license adequately identified.
9. Submittal sheets sequentially numbered with the format: sheet number of

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number total. For example: 1 of 3.

10. Complete set of manufacturer's operating instructions, circuit diagrams and the information necessary for proper installation, operation and maintenance.
11. Field and factory wiring diagrams of all new systems and for typical devices showing all connections with all terminals and interconnections identified.
12. Complete schematic circuit diagrams for all new equipment, including panel modules.
13. Floor plan drawings including all existing main and new panel and device locations, conduit sizes between devices and panels; number, size and type of conductors between devices and panels; walls, doors and graphic room numbers; exact power requirements and conduit routing with the location of all junction boxes and exact locations of devices and equipment. Submit a floor plan drawing circuiting/zoning shall be identified on the drawings.
14. Complete wiring, routing, and schematic diagrams, software descriptions, and details required to demonstrate that the system has been coordinated and will function as a system.
15. Manufacturers catalog cut sheets shall be provide for each piece of equipment with the appropriate model or part number highlighted in cases where multiple model numbers or part numbers are shown.
16. Detailed list of all hardware components, which are included.
17. Installation details for each type of field mounted device installed under this contract.
18. Point-to-point termination schedules with cable identification numbers and terminal strip numbers.
19. New fire detection and alarm system's panel configuration complete with peripheral devices, batteries, power supplies, and interconnection diagrams.
20. Submit a riser diagram of trunk wiring and device-to-device wiring and device to fire alarm control panel wiring. Riser shall show:
    a. Conduit sizes and types.
    b. Number, size and type of conductors.
    c. Fire detection and alarm devices arranged in the required circuiting/zoning, as defined in the specifications and on the drawing.
    d. Battery calculations to show compliance with the requirements of the specifications for both alarm and supervisory mode.
21. Indicate visual alarm device candela setting required for coverage.
22. Sample of proposed graphic/text annunciation.

1.8 OPERATION AND MAINTENANCE MANUALS

A. Submit complete sets of operation and maintenance manuals. Manual, less as-builts, and sign-off sheets, shall be provided upon completion of the work. Approval of the manual will be required prior to substantial completion.

B. The Operation and Maintenance Manual shall consist of the following:
1. The manual shall include the names, addresses and telephone numbers of each Contractor installing products, and of the nearest service representative for each product. The manual shall have a Table of Contents and tab sheets. Update manuals to include modifications made during installation, checkout and acceptance. The manual shall include the sections described in the following paragraphs.
2. The Functional Design Section shall identify the operational requirements for the system and explain the theory of operation, design philosophy, and specific functions. Hardware and software functions, interfaces, and requirements shall be provided for system operating modes.
3. The Hardware Section shall describe equipment provided, including general description and specifications, installation and checkout procedure, electrical

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schematics and layout drawings. Alignment and calibration procedures, manufacturer's repair parts list indicating source of supply, interface definition, signal identification and wiring diagrams. Also, include a complete parts list of all components as well as a list of recommended spare parts. The spare parts list shall include, for each item, the manufacturer's name, the model of the part, and serial number, if appropriate, and a physical and electrical description of the part.

4. The Software Section shall describe programming and testing, starting with a system overview and proceeding to a detailed description of each software module, to instruct the user on programming or reprogramming any portion of the system and other information necessary to enable proper system usage.
5. The Operation Section shall provide instructions for operation of the system, including system start-up procedures, use of system and applications software, alarm presentation (where applicable), failure and recovery procedures, preventive maintenance schedule, parameter schedules and sequence definition, and system access requirements.
6. The Maintenance Section shall provide descriptions of maintenance for equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.
7. The Shop Drawings section shall include copies of all approved shop drawings and submittal materials updated to "AS BUILT".

1.9 AS-BUILT DRAWINGS

A. Prepare and submit detailed "As-Built" drawings. The drawings shall include certified test of the system, testing and acceptance sign-off sheets, and other items specified elsewhere to be performed after initial submission of operation and maintenance manuals, complete wiring diagrams showing connections between all devices and equipment, both factory and field wired. Include a riser diagram and drawings showing the as built location of all devices and equipment. The drawings shall show the system as installed, including all deviations from both the project drawings and the approved shop drawings. The drawings shall be prepared on uniform sized sheets, the same size as the project drawings. The plan drawings shall be 11x17 inch and inserted in the specified Operations and Maintenance Manuals. Provide electronic copies in PDF and Autocad.dwg format.

1.10 WARRANTY

A. All new fire alarm devices, new panels, new equipment and new accessories, including labor and material, shall be free from defects in workmanship and materials, under normal use and service, for a period of one year from the date of substantial completion. Any equipment or workmanship shown to be defective shall be repaired, replaced or adjusted during normal working hours at no cost to the owner within 4-hour notification.

B. Repair services and replacement parts for the system to be furnished under this Contract shall be available for a period of ten years after the date of final acceptance. Service during the warranty period shall be provided within four hours after notification and all repairs shall be corrected within 24 hours after notification throughout the warranty specified in this section.

C. The installing contractor shall provide 24 hour, 365 days per year emergency service with factory trained, state licensed service technicians.

D. The equipment manufacturer shall be represented by a local service organization and the name of such shall be furnished to the Owner, Architect, and Engineer.

E. Provide a certified fire alarm test of the complete system at the end of the warranty period

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and correct any and all items located in the area of renovation to bring the system to an approved status at no cost to the Owner. Clean all smoke detectors and replace all defective parts within the area of renovation at no cost to the Owner.

F. Guarantee labor, materials, and equipment provided under this contract against all defects for a period of one year after the date of final acceptance and receipt and approval of “As-Built” drawings and schematics of all equipment.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturers acceptable contingent upon Products’ compliance with the specifications:
1. Match Existing main fire alarm panel manufacturer.
a. Silent Knight 5820

2.2 SYSTEM DESCRIPTION

A. System shall be a fully functional fire detection and alarm system, tested and left in first class operating condition. Voice evacuation systems where required or specified shall have voice alarm notification wherever audible notification is required.

B. The system shall provide communication with initiating and control devices individually. All of these devices shall be individually annunciated at the fire alarm control panel. Annunciation shall include the following conditions for each point:
1. Alarm
2. Trouble.
3. Open
4. Short
5. Device missing/failed.

C. System circuits shall be wired as follows: Initiating device circuit (IDCs) shall be Style B, indicating appliance circuit (IACs) shall be Style Y, and signal line circuit (SLCs) shall be Style 4 as describe in NFPA 72.

D. The system shall contain independently supervised initiating device circuits. The alarm activation of any initiation circuit shall not prevent the subsequent alarm operation of any other initiation circuit.

E. There shall be supervisory service initiation device circuits for connection of all sprinkler water flow switches and valves. Device activation shall cause a general alarm at the fire alarm control panel. Each flow and tamper switch shall have an individual address.

F. There shall be independently supervised and independently fused indicating appliance circuits for all alarm signaling devices. Disarrangement conditions of any circuit shall not affect the operation of other circuits.

G. Auxiliary manual controls shall be supervised so that an “off normal” position of any switch shall cause an “off normal” system trouble.

H. The incoming power to the system shall be supervised so that any power failure must be audibly and visually indicated at the fire alarm control panel. A green “power on” LED shall be displayed continuously while incoming power is present at the building fire alarm control panel.

I. The system batteries shall be supervised so that a low battery condition or disconnection

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of the battery shall be audibly and visually indicated at the building fire alarm control panel.

J. The system modules shall be electrically supervised for module placement. Should a module become disconnected, the system trouble indicator shall illuminate and the audible trouble signal shall sound.

K. The system shall have provisions for disabling and enabling all circuits individually for maintenance or testing purposes.

L. The system shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in a normal or supervisory mode for a period of 24 hours with 20 minutes of alarm operation at the end of this period as a minimum. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. If batteries are fully discharged, the charger shall recharge them back to full charge in four hours.

M. All external circuits requiring system operating power shall be 24 VDC and shall be individually fused at the respective fire alarm control panel.

N. All addressable devices shall have the capability of being disabled or enabled individually from the fire alarm control panel.

O. A maximum of 90 addressable devices shall be multi-dropped from a single pair of wires. Systems that require factory reprogramming to add or delete devices within the capability of the designed system are unacceptable. Expansion of the designed system shall be accomplished by factory reprogramming.

P. The communication format to the addressable devices shall be a completely digital poll/response protocol to allow t-tapping of the circuit wiring. A high degree of communication reliability must be obtained by using parity data bit error checking routines for address codes and check sum routines for the data transmission portion of the protocol.

Q. Each addressable device must be uniquely identified by an address code. The system must verify that proper type device is in place and matches the desired software configuration. All remote or external panels shall have an individual address for monitoring.

R. Wiring type, distances, survivability, and wiring configuration types shall be approved by the equipment manufacturer. The system shall allow a line distance of up to 2,500 feet to the furthest addressable device on a Style Y circuit. Fire alarm cable shall have an outer jacket insulation color of red. Minimum wire size shall be #18 AWG.

S. Each panel extender shall have an individual address.

2.3 FIRE ALARM CONTROL PANEL (FACP)

A. Existing to remain.

B. The fire alarm control panel shall be left with 25% spare initiating point and battery capacity for future use.

C. New power supplies (if required) shall provide all control panel and peripheral power needs with filtered power as well as unregulated 24VDC power for external audio-visual devices. The audio-visual power shall be increased as needed by adding additional

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modular expansion power supplies. All power supplies shall be designed to meet UL and NFPA requirements for POWER LIMITED operation on all external signaling lines, including initiating circuits and indicating circuits. Design the system power supplies and power trunk wiring for all annunciation devices required, and to add a minimum of two (2) 110cd visual devices in the future. Individual circuit design loading shall not exceed 70% of power supply and system wiring capacity when including the additional spare capacity for the 110cd visual devices

1. Input power shall be 120VAC 60Hz. The power supply shall provide internal supervised batteries and automatic charger. The power supply shall provide positive and negative ground fault supervision, battery/charger fail condition, and AC power fail indicators. The power supply shall also provide supervision of modular expansion power supplies as may be required.
2. Surge protection shall be integral to the control panels.
3. Each power supply shall be monitored and have an individual address.

2.4 DIGITAL FIRE ALARM COMMUNICATOR

A. Existing to remain.

2.5 EMERGENCY VOICE ALARM COMMUNICATION SYSTEM

A. Existing to remain.

B. Compatible and UL listed with existing fire alarm system.

2.6 NEW FIELD DEVICES WHERE REQUIRED

A. All devices shall be supervised for trouble conditions. The fire alarm control panel shall be capable of displaying the type of trouble condition (open, short, device missing/failed). Should a device fail, it shall not hinder the operation of other system devices.

B. Visual Signals
1. Strobe lights shall be low profile and operate on 24 VDC. The strobe light shall be capable of producing 75 candela on axis to comply with ADA and UL 1638 requirements, and 15, 30, or 110 candela to comply with UL 1971 requirements. Visual signals in common areas of illumination shall have synchronized flash. Provide white with red letters.
2. All wall mounted strobe units installed in student’s toilets, gymnasiums, corridors, student locker/dressing rooms shall have a protective cover.

C. Combination Alarm Signal and High Intensity Visual Signals
1. Strobe lights shall operate on 24 VDC. The strobe light shall be capable of producing 75 candela on axis to comply with ADA requirements, and 15, 30 or 110 candela to comply with UL 1971 requirements. Visual signals in common areas of illumination shall have synchronized flash. Each unit shall provide a Code 3 Temporal tone. The horn shall be capable of an output of 95dB at 10', and intensity adjusted accordingly for the area of coverage. Electronic Mini-Sounder or horn set on low setting shall be provided in interior rooms 900 square feet or less. Mini-sounder shall not be used in any corridors, mechanical electrical rooms and similar large spaces and areas of high ambient noise level. Provide white with red letters.
2. All wall mounted combination units installed in student toilets, gymnasiums, corridors, student locker/dressing rooms shall have a protective cover
3. The audible emergency alarms shall produce a sound that exceeds the prevailing sound level in the room or space by at least 15 dba or shall exceed any maximum sound level with a duration of 60 seconds by 5 dba, whichever is

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louder. Sound levels for alarm signals shall not exceed 110 dba at the minimum hearing distance from the audible appliance.

D. Exterior Audible Signal:
1. Semi-flush mounted, molded of high impact red thermoplastic and listed for weatherproof locations.

E. Combination Voice Signal and High Intensity Visual Signals (where indicated or required by local AHJ):
1. Strobe lights shall operate on 24 VDC. The strobe light shall be capable of producing 75 candela on axis to comply with ADA requirements, and 15, 30 or 110 candela to comply with UL 1971 requirements. Visual signals in common areas of illumination shall have synchronized flash.
2. All combination units installed in student toilets, gymnasiums, student locker / dressing rooms shall have a protective cover.
3. The visual signal lens housing shall be white with red lettered FIRE or as approved by Architect. The speaker and visual signal shall be mounted to a common white speaker baffle. The visual signal shall flash at a rate of minimum of 1 Hz and maximum of 3 Hz, and shall use a strobe type lamp or other high intensity long life light source. The lamp intensity shall be a minimum of 75 candela.
4. The speaker shall be UL 1480 compatible with the control equipment. Unit shall operate within a temperature range of 150°F to -30°F. High output speakers, UL minimum 87dB at 10 feet with speaker taps of .33.66/1.25/2.5 watts. Standard output speakers, UL 75-81 dB at 10 feet with speaker taps of .5/1/1.75/2.75 watts. Capacitor for line supervision.

F. Ceiling mounted recessed mounted speakers (where indicated or required by local AHJ) shall be UL 1480 compatible with the control equipment. Unit shall operate within a temperature range of 150°F to -30°F. UL minimum 78-87 dB at 10 feet with speaker taps of .25, .5/1.0/2.0 watts. Round, white baffle or 2x2 lay-in grid with UL enclosure, tile bridge supports when recessed in lay-in ceiling tiles (where indicated or required by local AHJ) and capacitor for line supervision.

G. Surface mounted speakers (where indicated or required by local AHJ) shall be UL 1480 compatible with the control equipment. Unit shall operate within a temperature range of 150°F to -30°F UL minimum 100 dB at 15 watts at 10 feet. Speaker taps via 7-position selector switch, 25-vol., .48/.94/1.8/7.5/15 watts. Fully enclosed wiring terminals. Capacitor for line supervision.

H. Manual Pull Station: Addressable pull stations shall contain electronics that communicate the station’s status (alarm, normal) to the control panel over two wires which also provide power to the pull station. They shall be manufactured from high impact red Lexan with white lettering. Station shall mechanically latch upon operation and remain so until manually reset by opening with a key common to all system locks. Pull stations shall be double action without glass rods. The front of the station shall be hinged to a back plate assembly and shall be opened with a key to reset the station. The key shall be common with the control panels. The addressable manual station shall have address setting programmed electronically and automatically from the fire alarm control panel. Manual stations shall be designed for semi-flush (surface) mounting on standard electrical box. All pull stations units shall have a protective cover, STI Stopper II #STI-1130 surface mounted cover with local alarm horn. Provide STI, Weather Stopper II #STI3150 for locations where dampness, water or dust is present, except when mounted next to main FACP, staff supervised locations, and remote annunciators.

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I. Intelligent Multi-Criteria Photoelectric Smoke Detectors
1. The intelligent multi-criteria detection device shall include the ability to combine the signal of the thermal sensor with the signal of the photoelectric signal in an effort to react hastily in the event of a fire situation. It shall also include the inherent ability to distinguish between a fire condition and a false alarm condition by examining the characteristics of the thermal and smoke sensing chambers and comparing them to a database of actual fire and deceptive phenomena.
2. The detectors shall use the photoelectric principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the ANALOG level of smoke density. The detector shall provide automatic sensitivity "drift" compensation. The detector shall also provide a "maintenance alert" feature whereby the detector shall initiate a trouble condition should the unit’s sensitivity approach the outside limits of the normal sensitivity window.
3. The detectors shall provide address setting means electronically and automatically at the control panel.
4. The detectors shall provide operational status and alarm state LED. Under normal conditions, the LED shall flash, indicating the detector is operational and in regular communication with the control panel. An output connection shall also be provided in the base for connecting an external remote alarm LED.
5. The detector shall be semi-flush ceiling mounted and be provided with modular detector head with twist lock base. No radioactive material shall be used.
6. Voltage and RF transient suppression techniques shall be employed as well as smoke signal verification circuit and an insect screen.

J. Intelligent Photoelectric Smoke Detectors
1. The detectors shall use the photoelectric principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the ANALOG level of smoke density. The detector shall provide automatic sensitivity "drift" compensation. The detector shall also provide a "maintenance alert" feature whereby the detector shall initiate a trouble condition should the unit’s sensitivity approach the outside limits of the normal sensitivity window.
2. The detectors shall provide address setting means electronically and automatically at the control panel.
3. The detectors shall provide operational status and alarm state LED. Under normal conditions, the LED shall flash, indicating the detector is operational and in regular communication with the control panel. An output connection shall also be provided in the base for connecting an external remote alarm LED.
4. The detector shall be semi-flush ceiling mounted and be provided with modular detector head with twist lock base. No radioactive material shall be used.
5. Voltage and RF transient suppression techniques shall be employed as well as smoke signal verification circuit and an insect screen.

K. Duct photoelectric smoke detectors:
1. Detectors shall be analog addressable type.
2. To minimize nuisance alarms, detectors shall have an insect screen and be designed to ignore invisible airborne particles or smoke densities that are below the factory set alarm point. No radioactive material shall be used.
3. Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the control panel.
4. Voltage and RF transient suppression techniques shall be employed as well as smoke signal verification circuit and an insect screen.
5. Remote alarm/power LED indicator with test switch shall be provided. Unit shall be wall or ceiling mounted in readily visible and accessible area near the location of detector; exact location of unit to be approved by the Architect/Engineer.
6. Detectors shall operate on the same principles and exhibit the same basic characteristics as area type photoelectric smoke sensors. The detector shall

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operate in air velocities of 300 FPM to 4,000 FPM. Each detector shall interface directly to the system SLC loop without the requirement of interface zone modules.

7. The unit shall consist of a clear molded plastic enclosure (or remote mounted LED status indicator shall be provided next to the smoke detector) with integral conduit knockouts to provide visual viewing of detector/sensor for monitoring sensor operation and chamber condition. The duct housing shall be provided with gasket seals to insure proper seating of the housing to the associated ductwork. Each unit's sampling tubes shall extend the width of the duct and be provided with porosity filters to reduce sensor/chamber contamination.
8. The detectors shall provide alarm and power status indication by LED. Under normal conditions, the LED shall flash, indicating the detector is operational and in regular communication with the control panel. Steady illumination of the LED shall indicate that the control panel has detected and verified an alarm condition. An output connection shall also be provided in the base for connecting an external remote alarm LED.
9. The detectors shall provide address setting means electronically and automatically from the control panel.

L. Intelligent Thermal Detectors
1. The detectors shall use dual electronic thermostats to measure temperature levels in its chamber and shall, on command from the control panel, send data to the panel representing the analog temperature level.
2. The detectors shall provide address setting means electronically and automatically at the control panel.
3. The detectors shall provide operational status and alarm state LED. Under normal conditions, the LED shall flash, indicating the detector is operational and in regular communication with the control panel. An output connection shall also be provided in the base for connecting an external remote alarm LED.
4. The detector shall be semi-flush ceiling mounted and be provided with modular detector head with twist lock base.
5. Thermal Detectors shall be combination rate-of-rise and fixed temperature- rated at 135°F for areas where ambient temperatures do not exceed 100°F and shall be 200°F for areas where ambient temperatures exceed 100°F but not 150°F. The fixed temperature element shall consist of a fusible alloy retainer and actuator shaft. Detectors shall have a smooth ceiling rating of 2,500 square feet. Detectors shall be located as shown on the drawings and where required by local code authority.
6. Provide fixed temperature 190°F detector in kitchen and kiln room in lieu of combination rate-of-rise / fixed-temperature type.

M. Auxiliary AHU Relays: Air Products model MR-101C relays shall be provided for HVAC and AHU control and interface. Relays shall be heavy-duty type with contacts rated up to 10 amps at 120V AC, 60 HZ. Relays shall be provided with NEMA I dust cover assembly and be provided with DPDT contacts as well as activated LED indicator.

N. Voltage sensing relays: Addressable control modules for voltage sensing relay interface shall be FCM-1.

O. Monitor Module:
1. Addressable monitor modules shall be provided where required to interface to contact alarm devices. The monitor module shall be used to connect a supervised zone of conventional initiating devices to an intelligent SLC loop.
2. The monitor module shall provide address setting means electronically and automatically at the control panel. A status/alarm LED shall be provided which

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shall indicate that the monitor module is operational and in regular communication with the control panel, and indicate detection of an alarm condition.

P. Control Module
1. Control/relay modules shall be provided where required to provide audible alarm interface and/or relay control interface. The control module shall be used to connect a supervised zone of conventional indicating devices to an intelligent loop. The zone may be wired class A or class B - field selected. The control module may be optionally wired as dry contact (form C) relay.
2. The control module shall provide address setting means electronically and automatically at the control panel. A status/alarm LED shall be provided which shall indicate that the control module is operational and in regular communication with the control panel and indicate when the device is actuated via the fire alarm control panel.

Q. Auxiliary Interface Points: All auxiliary input points (kitchen hoods, water flow, tamper switches, fire extinguishing systems etc.) shall be connected as required, and addressed as a separate initiating point of annunciation at the fire alarm panel and any remote annunciator as required.

R. Water flow switches / Valve supervisory switches shall be provided and installed by the fire protection contractor and connected by the fire alarm contractor. Wiring of these field devices to the fire alarm system shall be the responsibility of the fire alarm contractor. It is the responsibility of this contractor to ensure the proper function of the system. Each fire protection zone (flow switch) and (Valve switch) shall be addressed electronically and automatically at the control panel as a separate point of annunciation at the fire alarm panel. Coordinate exact location with fire protection contractor and civil drawings.

S. Beam detectors:
1. Microprocessor based beam detectors, consisting of a separate transmitter and matching receiver.
2. Coverage up to 350 ft. X 60 ft.
3. LED status indicators for normal (green), alarm (red), and trouble (yellow).
4. The detectors shall provide address setting means electronically and automatically at the control panel.

2.7 MAGNETIC DOOR HOLDERS, AUTOMATIC FIRE DOORS / SHUTTERS, AND SECURITY GRILLES AND INTERIOR SPACE CONTROLLED ACCESS EGRESS DOORS WITH AUTOMATIC EMERGENCY EGRESS ELECTRIC LOCK EMERGENCY RELEASE

A. Magnetic fire door hold open devices, interface for automatic roll down fire doors/shutters, and interface for security grilles and controlled access egress doors with emergency egress shall be provided. Coordinate with Division 8 and Architectural Drawings for exact location.

B. The operation of any alarm in the fire alarm system shall cause the following:
1. Release of the magnetic fire door holding devices, permitting the fire doors to be closed by the door closer.
2. Permit the automatic roll down fire doors/shutters to close automatically.
3. Permit the security grilles with emergency egress to open automatically.
4. Unlock the electrically controlled access doors in all interior spaces.

C. The magnetic door holders, automatic roll down fire doors/shutters, security grilles, and interior electrically controlled access doors with emergency egress, shall be associated with two smoke detectors located on the ceiling with one on either side of the fire

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door/shutter, security grille opening, or interior egress path electrically controlled door. The operation of either of these detectors shall also cause the magnetic holder to release the fire door, the automatic fire door/shutter to close, and the security grille with emergency egress to open.

D. The operation of smoke detectors associated with a magnetic door holder, automatic roll down fire door, security grille, or electrically controlled access door shall transmit a pre-alarm signal to the fire alarm panel.

2.8 REMOTE PAGING UNIT

A. Remote all-call paging unit or to activate one of the pre-recorded messages over the speaker circuits.

2.9 REMOTE ALPHANUMERIC DISPLAY ANNUNCIATORS

A. (Where indicated or required by Local Authority Having Jurisdiction) Remote alpha-numeric annunciator(s) to annunciate all system events and duplicate the displayed status at the main FACP. The annunciator(s) shall be an 80-character display similar to the main FACP and operate via the system RS485 or RS232 serial output terminal from the main FACP. The unit shall operate from FACP 24VDC power and function during system power failure while the system resides on standby batteries. The remote annunciator(s) shall include:
1. Integral time/date clock
2. System reset
3. System silence
4. System acknowledge
5. Display/step switch
6. Integral trouble buzzer
7. LCD contrast adjust
8. Fire Drill Operation
9. Owner’s list of additional remote annunciator control buttons.

B. Annunciator shall upon command display the first system alarm, last alarm, and system alarm count. The following primary controls shall be visible through a front access panel:
1. 80 character alphanumeric display, LCD, LED, or gas plasma
2. Individual red system alarm LED
3. Individual yellow supervisory service LED
4. Individual yellow trouble LED
5. Green “POWER ON” LED
6. Alarm acknowledge key
7. Trouble acknowledge key
8. Alarm silence key
9. System reset key
10. LED test
11. Additional control buttons as directed by Owner.

2.10 AUXILIARY EQUIPMENT MONITORING

A. The fire alarm system shall monitor for alarm, supervisory, and trouble conditions; and annunciate the status of the following equipment when provided, or is existing to remain, as part of this project. A failed status shall activate the trouble alarm.
1. Emergency Generator: Run Status
2. Emergency Generator: Trouble Signal
3. Fire Pump: Run Status
4. Fire Pump: Trouble Signal

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5. Emergency Service Communications Systems, as required by NFPA 72 and NFPA 1221.

PART 3 - EXECUTION

3.1 EXPANSION OF EXISTING SYSTEM

A. Testing of existing systems:
1. Provide complete operational test of existing fire alarm system prior to any demolition or construction. Verify operation of each device, control panel, distribution equipment and associated accessories.
2. Provide a complete written report to the Architect, indicating any deficiencies of the existing system in relation to each component's intended function. In addition, provide deficiencies of the existing system with regard to current Code, ADA, and Local Accessibility Standards requirements. Provide the written report 14 days prior to any work related to the expansion of the existing system.
3. Testing of the existing system shall include all areas and all buildings served by the existing system.

B. Existing areas of construction (renovation) shall remain fully covered by fully fire alarm devices connected to the existing fire alarm control panel. Existing panel shall report any alarms or troubles during construction.

C. Provide smoke detectors in the following locations in addition or renovated areas:
1. All paths of egress and adjoining spaces within the same envelope including but not limited to: corridors, hallways, stairs, lobbies, and elevator landings.
2. At each electrical room, telecommunications/data room, elevator machine room, kiln room, and mechanical room not subject to un-treated or un-filtered outside air.
3. At each computer lab/room.
4. At each library or book storage room.
5. At each storage room, stock room, or warehouse space.
6. At each pre-K and kindergarten classrooms.
7. At nurse's area/clinic and patient care/cot areas.
8. At each special needs, life skills, adaptive behavior, developmental classrooms or similar designated areas without food preparation or cooking equipment.
9. At each student toilet/restroom. Provide STI protective covers. Do not locate over plumbing fixtures or near partitions.

D. Provide heat/thermal detectors in the following locations in addition or renovated areas:
1. At each mechanical room subject to un-treated or un-filtered outside air.
2. At each janitor's closets and laundry rooms.
3. At each commercial kitchen and adjoining storage rooms; at each food preparation area.
4. At each employee break room.
5. At each vocational shop.
6. At each science, physics, chemistry, or biology classroom and their associated preparation and storage rooms.
7. At each special needs, life skills, adaptive behavior, developmental classrooms or similar designated areas with food preparation or cooking equipment.

E. Provide carbon monoxide detection and smoke detection devices in all areas designated as day-care for minors.

F. Provide duct smoke detectors in all air handling units with air volumes of 2,000 cfm or larger.

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1. Where duct smoke detectors are installed above ceilings, provide external remote status/alarm LED mounted flush with ceiling in close proximity to the duct detector location. If space is open without ceiling, wall mount remote status/alarm LED in close proximity to the detector between 96 and 108-inches AFF, or as directed by Owner.

G. Provide duct smoke detectors on outside air units only as required by local Code and / or AHJ.

H. Provide VESDA type detectors at the following locations when appropriate:
1. Atriums to avoid exposed conduits.
2. High ceiling areas 25 feet and higher where maintenance of spot type detectors will be difficult.
3. Skylights to avoid exposed conduits.
4. Coolers/Freezers 200 square feet and larger.

I. Provide manual pull stations at each exterior exit and at each exit from all floors only if required by local AHJ or if the building is not fully sprinklered. Provide one manual pull station at the central reception area as directed by Owner.

J. Provide weatherproof exterior audio/visual alarm devices mounted on the building at the exact location as directed by Architect:
1. Main entry.
2. Courtyards and outdoor assembly areas adjacent to the building.
3. Mechanical yards adjacent to the building.
4. Covered playgrounds or covered assembly areas adjacent to the building.
5. Additional locations where indicated on drawings.
6. Outdoor paved play areas.

K. Provide audio and visual alarm devices in all areas normally occupied by students or minors and all common use areas.

L. Provide beam type detectors at the following locations when appropriate:
1. Atriums.
2. High ceiling corridors where maintenance of spot type detectors may be difficult.
3. Areas with skylights.

M. Provide audio and visual alarm devices in all areas normally occupied by students or minors. The renovated and expansion areas’ smoke control envelope audio alarm shall be equipped with voice alarm capability regardless of local AHJ requirements. Existing areas shall remain temporal audio alarm only.

N. Provide carbon monoxide detection and smoke detection devices in all areas designated as day-care for minors.

O. Provide carbon monoxide detection in classrooms and other instructional spaces served by a fuel-burning appliance, fuel-burning HVAC equipment (including roof mounted equipment), or with gas fuel outlets for connection to portable fuel-burning space heaters and appliances such as Bunsen burners which are typically used in laboratories or science classrooms.

3.2 GENERAL REQUIREMENTS

A. Installation shall include the delivery, storage, setting in place, fastening to the building structure, interconnection of the system components, alignment, adjustment and all other

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work, whether or not expressly specified, which is necessary to result in a tested and operational system.

B. All installation practices shall be in accordance with, but not limited to, the specifications and drawings. Installation shall be performed in accordance with the applicable standards, requirements and recommendations of NFPA 72 and the National Electrical Code and any authorities having jurisdiction. Proper protection against corrosion shall be provided on all electrical equipment in accordance with the requirements of the National Electrical Code. The installation shall conform to all manufacturers' recommendations.

C. All equipment shall be firmly secured in place unless requirements of portability dictate otherwise. Fastenings and support shall be adequate to support their loads with a safety factor of at least three.

D. All boxes, equipment, etc., shall be plumb and square. The contractor must take such precautions as are necessary to prevent and guard against electrostatic hum, to supply adequate ventilation, and to install the equipment to provide reasonable safety for the operator.

E. Visual displays, GUIs, or other indicators for main fire alarm panel and all remote annunciators shall be at maximum 66 inches AFF.

F. All remote booster and associated equipment panels shall be mounted with top of enclosure maximum 66 inches AFF.

G. In the installation of equipment and cables, coordinate with Architectural drawings for possible conflicts with millwork, casework, marker boards, furniture, lockers, etc., and notify the architect of any discrepancies. Verify modifications before proceeding with installation.

H. Mount end-of-line resistor for each box circuit in backbox located at the last manual alarm station or automatic initiating device in a circuit. Mark device accordingly in the field.

I. Provide three dedicated Cat 6 cables from MDF/IDF to fire alarm panel. Cable shall be installed in 3/4" conduit. Two cables for phone POT lines and one Ethernet data connection.

J. Upright and/or Wall Post-Indicating Valve: Provide conduit and wiring from fire alarm control panel to post-indicating valve if electronically supervised, coordinate exact location of PIV with fire sprinkler contractor prior to rough-in. Coordinate final location with Civil Drawings and Fire Protection Contractor. Where equipment is located inside a vault, stub required conduit inside vault, turn up and cap.

K. Contractor shall submit on completion of system verification, a point-by-point check list indicating the date and time of each item inspected and issue a certificate confirming that the inspection has been completed and the system is installed and functioning in accordance with the Specifications prior to date of substantial completion.

L. Provide remote alphanumeric display annunciators in the administrative area in constantly attended area, as required by the Local AHJ, and additional annunciators where indicated on the drawings, as directed by Owner / Architect.

M. Alarm devices shall be ceiling mounted unless indicated specifically otherwise. Alarm devices in Mechanical, Electrical, Communications, IDF / MDF Rooms and Central Plant shall be wall mounted and coordinated with other equipment, piping and ductwork.

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N. Provide combination speaker strobes. Provide strobe only alarms when additional speaker placement will compromise voice intelligibility. Provide horn/strobes in coolers and freezers.

O. Detectors shall be installed per NFPA 90A and be listed with the fire alarm control panel.

P. Auxiliary Equipment Monitoring Wiring and connection to equipment shall be the responsibility of the fire alarm contractor.

Q. Power for magnetic door holders shall be provided from the nearest receptacle circuit wired through fire alarm relay.

R. Smoke detectors shall be mounted to a 4-inch octagon box with hanger bar or with box secured to building structure.

S. Provide power via 120-volt, 20-Amp dedicated circuits with lock-on provisions at the respective circuit breaker for each new main fire alarm control panel, each new panel extender and each new remote power supply at no additional cost to the Owner. The complete fire alarm system shall be powered under emergency power when emergency life safety power is available at the project site. When emergency life safety power is not available at the project site, power shall originate from the nearest available 120-volt panel, or as indicated.

3.3 CABLE AND BOXES INSTALLATION

A. All circuits shall be protected to avoid interruption of service due to short-circuiting or other conditions, which might adversely affect the connected devices. Each individual signaling circuit shall be classified as a circuit pair.

B. All cabling in racks, cabinets and junction boxes shall be neatly strapped, dressed and adequately supported. Cable installation shall conform to good engineering practices and to the standards of the National Electrical Code.

C. Cables shall be terminated with the proper connector required for the associated operation of the equipment to which it is connected. Screw terminal blocks shall be furnished for all cables, which interface with racks, cabinets, consoles or equipment modules.

D. All cables within a rack, console or junction box shall be grouped according to the signals being carried to reduce signal contamination.

E. Where shielded conductors enter a panel or enclosure, and where power wiring exists, provision shall be made to provide physical isolation of signal and power conductors.

F. Supply and install all fittings and accessories whether or not they are specified, required for proper, safe and reliable operation of the system.

G. All wire shall be installed in an approved conduit/raceway system (except where permitted by NEC and the local authority having jurisdiction). Maximum conduit fill shall not exceed 40%.

H. Minimum conduit size shall be 3/4" EMT with insulated bushings. Install conduit per engineered shop drawings.

I. Systems utilizing open wiring techniques with low smoke plenum cable shall provide conduit in all inaccessible locations, inside concealed walls, all mechanical/electrical

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rooms, or other areas where wiring might be exposed to view and or subject to damage.

J. All vertical wiring and all main trunk/riser wiring shall be installed in a complete raceway/conduit system. All riser boxes shall be adequately sized for the number of conductors transversing the respective box as well as the number of terminations required.

K. All junction boxes containing fire alarm wiring are to be painted red.

L. All plenum wiring is to be installed parallel and perpendicular to the building structure. Cable shall be bundled with cable ties on a maximum of 2'-6". Install cables in D-ring hangers secured to the structure at a maximum of 5' on center. Cable shall not lie on ceiling grid or ceiling tiles, light fixtures, piping, ductwork or foreign equipment.

M. The system ground is to be connected to the local ground bus. Under no conditions shall the AC neutral either in a power panel or in receptacle outlets be used for a reference ground.

N. All wiring shall be in accordance with NFPA 72, the National Electrical Code, and Local Codes. All wiring sizes shall conform to recommendations of the equipment manufacturer, and as indicated on the engineered shop drawings.

O. All wire shall be UL Listed FPL for limited energy (300V) and fire alarm applications and shall be installed in conduit. Limited energy FPLP or MPP wire may be run open in return air ceiling plenums provided such wire is UL Listed for such applications and is of the low smoke producing fluorocarbon type and complies with NEC Article 760 and approved by the local authority having jurisdiction.

P. No other wiring shall be run in the same conduit as fire alarm wiring.

Q. All fire alarm wiring to be red. All fire alarm circuits shall be identified at each termination and at each 25 feet between terminations.

R. Copper wiring leaving or entering main building shall be protected on both ends with surge suppression; otherwise use fiber-optic cabling.

3.4 ALARM SYSTEM SEQUENCE OF OPERATION

A. General:
1. All fire alarm circuits shall be electrically supervised.
2. Automatic response functions shall be accomplished by the first device initiated. Alarm functions resulting from initiation by the first device shall not be altered by subsequent alarms. An alarm signal shall be the highest priority. A pre-alarm signal shall have second priority and supervisory or trouble signals shall have third and fourth level priority. Signals of a higher level priority shall take precedence over signals of lower priority even though the lower priority condition occurred first.

B. Fire alarm operating sequences shall be as follows:
1. Activation of any automatic detector, manual station, fire suppression system, sprinkler flow switch or any other system required by NFPA 72 to be monitored to initiate an alarm condition shall cause the location of the alarm to be identified in an audible and visual manner at the building fire alarm control panel (FACP), and shall initiate the following events:
a. The system common alarm LED on the CPU Module shall flash. The internal audible trouble device shall sound. Acknowledging the alarm

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condition shall silence the audible trouble device and revert the flashing common alarm LED to a steady state.

b. The 80-character display shall indicate all applicable information associated with the alarm condition including: zone, device type, device location based on actual room graphic name and number (not architectural plan names and numbers), and time of alarm. Location and zoning messages shall be custom field programmed to respective premises.

c. Any remote or local annunciator LED's associated with the alarm point shall be illuminated as herein specified.

d. The remote signaling connection shall be activated relaying the alarm signal to an approved central station (central station connection and service provided by Owner). Point ID and descriptor must be sent and received.

e. All automatic events programmed to the alarm point shall be executed and the associated indicating devices and/or outputs activated.

f. De-activate local sound reinforcement systems that are not UL listed nor integrated with the fire alarm system control panel for providing fire alarm or mass notification instructions. Building wide public address systems shall remain active only for manual mass notification. Public address system auxiliary audio inputs used for background music or other remote non-emergency audio sources shall be silenced to only allow priority level manual mass notification using the public address system.

g. Activate all audible/visual alarm devices. Where prerecorded voice announcement is required or specified, the prerecorded announcement shall be preceded with attention tone(s), followed by the approved prerecorded announcement and continue in a cycle until the system is reset. Manual voice announcement shall interrupt the prerecorded cycle and the prerecorded cycle shall resume automatically after three minutes.

h. De-activate all HVAC systems including low speed high volume (LSHV) circulating blade type fans.

i. De-energize the kitchen hood supply/exhaust fans as required by local authority having jurisdiction.

j. Close all related smoke dampers.

k. Close all related smoke/fire dampers.

l. Release all magnetic door hold open devices.

m. Release the electric strike, unlocking, but not unlatching, locked doors controlled by an access control system.

n. Release Counter Shutters and hold-open devices on all fire and smoke doors.

o. Open all security grilles with emergency egress.

p. Activate to close all related fire and smoke doors and shutters.

q. Activate signaling connection to the elevator as required by the local authority having jurisdiction.

r. Signal the building automation system and Owner’s security / police personnel as directed by Owner / Architect. The audible alarms shall be inhibited from being silenced for a period of 3 minutes after commencing operation unless alarm is acknowledged, and appropriate action has been taken.

s. Activate automatic recall operation of elevators as required by local authority having jurisdiction.

t. Record all events on the system printer.

2. Activation of duct mounted smoke detector on the HVAC equipment, or a smoke detector mounted in the return/supply air stream of any fan shall shut down all units as required by NFPA. The activation of one of these detectors shall initiate

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the Alarm Sequence of Operation.

3. Activation of a control valve supervisory switch shall initiate the following events:
   a. The activation of any sprinkler valve supervisory (tamper) switch shall activate the system supervisory service audible signal and illuminate the LED at the building fire alarm control panel (FACP). Differentiation between valve tamper activation and opens and/or grounds on the initiation circuit wiring shall be provided.
   b. Activation of a sprinkler system control valve supervisory switch shall not prevent the events listed under Article 3.4.
   c. Restoring the valve to the normal position shall cause the supervisory service audible signal to pulse, indicating the restoration to normal position. The supervisory service reset key shall be provided to silence the audible signal.
4. Activation of the smoke detector and heat detector in the elevator machine room and at top of elevator shaft shall cause the elevators' controllers to be tripped by way of the shut trip breaker, and shall also initiate the events listed under Article 3.4.
5. Any subsequent fire alarm shall reactivate the alarm indicating appliances and activate the respective control sequences described above.
6. Upon silencing the alarm, all visible alarm devices shall remain active until system reset, and all local sound reinforcement systems de-activated by the fire alarm system shall resume normal operation.
7. Upon reset of the fire alarm control panel, HVAC units shall be capable of being started, and resume normal operation.

C. Activation of the manual evacuation pull (drill) switch shall operate the alarm indicating appliances and de-activate local sound reinforcement system without causing other control circuits to be activated. However, should true alarm occur, all alarm functions should occur as described.

D. ALARM VERIFICATION shall be field programmed for each respective detector. Global verification will not be acceptable. The verification sequence is activated after a "check" procedure and the panel will wait a field programmable delay period (0-50 seconds) then proceed to re-sample the detector for continued presence of smoke. If the alarm condition still exists or a non-verified device is actuated during the verification period, the system will then initiate all alarm sequences specified herein. The system shall incorporate the ability to log in memory the number of verification events that have occurred for each selected device.

3.5 EQUIPMENT IDENTIFICATION

A. Each new panel or equipment enclosure shall be provided with a permanently engraved or embossed or silkscreen identification tag. The tag shall include the following information:
   1. Name of manufacturer.
   2. Manufacturer's equipment description.
   3. Serial number and model number.
   4. Voltage and current rating.

3.6 SPARE PARTS AND TOOLS

A. Interchangeable Parts: All spare parts furnished shall be directly interchangeable with the corresponding components of the installed system. Spare parts shall be packaged and identified by nameplate, tagging, or stamping. Spare parts shall be delivered to the site in unopened cartons for storage as directed by the Owner.

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B. Spare Parts: Provide minimum of one, or 5% of renovation area total, whichever is greater unless noted otherwise.
   1. Spare shut down modules
   2. Spare detectors of each type in the system
   3. Spare alarm indicating devices of each type in the system
   4. Spare manual pull stations
   5. Spare protective covers of each type in the system.
   6. Spare relays/controls required for connection to smoke and fire/smoke dampers
   7. Devices listed above are to be installed as directed by Architect/Engineer or local code authorities at no additional cost to the Owner. Unused spare parts are to be parts for Owner's cabinet.

C. Provide one smoke, heat and carbon monoxide detector testing kit. SDfire #TF2823 with Solo Testfire #2001 tester with 15-foot access pole and three 4-foot pole extensions, detector removal tool, and carrying bag.

D. Provide two copies of the final software programmed into the fire alarm system.

E. Parts list: Furnish a list, in duplicate, of all other parts and accessories the manufacturer of the system recommends to be stocked for maintenance.

3.7 KEYS

A. Keys and locks for all equipment shall be identical to the existing building master key for the fire alarm system.

3.8 SMOKE DAMPERS AND FIRE/SMOKE DAMPERS

A. Smoke dampers and combination fire/smoke dampers shall be controlled by an automatic alarm initiating device. Smoke dampers installed to isolate the air handling system shall be arranged to close automatically when the system is in alarm.

B. Coordinate motor operator voltage with supplier.

C. Open all dampers prior to starting air handling equipment.

D. Provide 120V power from nearest general purpose 20A receptacle circuit as required, or as noted otherwise.

3.9 GRAPHIC FLOOR PLANS FOR AHJ SITE PERMITTING INSPECTION AND OWNER USE

A. It is the intent of these specifications that the fire alarm system shall pass AHJ inspection on the first try. The fire alarm system shall be fully functional, commissioned, and mapped both on fire alarm graphic maps and fire alarm annunciator device descriptions to fully and correctly described the device type and detailed location. Provide color coded floor plans detailed with actual room names, actual graphic room numbers as directed by the Owner and adequate information to direct people to the fire alarm devices in alarm and to exits with non-fading floor plan media. Do not use architectural plan room names and numbers. Fire alarm maps shall include all relevant building information and fire alarm device information as required for the local AHJ permitting site walk-through inspection.

B. Each plan shall clearly relate the room numbers on the annunciator to the area description on the floor plan. All fire alarm devices located to correspond with the annunciator.

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C. Provide two color coded floor plans for Owner use that shall be solvent welded in acrylic plastic.
   1. Mount in an extruded aluminum frame next to the main fire alarm control panel.

D. Install graphic floor plans as directed by Architect/Owner prior to substantial completion. Each area or room designation shall be verified with the fire alarm device during testing.

3.10 ADDITIONAL REQUIREMENTS

A. Coordinate with Owner for appropriate off-site monitoring service and communication technology to be used. Provide all necessary programming for interfacing with the Owner's on-site and off-site remote signaling receiving station, including programming of descriptors and addresses at the receiving station.

B. The contractor is to ensure all areas of the renovation and new construction are covered with visual and audio alarm devices for occupant notification of a fire alarm including remote portable or temporary buildings.

C. Coordinate door hold devices with door and door hardware.

D. Provide interface with and coordinate shunt-trip circuit breakers and control devices with kitchen hood fire control systems (where new kitchen hood fire control systems are provided) and elevator equipment (where new elevators are provided).

E. Alarm circuit power supplies and circuiting shall be designed and installed to accept an additional five (2) 110cd visual devices for future expansion. The initial design shall not exceed 70% of the rated power supply and circuit capability with the two additional 110cd devices installed.

F. Provide programming or re-programming of all hot keys as directed by Owner including, but not limited to, fire drill, AHU shutdown bypass, horn/strobe disable, elevator test.

3.11 COMMISSIONING THE SYSTEM

A. The installing contractor shall be responsible for verifying that each new or relocated component of the system is fully operational and in conformity with the specifications. He shall also be responsible for insuring that all elements function together as a system in accordance with the specifications.

B. A state licensed and factory trained technical representative of the manufacturer with NICET Level 3 minimum certification shall supervise the final control panel connections and testing of the system. Upon completion of the acceptance tests, the owner and/or his representatives shall be instructed in the proper operation of the system.

C. The installing contractor shall functionally test each and every device in the entire system for proper operation and response. Any new or relocated items located within the construction or renovation area found not properly installed or non-functioning shall be replaced or repaired and retested. The final test indicating a fully functional fire alarm system shall be recorded; electronic Excel and printed copy submitted to the Architect, Engineer and Owner.

D. The installing contractor shall provide a complete written report and printout of the functional test of the entire system after all existing deficiencies of the existing system have been corrected by the Owner, or as directed by the Owner. The test report shall be signed and dated by the licensed fire alarm superintendent responsible for supervising the final system test and checkout. This test shall be completed and accepted by the

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Owner prior to testing for the local Fire Marshall.

E. The installing contractor's fire alarm superintendent shall test the entire system in the presence of the local authorities having jurisdiction. The contractor shall be responsible for making any changes, adjustments, or corrections, as may be required by the local authorities. The Contractor shall affix his certification label and installation certificate to the interior of the main fire alarm control panel.

F. The testing and acceptance shall be performed within 30 days after the fire alarm installation is completed. The test shall be performed by a minimum of two qualified fire alarm system technicians acceptable to the authority having jurisdiction. The test which is a comprehensive 100 percent inspection and test of all fire alarm system equipment shall include the following:
1. Fire alarm control equipment: a visual and functional test of the fire alarm control and auxiliary control equipment.
2. A visual inspection shall be conducted to establish that all electrical connections and equipment, as required, are properly installed and operating.
3. A functional fault simulation test shall be conducted on all relevant field wiring terminations to ensure that wiring is properly supervised as required.
4. Indicators shall be tested to ensure proper function and operation.
5. Control panel auxiliary functions shall be functionally tested to verify proper operation.
6. Control panel supervisory and alarm current readings shall be taken to verify that the control panel has the appropriate power supplies and standby batteries to operate the system as required. A three-minute general alarm stress test, both under AC power and standby power, shall be conducted to further ensure complete operation of the system.
7. Fire alarm peripheral devices; All fire alarm peripheral devices shall be functionally tested and the location and testing information recorded for each device.
8. Manual initiating devices:
    a. Each manual fire alarm station shall be functionally tested for alarm operation.
    b. Each manual fire alarm station shall be functionally tested for proper wiring supervision.
9. Automatic initiating devices:
    a. Each automatic initiating device shall be activated in accordance with manufacturer’s instructions to ensure proper operation.
    b. Each automatic initiating device shall be functionally tested for proper wiring supervision.
    c. Each automatic initiating device shall be inspected to ensure proper placement and mounting as required by specifications.
10. Alarm signaling devices:
    a. Each alarm signaling device shall be tested and decibel reading taken at 10' from the device and recorded to ensure proper operation. Each area’s voice alarm signaling devices shall be tested for intelligibility.
    b. Each alarm signaling device shall be functionally tested for proper wiring supervision.
    c. Decibel reading shall be taken to ensure that the alarm signal level can be clearly heard in all areas of the facility.
    d. All visual alarm indicators shall be functionally tested to ensure proper operation and that they are clearly visible.
11. Elevators: Each elevator shall be tested and automatic recall function verified.
12. Reporting: Upon completion of the initial verification audit, a report shall be sent to the Architect/Engineer indicating that all fire alarm equipment has been tested and is in 100 percent operation. The report shall also contain the audit testing

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information as to the location and operational status of each peripheral device. The 100 percent audit shall be performed by a factory-trained representative. The report shall include the voice intelligibility performance in each area and indicate compliance with NFPA and local AHJ requirements.

G. It is the intent of these specifications and of the Architect/Engineer that a continued program of system maintenance will be provided by the Owner in compliance with NFPA 72. It is mandatory that the installing Contractor provide such services and make available these services to the Owner upon completion of the project.

H. Upon completion of installation and full acceptance testing, submit NFPA 72 certificate of compliance that the total fire alarm system, including any subsystems, is fully functional and that the components are UL listed for function intended.

3.12 SUBSTANTIAL COMPLETION

A. Final acceptance of the FIRE ALARM SYSTEM by the owner, local code authorities and Occupancy Permit has been issued.

B. All fire alarm system shop drawings, operating and maintenance manuals, maps and as-built drawings shall be submitted to and accepted by the Architect / Owner prior to date of substantial completion.

END OF SECTION

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WALL TO DECK RATING LEGEND

- 1-HR FIRE BARRIER WALL TO DECK (45 MIN DRS)
  UL No U465 AT STUD CONSTR
  NCMA-TEK 7-1A -FIRE RESISTANCE (2001) AT CMU CONSTR
- 2-HR FIRE BARRIER WALL TO DECK (1.5 HR DRS)
  UL No U411 AT STUD CONSTR
  NCMA-TEK 7-1A -FIRE RESISTANCE (2001) AT CMU CONSTR
  UL No U905 AT CMU CONSTR
- 3-HR FIRE BARRIER WALL TO DECK (2 HR DRS)
  UL No U419 AT STUD CONSTR
  NCMA-TEK 7-1A -FIRE RESISTANCE (2001) AT CMU CONSTR
  UL No U910 AT CMU CONSTR
- NON-RATED WALL TO DECK
  (REF DTL –/–.–) (NON-RATED OPENINGS)

NOTES:

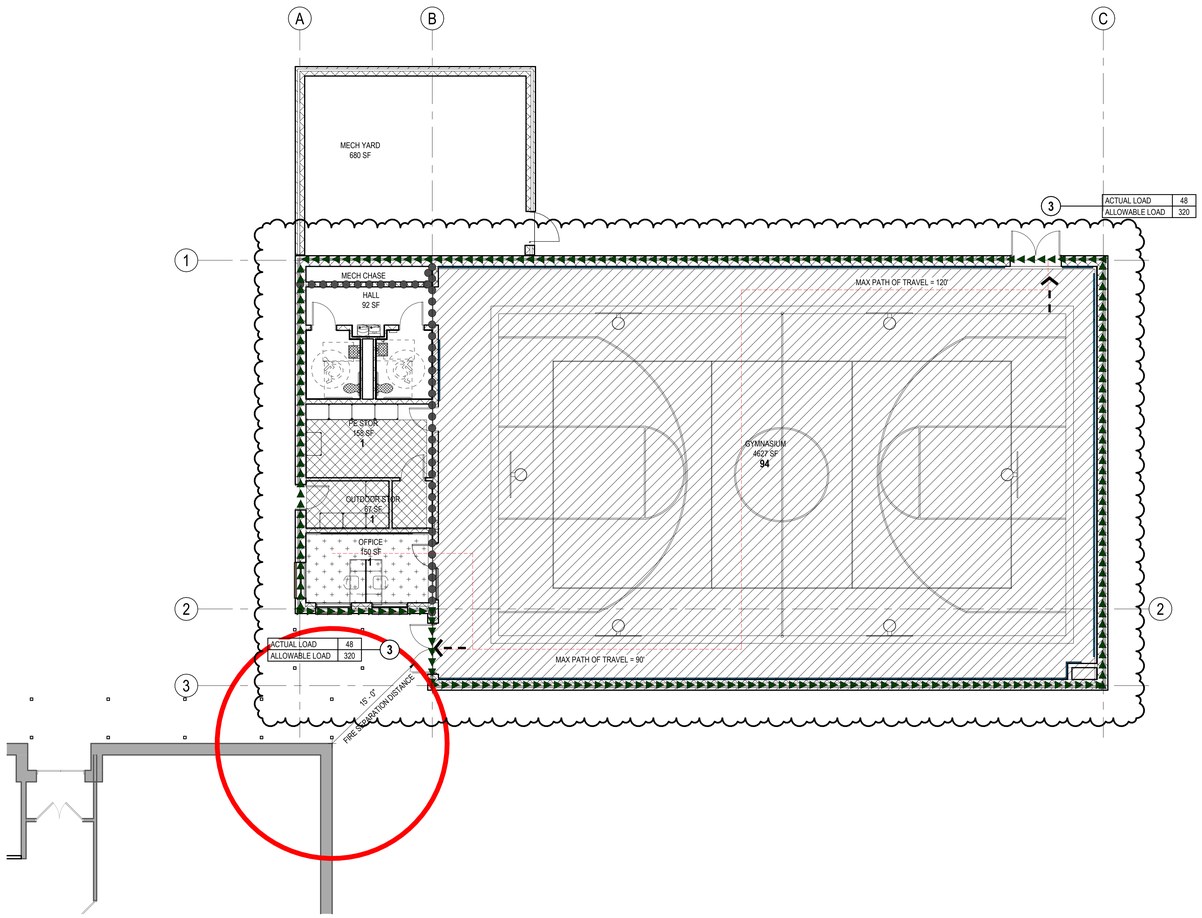
1. ALL WALLS ARE NON-RATED WALLS TO BOTTOM OF DECK (UON).
2. ALL NON-LOADBEARING CMU WALLS SPAN VERTICALLY (UON).
3. ALL COLUMN ENCLOSURES SHALL BE THE SAME HEIGHT AS THE ADJACENT WALL (UON).
4. BRACE ALL WALLS TO STRUC ABOVE AS NOTED IN WALL BRACING NOTES AND WALL TERMINATION DETAILS ON SHEET A003.
5. REFER TO PARTITION TYPES, SHEET A009 & WALL CONSTRUCTION AND RATED ASSEMBLY UL NOS., SHEET A001, TYP.
6. FIRE RATING OF ANY "EXTERIOR" LOAD BEARING WALLS SHALL CONTINUE FOR A MIN OF 30" BELOW ROOF LINES AT STEPPED BUILDING LOCATIONS, SUCH SAME WALL BELOW SUCH POINT IS AN "INTERIOR" LOAD BEARING WALL AND FIRE RATED ACCORDING TO "INTERIOR" LOAD BEARING WALLS.
7. MARKING OF FIRE RATED & SMOKE STOP PARTITIONS: PERMANENTLY MARK ALL SMOKE BARRIERS, FIRE PARTITIONS, SHAFT ENCLOSURES, FIRE BARRIERS ABOVE CEILINGS AS FOLLOWS: "FIRE AND SMOKE BARRIER-PROTECT ALL OPENINGS". LETTERS SHALL BE MINIMUM 3" IN HEIGHT, 3/8" IN STROKE, AND PAINTED RED, IF RED IS A CONTRASTING COLOR TO THE GYPSUM BOARD, OTHERWISE USE A CONTRASTING COLOR PAINT. PROVIDE ONE TIME PER STRUCTURAL BAY, BUT AT INTERVALS NOT MORE THAN 30' ON CENTER, OR FOR WALLS W/ICH DO NOT EXTEND FOR A FULL BAY, AT LEAST ONCE. AT ENDS OF WALLS, PROVIDE MARKINGS WITHIN 15' OF THE END OF EACH WALL.

FIRE ASSEMBLY LEGEND

- FLOOR/CEILING
  UL ASSEMBLY No D902: 2-HR;
  STRUCTURAL FRAME RATED 2-HR
- EXPOSED CEILING - CEMENTITIOUS FIRE PROOFING:
  UL ASSEMBLY No P819: 1-HR
- STRUCTURE EXCEEDS 20 FT -
  FIREPROOFING NOT REQUIRED
- ROOF/CEILING
  UL ASSEMBLY No P819: 1-HR;
  STRUCTURAL FRAME RATED 2-HR
- INTUMESCENT PAINT ON ALL EXPOSED STRUCTURAL MEMBERS
  UL ASSEMBLY No X662, X661:
  1-HR AT ROOF/CEILING AND
  2-HR AT FLOOR/CEILING

NOTES:

1. PROTECT ALL CONDUIT, PIPES, DUCTS, AND MISC PENETRATIONS THROUGH RATED WALLS, FLOOR OR ROOF WITH FIRE SAFING INSULATION AND FIRE STOP SEALANT. REFER TO UL GUIDELINES FOR APPROPRIATE ASSEMBLIES.
2. PROVIDE DAMPERS AND LIGHT FIXTURE PROTECTION AS REQUIRED BY UL ASSEMBLIES.
3. PROVIDE SPRAY-ON FIRE PROTECTION FOR STRUCTURAL MEMBERS CROSSING FROM AN AREA DESIGNATED TO BE A FIRE RATED FLOOR/CEILING AND OR FIRE RATED ROOF/CEILING ASSEMBLY INTO AREAS WITH ANY OTHER FIRE ASSEMBLY OR NO FIRE ASSEMBLY FOR THEIR FULL LENGTH, TYP.
4. UL ASSEMBLIES INDICATED ESTABLISH A PERFORMANCE BASIS. OTHER ASSEMBLIES MAY BE CONSIDERED AT THE DISCRETION OF THE ARCHITECT IF EQUIVALENT PERFORMANCE IS PROVIDED. SUBSTITUTION PROPOSALS SHALL INCLUDE CHANGES REQUIRED TO ALL COMPONENTS OF THE ASSEMBLY.
5. ALL STEEL COLUMNS - SPRAY ON FIREPROOFING, UL ASSEMBLY X795, U.O.N (REF SHEET A021)



A1 G102 — **GYMNASIUM - LIFE SAFETY PLAN**
1/8" = 1'-0"
HGES

PROJECT GENERAL INFORMATION:

PROJECT	HUNTERS GLEN ELEMENTARY SCHOOL
LOCATION	695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489
JURISDICTION	MISSOURI CITY
BUILDING HEIGHT	ONE STORY
EXISTING FLOOR AREA SUMMARY	EXISTING CLASSROOM BUILDING: 71,256 SF EXISTING ELP & GYM BUILDING: 6,321 SF 77,577 SF
AREA OF RENOVATION	EXISTING CLASSROOM BUILDING: **25,219 SF** EXISTING ELP & GYM BUILDING: **4,893 SF**
NEW GYM BUILDING AREA	**5,930 SF**

CODE REVIEW- NEW GYMNASIUM BUILDING: IBC 2021

NEW CONSTRUCTION TYPE	II-B,NON-SPRINKLERED
PRIMARY OCCUPANCY (SEC. 305)	"EDUCATIONAL GROUP "E"
SCOPE OF WORK SUMMARY	NEW 5,930 SF GYMNASIUM FOR EXISTING STUDENT POPULATION
ALLOWABLE AREA AND HEIGHT LIMITATIONS(TAB 504.3, 504.4, 506.2)	9,500 SF /55 FT HIGH/2 STORIES
ACTUAL AREA AND HEIGHT	5,930 SF /26 FT HIGH/1 STORY
FIRE SEPARATION DISTANCE	12', 10'<X>30
FIRE-RESISTANCE RATING REQUIREMENTS (TAB 601)	0
PRIMARY STRUCTURAL FRAME	0
BEARING WALLS, NON-BEARING WALLS	0
FLOOR CONSTRUCTION	0
ROOF CONSTRUCTION	0
EXIT ACCESS TRAVEL DISTANCE (TAB.1017)	200'

ADOPTED CODES (MISSOURI CITY AND/OR STATE OF TX)

EXISTING BUILDING	IEBC 2021
BUILDING	IBC 2021
MECHANICAL	IMC 2021
ELECTRICAL	NEC 2023
PLUMBING	IPC 2021
FIRE	IFC 2021
ENERGY	IECC 2021
FUEL GAS	IFGC 2021

EGRESS REQUIREMENTS: IBC 2021

OCCUPANCY LOADS: **(TABLE 1004.5)**

FUNCTION OF SPACE:	SQ. FT PER OCCUPANT:
ACCESSORY STORAGE AREAS, MECH. EQUIPMENT ROOMS	300 GROSS
BUSINESS AREAS	150 GROSS
EXERCISE ROOMS	50 GROSS

REQUIRED EGRESS WIDTH:

MINIMUM CORRIDOR WIDTH (SEC. 1005.3.2)	44" MIN OR .15" PER OCCUPANT
NUMBER OF EXITS REQUIRED (TABLE 1006.3.1 / TABLE 1006.3.2(2))	
1-49 OCCUPANTS	1
51-500 OCCUPANTS	2
501-1000 OCCUPANTS	3
1001 OR MORE OCCUPANTS	4
MAXIMUM TRAVEL DISTANCE TO AN EXIT (TABLE 1017.2)	200'
MAXIMUM LENGTH OF DEAD END CORRIDORS (1020.4)	50' OR UNLIMITED LENGTH WHEN MIN. WIDTH < 2.5 TIMES THE WIDTH OF THE DEAD END CORRIDOR
COMMON PATH OF TRAVEL (TABLE 1006.2.1)	< 30 OCC SERVED = 75'-0" TO CHOICE OF 2 EXIT PATHS

OCCUPANCY / EGRESS LEGEND:

INTERIOR AND EXTERIOR DOOR EGRESS (IBC SECTION 1005.1)

1. 3'-0" DOOR (32" CLR) AT .2" OCCUPANT = 160 OCCUPANTS
2. 4'-0" DOOR (44" CLR) AT .2"/OCCUPANT = 220 OCCUPANTS
3. PAIR 3'-0" DOOR (64" CLR) AT .2"/OCCUPANT = 320 OCCUPANTS

OCCUPANCY / EGRESS LEGEND:

ROOM NAME
AREA
##
OCCUPANT LOAD

AREA CLASSIFICATION (SEC 302 / TABLE 1004.1.2)

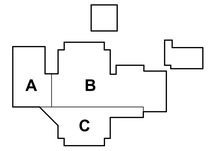
- ACCESORY STORAGE AREAS, MEP ROOM (300 GROSS)
- ASSEMBLY WITH FIXED SEATS
- ASSEMBLY UNCONCENTRATED (15 NET)
- BUSINESS (150 GROSS)
- EDUCATIONAL - CLASSROOM (20 NET)
- EDUCATIONAL - SHOPS (50 NET)
- EXERCISE ROOMS (50 GROSS)

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Notes



KEY PLAN

No.	Revision	By	Appd	YYYY.MM.DD
1	Addenda #2			2025.10.16

	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24

Issued

File Name: N/A	Author	Designer	Checker	11/08/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

REGISTERED ARCHITECT
DANIELLE DUMAS
18298
STATE OF TEXAS

Client/Project Logo

2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
CODE REVIEW & LIFE SAFETY PLAN - GYMNASIUM

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
1	G102 - HGES

•PCK location in Project Information•
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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



LEGEND

- PROPOSED BUILDING LIMITS
- PROPOSED SAWCUT

GENERAL CONSTRUCTION NOTES :

1. ALL UNDERGROUND UTILITIES SHOWN ARE NOT GUARANTEED TO BE COMPLETE OR DEFINITE, BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE.
2. CONTRACTOR TO VERIFY ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IF DISCREPANCIES OCCUR.
3. THE LOCATION OF ALL UTILITIES PRESENTED ON THESE DRAWINGS IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
4. CAUTION!!! THERE ARE OVERHEAD POWER LINES IN THE WORK AREA. CONTRACTOR SHALL FOLLOW CITY, STATE AND FEDERAL GUIDELINES WHEN WORKING AROUND EXISTING POWER LINES.
5. CONTRACTOR TO OBTAIN ALL PERMITS AND APPROVALS REQUIRED PRIOR TO STARTING CONSTRUCTION.
6. SIDEWALKS SHALL HAVE A RUN SLOPE NO GREATER THAN 5% AND A CROSS SLOPE NO GREATER THAN 2%, UNLESS OTHERWISE NOTED.
7. ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
8. ALL DIMENSIONS ARE PERPENDICULAR OR PARALLEL TO THEIR RESPECTIVE PROPERTY LINES UNLESS OTHERWISE NOTED.
9. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DIMENSIONS.
10. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE STAGING AND TRAFFIC CONTROL PLANS WITH OWNER.
11. ALL DISTURBED AREAS NOT TO BE PAVED OR LANDSCAPED SHALL BE SODDED UPON COMPLETION.
12. CONTRACTOR PERFORMING THE WORK SHALL BE RESPONSIBLE FOR SECURING ALL UTILITY PERMITS, PRIOR TO INSTALLATION OF ANY UTILITIES INCLUDING WATER, SEWER, ELECTRIC, CABLE TELEVISION AND GAS.

GENERAL DEMOLITION KEY NOTES:

- (X1) EXISTING PLAYGROUND EQUIPMENT TO BE REMOVED.
- (X2) EXISTING FENCE TO BE REMOVED AND REPLACED.
- (X3) EXISTING GATE TO BE REMOVED & REPLACED WITH ENTRY PRE-ACCESS ROAD GATE WITH KNOX BOX
- (X4) EXISTING PARKING SPOT AND WHEEL STOP TO BE REMOVED. (1)

PAVING DEMOLITION KEY NOTES:

- (P1) EXISTING CONCRETE PAVEMENT TO BE REMOVED.
- (P2) EXISTING CONCRETE CURB TO BE REMOVED.

DRAINAGE DEMOLITION KEY NOTES:

- (D1) EXISTING STORM SEWER LINE TO BE CUT AND PLUGGED.
- (D2) CUT & PLUG EXISTING 15" STORM SEWER AND ABANDON AND FILL WITH GROUT.
- (D3) EXISTING STORM SEWER INLET TO BE REMOVED.
- (D4) EXISTING STORM SEWER LINE TO BE CUT AND REMOVED.
- (D5) EXISTING POND TO BE REGRADED.

ELECTRICAL DEMOLITION KEY NOTES:

NOTE: ALL ELECTRICAL ITEMS TO BE CUT, PLUGGED OR REMOVED SHALL BE COORDINATED WITH SERVICE PROVIDER AND MEP.

- (E1) EXISTING UNDERGROUND ELECTRICAL LINE BETWEEN LIGHT POLES TO BE REMOVED.
- (E2) EXISTING LIGHT POLE TO BE REMOVED. (1)

SAWCUT NOTES:

1. SAWCUT 2" MINIMUM DEPTH, EXPOSE AND CLEAN EXISTING REINFORCING STEEL.
2. IF NO REINFORCING STEEL EXISTS, #5 HORIZONTAL DOWELS, 24" LONG, GRADE 60, SHALL BE DRILLED AND EMBEDDED 12" INTO THE CENTER OF EXISTING CONCRETE WITH EPOXY.
3. ALL REINFORCING STEEL SHALL BE PLACED 3" CLEAR (2" ABSOLUTE MINIMUM) FROM EDGE OF CONCRETE.

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TEXAS REGISTERED ENGINEERING FIRM F-3426
D + A PROJECT No. C24-052-00

Notes

Revision	By	Appd	YYYY.MM.DD
1 ADDENDUM #2	MN, CG	JH	2025.10.16
Issued			
100% ISSUE FOR BID AND PERMIT			2025.09.24
File Name: DEMO.dwg	KB Dwn.	MN, CG Dsgn.	JW Chkd. 2025.09.24 YYYY.MM.DD

Permit/Seal



Client/Project Logo

BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

HUNTERS GLEN ELEMENTARY SCHOOL

695 INDEPENDENCE BLVD., MISSOURI CITY, TX 77489

Title
DEMOLITION PLAN

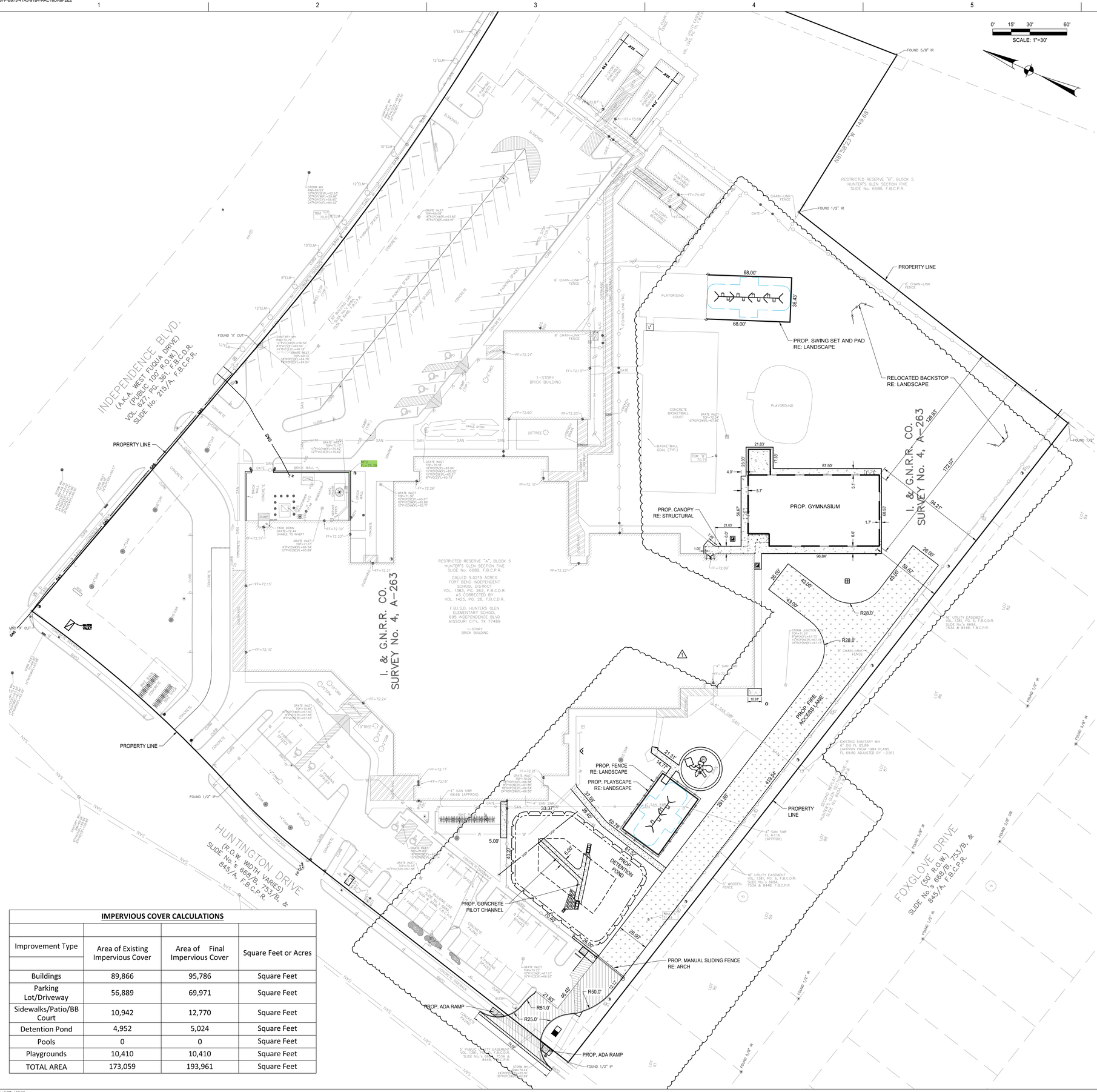
Project No.	Scale
C24-052-00	
Revision	Drawing No.

C100 - HGES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



IMPERVIOUS COVER CALCULATIONS

Improvement Type	Area of Existing Impervious Cover	Area of Final Impervious Cover	Square Feet or Acres
Buildings	89,866	95,786	Square Feet
Parking Lot/Driveway	56,889	69,971	Square Feet
Sidewalks/Patio/BB Court	10,942	12,770	Square Feet
Detention Pond	4,952	5,024	Square Feet
Pools	0	0	Square Feet
Playgrounds	10,410	10,410	Square Feet
TOTAL AREA	173,059	193,961	Square Feet

LEGEND

- PROPOSED BUILDING LIMITS
- PROPOSED 5" CONCRETE PAVING
- PROPOSED 7" CONCRETE PAVING
- PROPOSED GRASSCRETE FOR FIRE LANE

GENERAL CONSTRUCTION NOTES :

1. ALL UNDERGROUND UTILITIES SHOWN ARE NOT GUARANTEED TO BE COMPLETE OR DEFINITE. BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE.
2. CONTRACTOR TO VERIFY ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IF DISCREPANCIES OCCUR.
3. THE LOCATION OF ALL UTILITIES PRESENTED ON THESE DRAWINGS IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
4. CAUTION!!! THERE ARE OVERHEAD POWER LINES IN THE WORK AREA. CONTRACTOR SHALL FOLLOW CITY, STATE AND FEDERAL GUIDELINES WHEN WORKING AROUND EXISTING POWER LINES.
5. CONTRACTOR TO OBTAIN ALL PERMITS AND APPROVALS REQUIRED PRIOR TO STARTING CONSTRUCTION.
6. SIDEWALKS SHALL HAVE A RUN SLOPE NO GREATER THAN 5% AND A CROSS SLOPE NO GREATER THAN 2%, UNLESS OTHERWISE NOTED.
7. ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
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9. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DIMENSIONS.
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12. CONTRACTOR PERFORMING THE WORK SHALL BE RESPONSIBLE FOR SECURING ALL UTILITY PERMITS, PRIOR TO INSTALLATION OF ANY UTILITIES INCLUDING WATER, SEWER, ELECTRIC, CABLE TELEVISION AND GAS.

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TEXAS REGISTERED ENGINEERING FIRM F-2426
D + A PROJECT No. C24-052-00

Notes

1 ADDENDUM #2	MN, CG	JH	2025.10.16
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: LAYOUT.dwg	KB	MN, CG	JW 2025.09.24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit/Seal

STATE OF TEXAS
FRED DALLY
90904
LICENSED PROFESSIONAL ENGINEER
10/16/2025

Client/Project Logo

BOND
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

HUNTERS GLEN ELEMENTARY SCHOOL

695 INDEPENDENCE BLVD., MISSOURI CITY, TX 77489

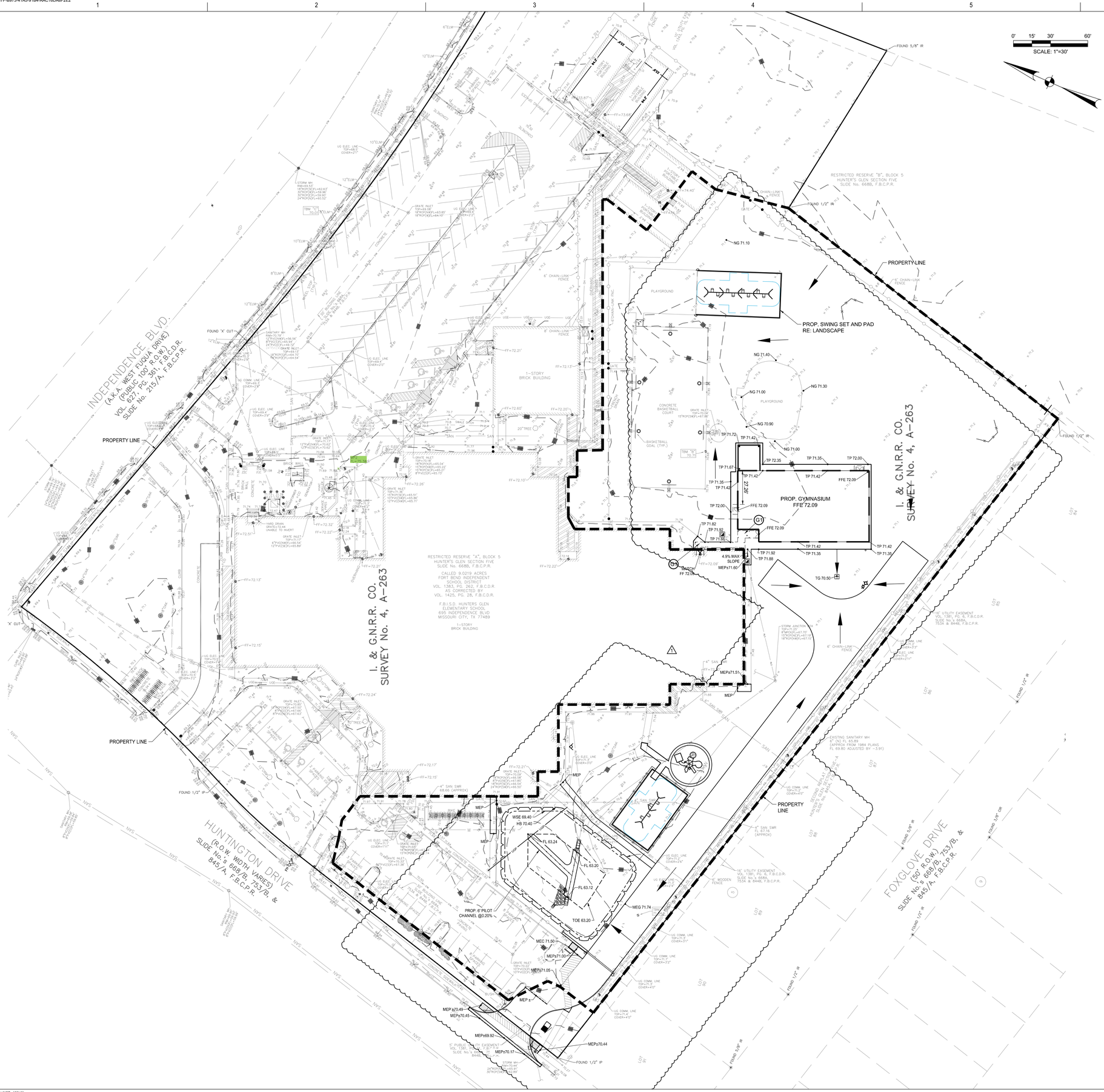
Title
LAYOUT & PAVING PLAN

Project No. C24-052-00
Scale
Revision
Drawing No.

C200 - HGES

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ORIGINAL SHEET - ARCH E1

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LEGEND

EL	ELEVATION
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FL	FLOW LINE
HP	HIGH POINT
MEG	MATCH EXISTING GRADE
MEP	MATCH EXISTING PAVEMENT
MEC	MATCH EXISTING CURB
TC	TOP OF CURB
TG	TOP OF GRATE
TP	TOP OF PAVEMENT
+x.x	Existing Grade
TP XX.XX	PROPOSED GRADE
	NOT IN SCOPE
	GRADE TO DRAIN
	DRAINAGE AREA TO DETENTION POND

GENERAL CONSTRUCTION NOTES :

1. ALL UNDERGROUND UTILITIES SHOWN ARE NOT GUARANTEED TO BE COMPLETE OR DEFINITE, BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE.
2. CONTRACTOR TO VERIFY ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IF DISCREPANCIES OCCUR.
3. THE LOCATION OF ALL UTILITIES PRESENTED ON THESE DRAWINGS IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
4. CAUTION!!! THERE ARE OVERHEAD POWER LINES IN THE WORK AREA. CONTRACTOR SHALL FOLLOW CITY, STATE AND FEDERAL GUIDELINES WHEN WORKING AROUND EXISTING POWER LINES.
5. CONTRACTOR TO OBTAIN ALL PERMITS AND APPROVALS REQUIRED PRIOR TO STARTING CONSTRUCTION.
6. SIDEWALKS SHALL HAVE A RUN SLOPE NO GREATER THAN 5% AND A CROSS SLOPE NO GREATER THAN 2%, UNLESS OTHERWISE NOTED.
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9. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DIMENSIONS.
10. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE STAGING AND TRAFFIC CONTROL PLANS WITH OWNER.
11. ALL DISTURBED AREAS NOT TO BE PAVED OR LANDSCAPED SHALL BE SODDED UPON COMPLETION.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE ON SITE DURING ALL CONSTRUCTION ACTIVITIES.

GRADING KEY NOTES:

(G-1) PROVIDE 1.9% MAX SLOPE PAVING IN ANY DIRECTION UNDERNEATH CANOPY. REMOVE ADDITIONAL PAVEMENT AS REQUIRED FOR ACCESSIBILITY COMPLIANCE.

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Consultant

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TEXAS REGISTERED ENGINEERING FIRM F-3426
D + A PROJECT No. C24-052-00

Notes

Revision	By	Appd	
1 ADDENDUM #2	MN, CG	JH	2025.10.16 YYYY.MM.DD

Issued	By	Appd	
100% ISSUE FOR BID AND PERMIT			2025.09.24 YYYY.MM.DD

File Name: GRADING.dwg	Dwn.	Dsgn.	Chkd.	
	KB	MN, CG	JW	2025.09.24 YYYY.MM.DD

Permit/Seal

STATE OF TEXAS
FRED DALLY
90904
LICENSED
PROFESSIONAL
ENGINEER
10/16/2025

Client/Project Logo

BOND 2024
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

HUNTERS GLEN ELEMENTARY SCHOOL

695 INDEPENDENCE BLVD., MISSOURI CITY, TX 77489

Title
GRADING PLAN

Project No.	Scale
C24-052-00	
Revision	Drawing No.

C300 - HGES

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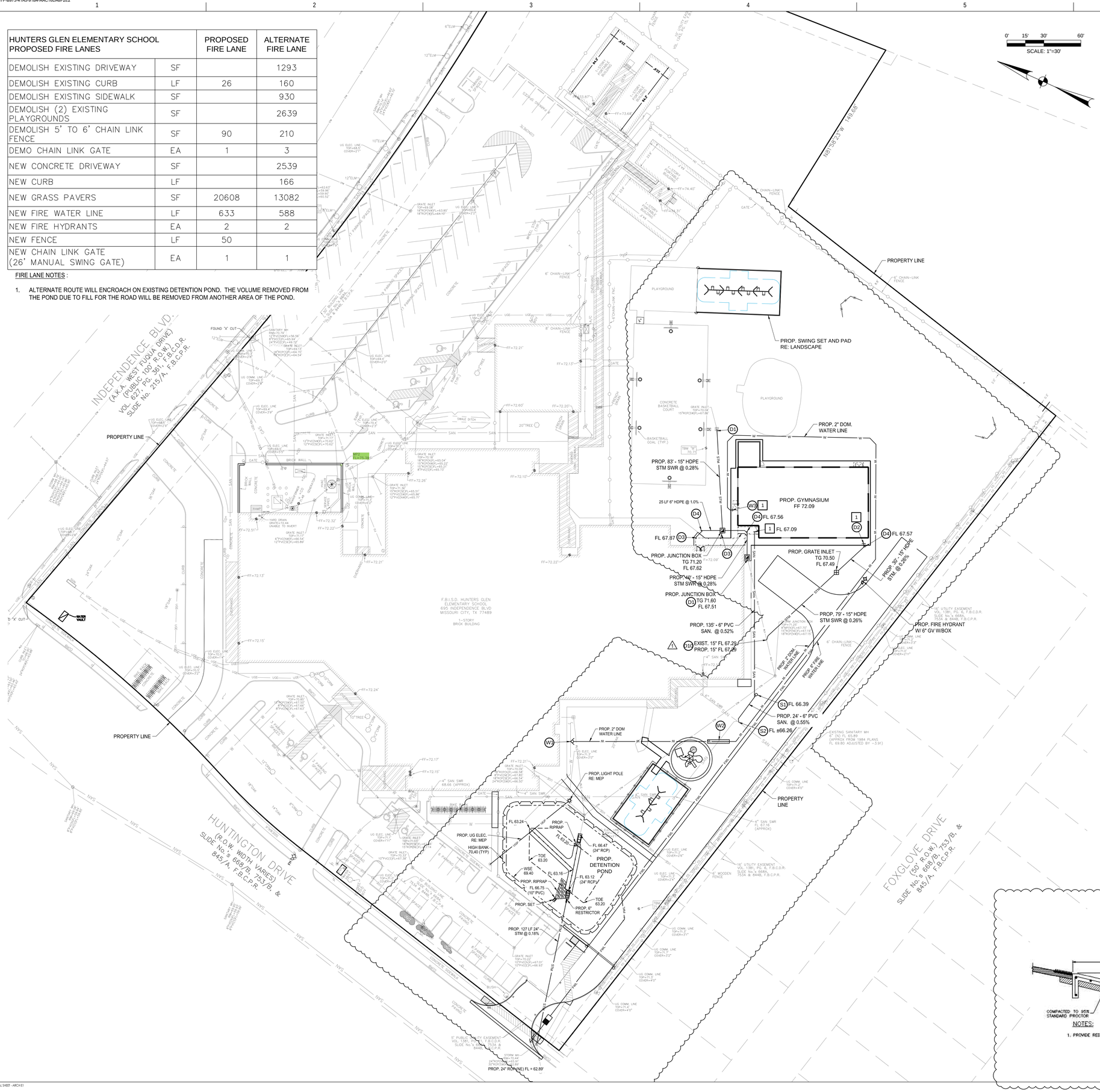
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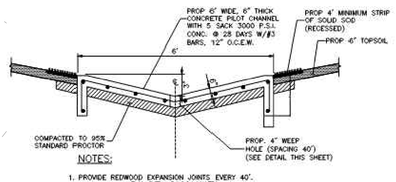
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HUNTERS GLEN ELEMENTARY SCHOOL PROPOSED FIRE LANES		PROPOSED FIRE LANE	ALTERNATE FIRE LANE
DEMOLISH EXISTING DRIVEWAY	SF		1293
DEMOLISH EXISTING CURB	LF	26	160
DEMOLISH EXISTING SIDEWALK	SF		930
DEMOLISH (2) EXISTING PLAYGROUNDS	SF		2639
DEMOLISH 5' TO 6' CHAIN LINK FENCE	SF	90	210
DEMO CHAIN LINK GATE	EA	1	3
NEW CONCRETE DRIVEWAY	SF		2539
NEW CURB	LF		166
NEW GRASS PAVERS	SF	20608	13082
NEW FIRE WATER LINE	LF	633	588
NEW FIRE HYDRANTS	EA	2	2
NEW FENCE	LF	50	
NEW CHAIN LINK GATE (26' MANUAL SWING GATE)	EA	1	1

FIRE LANE NOTES :

1. ALTERNATE ROUTE WILL ENCROACH ON EXISTING DETENTION POND. THE VOLUME REMOVED FROM THE POND DUE TO FILL FOR THE ROAD WILL BE REMOVED FROM ANOTHER AREA OF THE POND.





LEGEND	
	PROPOSED BUILDING LIMITS

GENERAL CONSTRUCTION NOTES :

1. ALL UNDERGROUND UTILITIES SHOWN ARE NOT GUARANTEED TO BE COMPLETE OR DEFINITE, BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE.
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9. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DIMENSIONS.
10. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE STAGING AND TRAFFIC CONTROL PLANS WITH OWNER.
11. ALL DISTURBED AREAS NOT TO BE PAVED OR LANDSCAPED SHALL BE SODDED UPON COMPLETION.
12. WATER AND SEWER MAINS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH TCEQ RULES AND REGULATIONS.
13. CONTRACTOR PERFORMING THE WORK SHALL BE RESPONSIBLE FOR SECURING ALL UTILITY PERMITS, PRIOR TO INSTALLATION OF ANY UTILITIES INCLUDING WATER, SEWER, ELECTRIC, CABLE TELEVISION AND GAS.
14. DOMESTIC WATER LINES LESS THAN 4" IN DIAMETER SHALL BE SCH 40 PVC AND HAVE A MINIMUM COVER OF 2 FEET. DOMESTIC WATER LINES 4" DIAMETER AND LARGER SHALL BE AWWA C-900 DR 18 PVC AND HAVE A MINIMUM COVER OF 4 FEET.
15. FIRE WATER SERVICE SHALL BE C-900 SELF-EXTINGUISHING PVC PIPE THAT BEARS UNDERWRITERS' LABORATORIES MARK OF APPROVAL AND IS ACCEPTABLE WITHOUT PENALTY TO TEXAS STATE FIRE INSURANCE COMMITTEE AND HAVE A MINIMUM COVER OF 4 FEET.
16. SANITARY SEWER PIPE SIZES 6 INCHES AND SMALLER SHALL BE PVC SCHEDULE 40, AND PIPE SIZES 8 INCHES OR LARGER MAY BE SDR 26.
17. ALL STORM AND SANITARY SEWER CLEANOUTS SHALL HAVE TRAFFIC-RATED LIDS. CLEANOUTS LOCATED OUTSIDE OF PAVED AREAS SHALL HAVE 18" DIAMETER X 6" THICK REINFORCED CONCRETE PAD WITH TOP OF PAD MATCHING FINISHED GRADE.

GENERAL UTILITY KEY NOTES:

1 REFER TO MEP PLANS FOR CONTINUATION.

DRAINAGE KEY NOTES:

D1 CONNECT EXISTING STORM SEWER TO PROPOSED JUNCTION BOX. SEAL WALL PENETRATIONS USING APPROVED AHJ WATER STOP AND NON-SHRINK GROUT. FIELD VERIFY EXISTING LOCATION, SIZE AND FLOWLINE.

D2 PROPOSED 8" HDPE ROOF DRAIN. SEE MEP FOR CONTINUATION.

D3 PROPOSED 6" PVC ROOF DRAIN FROM CANOPY COLUMNS @ 1%, COORDINATE WITH CANOPY MANUFACTURER.

D4 PROPOSED STORM SEWER CLEANOUT. CLEANOUTS IN PAVED AREAS SHALL HAVE TRAFFIC RATED LIDS.

WATER KEY NOTES:

W1 CONNECT PROPOSED 2" WATER LINE TO EXISTING 6" WATER LINE WITH 6"X 2" TAPPING SADDLE WITH CORPORATION STOP.

W2 PLACE 1 FULL SECTION (MIN 18 FT) OF WL CENTERED AT SS CROSSING. PROVIDE RESTRAINED JOINTS ON WL, SPACED AT 9 FT HORIZONTALLY FROM CENTERLINE OF SS. EMBED SS WITH CSS FOR TOTAL LENGTH OF 1 PIPE SEGMENT PLUS 1 FOOT BEYOND THE JOINTS ON EACH END.

W3 PROPOSED 2" DOMESTIC WATER ENTRY. SEE MEP FOR CONTINUATION.

SANITARY SEWER KEY NOTES:

S1 PROPOSED SANITARY SEWER CLEANOUT. CLEANOUTS IN PAVED AREAS SHALL HAVE TRAFFIC RATED LIDS.

S2 CONNECT PROPOSED 6" SANITARY SERVICE CONNECTION TO EXISTING 6" SANITARY SEWER. MATCH EXISTING FLOWLINE. FIELD VERIFY EXISTING SANITARY SEWER LOCATION AND FLOWLINE PRIOR TO START OF CONSTRUCTION. SEAL WALL PENETRATIONS USING APPROVED WATER STOP AND GROUT.

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TEXAS REGISTERED ENGINEERING FIRM F-3426
D + A PROJECT No. C24-052-00

Notes

1 ADDENDUM #2	MN, CG	JH	2025.10.16
Revision	By	Appd	YYYY.MM.DD
0 100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: UTILITY.dwg	KB	MN, CG	JW 2025.09.24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit/Seal



Client/Project Logo

BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

HUNTERS GLEN ELEMENTARY SCHOOL

695 INDEPENDENCE BLVD., MISSOURI CITY, TX 77489

Title
UTILITY PLAN

Project No.	Scale
C24-052-00	
Revision	Drawing No.

C400 - HGES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

THE SCS CURVE NUMBER METHOD

INPUT DATA		
Drainage Area (A) =	1.35 acres	Existing
SCS Curve Number (CN) =	*81*	
Impervious Cover (IC) =	*44.04* percent	
	10-Year	100-Year
Rainfall Depth (P)=	*8.56* inches	*16.6* inches
COMPUTED RESULTS		
Computed Value of S =	2.35	2.35
Runoff from Pervious Areas Q=	6.27 inches	14.08 inches
Weighted Runoff (W) =	7.28 inches	15.19 inches
Runoff Volume(V) =	**0.82 acre-feet**	**1.71 acre-feet**

INPUT DATA		
Drainage Area (A) =	1.35 acres	Proposed
SCS Curve Number (CN) =	84	
Impervious Cover (IC)=	*50.05* percent	
	10-Year	100-Year
Rainfall Depth (P) =	8.56 inches	16.6 inches
COMPUTED RESULTS		
Computed Value of S =	1.90	1.90
Runoff from Pervious Areas Q =	6.63 inches	14.51 inches
Weighted Runoff (W)=	7.60 inches	15.56 inches
Runoff Volume (V) =	**0.85 acre-feet**	**1.75 acre-feet**

CITY OF MISSOURI CITY DETENTION RESTRICTOR/OUTLET CALCULATIONS
C24-052-00 FBISD BP022 - HUNTERS GLEN ELEMENTARY SCHOOL
OCTOBER 2025, BY D+A

$Q = CA\sqrt{2g}\sqrt{h}$ $\quad D = Q^{0.5} / (2.25)^{0.5}$

Q = outflow discharge (cfs)
C = coefficient of discharge
= 0.8 for short segment of pipe
= 0.6 for opening in plates, standpipes, or concrete walls
A = orifice area (square feet)
g = gravitational factor (32.2)
h = head, water surface differential (feet)
D = orifice diameter (feet)

TOTAL DRAINAGE AREA	3.4170	ACRES	
OUTFLOW RATE ALLOWED Q	1.71	CFS	(BASED ON 0.5 CFS/AC)
HEAD H FOR RESTRICTOR	6.03	FT.	(100% WSE - CENTROID OF RESTRICTOR)
CALCULATED RESTRICTOR SIZE D	0.37	FT.	
PROVIDED/DESIGNED RESTRICTOR SIZE D_{rr}	0.50	FT.	(MIN. 6 INCHES)
OUTFLOW RATE PROVIDED Q_{out} BASED ON D_{rr}	2.32	CFS	

TOTAL SITE AREA IS 9.0219 ACRES. TOTAL DRAINAGE AREA IS THE AREA THAT FLOWS TO THE PROPOSED DETENTION POND.
C = 0.6 FOR ORIFICE PLATE AT EXISTING OUTFALL PIPE
A = ORIFICE AREA (SF) FOR PROPOSED 6" RESTRICTOR 0.1963 SF

CALCULATION DATA:

DESIGN WSEL	69.40	FT.
OUTFALL FL	63.12	FT.
OUTFALL PIPE SIZE	2.00	FT.

DETENTION SUMMARY

TOTAL DRAINAGE AREA / PROJECT LIMITS	58,800	SQ-FT
TOTAL IMPERVIOUS COVER	12,753	SQ-FT
REQUIRED DETENTION VOLUME	0.5500	AC-FT
	23,958	CU-FT
PROVIDED DETENTION VOLUME	0.6035	AC-FT
	26,290	CU-FT
SURPLUS DETENTION VOLUME PROVIDED	0.0535	AC-FT
	2,332	CU-FT

TxDOT Rational Method Q=CIA

Maximum rate of runoff Calculations (Q)

Drainage Area	*Acres*	*Runoff Coefficient*
	A= 1.35	*C=* 0.20

EXISTING (10 years)

Design Rainfall Intensity (I)

	in/hr		
I=	*3.18*		

Maximum rate of runoff (Q)

	Cfs		
Q=	*0.87*		

$$Q = \frac{CIA}{Z}$$

Where:
Q = maximum rate of runoff (cfs or m^3/sec.)
C = runoff coefficient
I = average rainfall intensity (in./hr. or mm/hr.)
A = drainage area (ac or ha)
Z = conversion factor, 1 for English, 360 for metric

TxDOT Rational Method Q=CIA

Maximum rate of runoff Calculations (Q)

Drainage Area	*Acres*	*Runoff Coefficient*
	A= 1.35	*C=* 0.31

PROPOSED (10 years)

Design Rainfall Intensity (I)

	in/hr		
I=	*3.18*		

Maximum rate of runoff (Q)

	Cfs		
Q=	*1.35*		

$$Q = \frac{CIA}{Z}$$

Where:
Q = maximum rate of runoff (cfs or m^3/sec.)
C = runoff coefficient
I = average rainfall intensity (in./hr. or mm/hr.)
A = drainage area (ac or ha)
Z = conversion factor, 1 for English, 360 for metric

Malcom Method Equations

$T_P = V / (1.39Q_P)$ $\quad T_P$ = Time to Peak
Q_P= Peak Flow Rate
$q_t = (Q_P/2)[1 - \cos(3.14159*t/T_P)]$ for $t_i <= 1.25T_P$
$q_t = 4.34 * Q_P e^{(-1.3t/TP)}$ for $t_i > 1.25TP$

Note: Values shown below in bold italicized print must be entered by the user. *DO NOT* edit any other cell within this spreadsheet!

Note: The time interval for both hydrographs must be the same!

DATA FOR PROPOSED CONDITIONS	
Runoff Volume (V) =	**0.85** acre-feet
Runoff Volume (V) =	37230.22 cubic feet
Peak Flow Rate Q_P =	**1.3** cfs
Time Interval =	***10*** minutes
Time to Peak (T_P) =	19842 seconds
=	330.7 minutes
=	5.51 hours

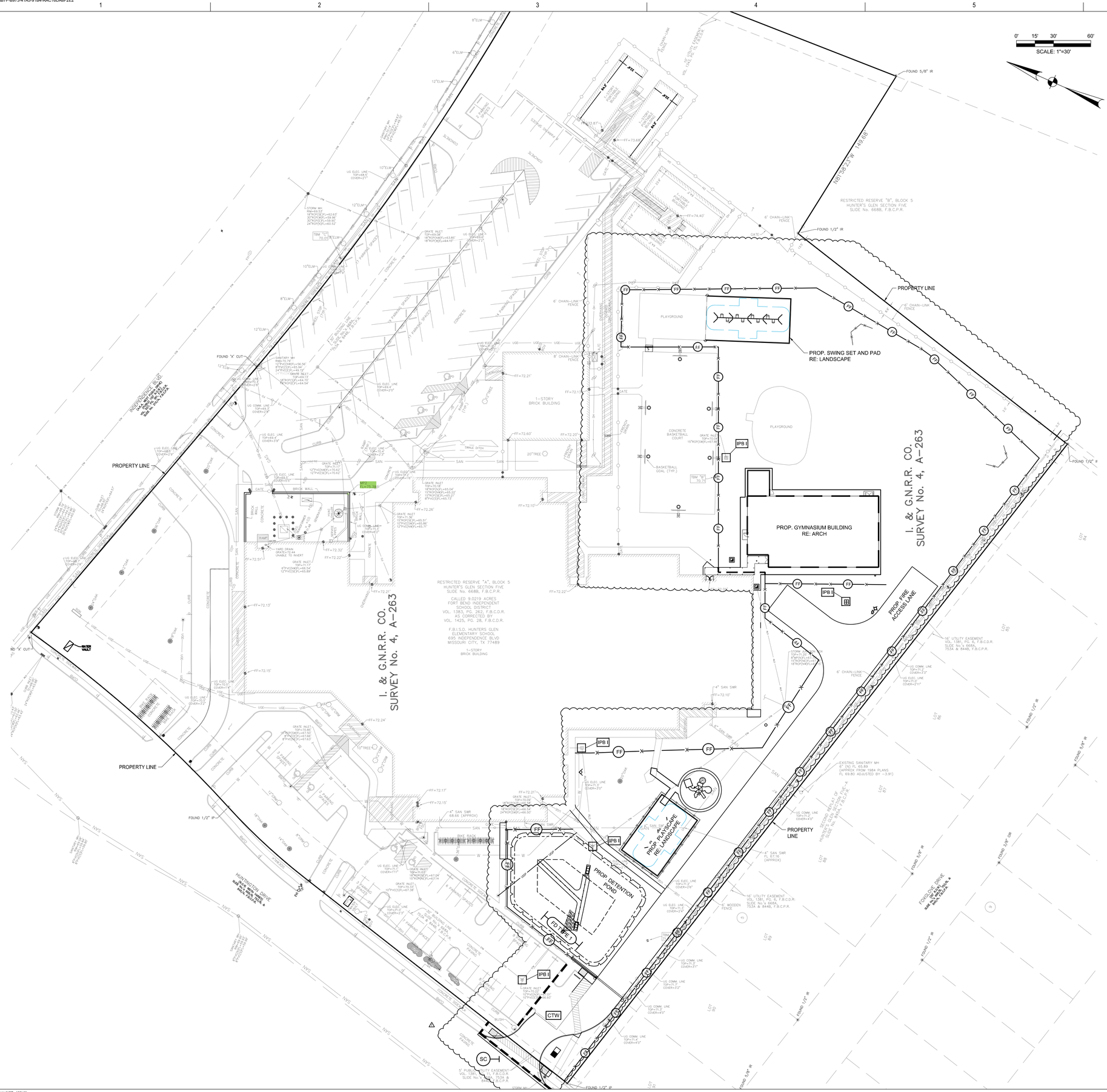
DATA FOR EXISTING CONDITIONS	
Runoff Volume (V) =	**0.82** acre-feet
Runoff Volume (V) =	35671.2856 cubic feet
Peak Flow Rate Q_P =	**0.9** cfs
Time Interval =	***10*** minutes
Time to Peak (T_P) =	29420 seconds
=	490.3 minutes
=	8.17 hours

PROPOSED CONDITIONS HYDROGRAPH			
Ordinate	Time (hours)	Time (t_i) (seconds)	q_t (cfs)
1	0.00	0	0.00
2	0.17	600	0.00
3	0.33	1200	0.01
4	0.50	1800	0.03
5	0.67	2400	0.05
6	0.83	3000	0.07
7	1.00	3600	0.11
8	1.17	4200	0.14
9	1.33	4800	0.19
10	1.50	5400	0.23
11	1.67	6000	0.28
12	1.83	6600	0.34
13	2.00	7200	0.39
14	2.17	7800	0.45
15	2.33	8400	0.51
16	2.50	9000	0.58
17	2.67	9600	0.64
18	2.83	10200	0.70
19	3.00	10800	0.77
20	3.17	11400	0.83
21	3.33	12000	0.89
22	3.50	12600	0.95
23	3.67	13200	1.01
24	3.83	13800	1.06
25	4.00	14400	1.11
26	4.17	15000	1.16
27	4.33	15600	1.20
28	4.50	16200	1.24
29	4.67	16800	1.27
30	4.83	17400	1.30
31	5.00	18000	1.32
32	5.17	18600	1.34
33	5.33	19200	1.35
34	5.50	19800	1.35
35	5.67	20400	1.35
36	5.83	21000	1.34
37	6.00	21600	1.32
38	6.17	22200	1.30
39	6.33	22800	1.28
40	6.50	23400	1.25
41	6.67	24000	1.21
42	6.83	24600	1.17
43	7.00	25200	1.12
44	7.17	25800	1.08
45	7.33	26400	1.04
46	7.50	27000	1.00
47	7.67	27600	0.96
48	7.83	28200	0.92
49	8.00	28800	0.89
50	8.17	29400	0.85
51	8.33	30000	0.82
52	8.50	30600	0.79
53	8.67	31200	0.76
54	8.83	31800	0.73
55	9.00	32400	0.70
56	9.17	33000	0.67
57	9.33	33600	0.65
58	9.50	34200	0.62
59	9.67	34800	0.60

EXISTING CONDITIONS HYDROGRAPH			
Ordinate	Time (hours)	Time (t_i) (seconds)	q_t (cfs)
1	0.00	0	0.00
2	0.17	600	0.00
3	0.33	1200	0.00
4	0.50	1800	0.01
5	0.67	2400	0.01
6	0.83	3000	0.02
7	1.00	3600	0.03
8	1.17	4200	0.04
9	1.33	4800	0.06
10	1.50	5400	0.07
11	1.67	6000	0.09
12	1.83	6600	0.10
13	2.00	7200	0.12
14	2.17	7800	0.14
15	2.33	8400	0.16
16	2.50	9000	0.19
17	2.67	9600	0.21
18	2.83	10200	0.23
19	3.00	10800	0.26
20	3.17	11400	0.29
21	3.33	12000	0.31
22	3.50	12600	0.34
23	3.67	13200	0.37
24	3.83	13800	0.39
25	4.00	14400	0.42
26	4.17	15000	0.45
27	4.33	15600	0.48
28	4.50	16200	0.51
29	4.67	16800	0.53
30	4.83	17400	0.56
31	5.00	18000	0.59
32	5.17	18600	0.61
33	5.33	19200	0.64
34	5.50	19800	0.66
35	5.67	20400	0.69
36	5.83	21000	0.71
37	6.00	21600	0.73
38	6.17	22200	0.75
39	6.33	22800	0.77
40	6.50	23400	0.79
41	6.67	24000	0.80
42	6.83	24600	0.82
43	7.00	25200	0.83
44	7.17	25800	0.84
45	7.33	26400	0.85
46	7.50	27000	0.86
47	7.67	27600	0.86
48	7.83	28200	0.87
49	8.00	28800	0.87
50	8.17	29400	0.87
51	8.33	30000	0.87
52	8.50	30600	0.87
53	8.67	31200	0.86
54	8.83	31800	0.86
55	9.00	32400	0.85
56	9.17	33000	0.84
57	9.33	33600	0.83
58	9.50	34200	0.82
59	9.67	34800	0.80

Vs CALC
Incr. Vs (cubic feet)
0.0
1.3
5.1
11.5
20.3
31.5
44.9
60.4
77.8
96.9
117.5
139.4
162.2
185.9
210.0
234.3
258.5
282.4
305.6
327.8
348.9
368.4
386.2
402.0
415.7
426.9
435.5
441.3
444.3
444.2
441.1
434.8
425.4
412.9
397.3
378.6
357.0
332.7
305.7
276.2
244.5
210.9
177.1
144.3
113.5
84.7
57.8
32.9
9.9
0.0
0.0
0.0

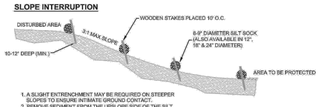
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SCALE: 1"=30'
0' 15' 30' 60'
PROPERTY LINE
PROP. SWING SET AND PAD
RE: LANDSCAPE
PROP. GYMNASIUM BUILDING
RE: ARCH
PROP. PLAYSCAPE
RE: LANDSCAPE
PROP. DETENTION POND
PROP. FIRE ACCESS LANE
I. & G.N.R.R. CO.
SURVEY No. 4, A-263
RESTRICTED RESERVE "A", BLOCK 5
HUNTER'S GLEN, SECTION FIVE
SLIDE No. 668B, P.B.C.P.R.
CALLED 9.0219 ACRES
FORT BEND INDEPENDENT
SCHOOL DISTRICT
VOL. 1383, PG. 262, F.B.C.D.R.
AS CORRECTED BY
VOL. 1425, PG. 28, F.B.C.D.R.
F.B.I.S.D. HUNTERS GLEN
ELEMENTARY SCHOOL
695 INDEPENDENCE BLVD
MISSOURI CITY, TX 77489
1-STORY
BRICK BUILDING
RESTRICTED RESERVE "B", BLOCK 5
HUNTER'S GLEN, SECTION FIVE
SLIDE No. 668B, P.B.C.P.R.
FOUND 5/8" IR
FOUND 1/2" IR
FOUND 1/2" IP
FOUND 5/8" IR
FOUND "X" CUT
NO "X" OUT
WATER VALVE
INDEPENDENCE BLVD
(VOL. 1425, PG. 28, F.B.C.D.R.)
(VOL. 1383, PG. 262, F.B.C.D.R.)
(80' R.O.W.)
HUNTINGTON DRIVE
(60' R.O.W.)
SEE SHT. FOR A
FOXGLOVE DRIVE
(60' R.O.W.)
SEE SHT. FOR A
N81°58'23"W 1,401.63'
6' CHAIN-LINK FENCE
6' WOOD FENCE
GATE
PLAYGROUND
CONCRETE BASKETBALL COURT
BASKETBALL GOAL (TYP.)
1-STORY BRICK BUILDING
SWALE DITCH
BRICK WALL
RAMP
YARD DRAIN GRATE=72.44 UNABLE TO INVERT
EXISTING SANITARY MH RIM=72.78 12"N(CW&W)=56.56' 8"N(CE)FL=65.94' 24"N(CW)FL=60.47' GRATE INLET TOP=69.13' 18"N(CW)FL=64.55' 18"N(CE)FL=64.54'
EXISTING SANITARY MH RIM=72.82 8"N(CE)FL=65.94' 24"N(CW)FL=60.47' GRATE INLET TOP=69.13' 18"N(CW)FL=64.55' 18"N(CE)FL=64.54'
EXISTING SANITARY MH 6" (N), FL: 65.89 (APPROX FROM 1984 PLANS FL 69.80 ADJUSTED BY -3.91)
4" SAN SWR 68.66 (APPROX)
4" SAN SWR FL 67.16 (APPROX)
STORM MH RIM=69.57 18"R(CE)FL=62.67' 18"R(CW)FL=62.67' 30"R(N)FL=58.90' 24"R(N)FL=60.52'
TBM "CT" 70.04'
TBM "B" 78.73'
GRATE INLET TOP=71.17' 12"R(CW&W)FL=70.62' 12"R(CE)FL=70.62'
GRATE INLET TOP=71.36' 15"R(CE)FL=65.55' 15"R(CW)(NE)FL=65.55' 12"R(CW)(NW)FL=65.77'
GRATE INLET TOP=70.19' 15"R(CE)FL=65.04' 15"R(CW)(NE)FL=65.23' 8"R(CE)FL=65.73'
GRATE INLET TOP=71.37' 6"R(CW&W)FL=66.64' 12"R(CW)(NE)FL=65.89'
GRATE INLET TOP=72.00' 18"R(CW)FL=63.85' 18"R(CE)FL=64.10'
GRATE INLET TOP=71.71' 12"R(CW&W)FL=67.50' 8"R(CW)FL=67.64' 8"R(CE)FL=67.64

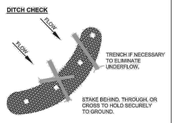
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SILT SOCK INSTALLATION GUIDELINES

SLOPE INTERRUPTION

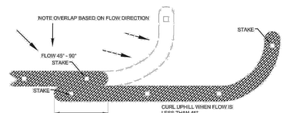


DITCH CHECK



INSTALL SILT SOCK PERPENDICULAR TO FLOW WITH ENDS CURLED SLIGHTLY UPSTREAM TO PREVENT HIGH WATER FROM GOING AROUND THE ENDS. SLOW AND SPREAD WATER TO REDUCE CHANNELING AND EROSION

PERIMETER CONTROL & OVERLAPPING

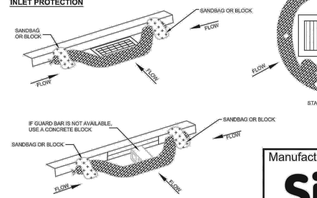


PYRAMID INSTALLATION STAKING



A PYRAMID OF SMALLER DIAMETER SILT SOCKS WILL INCREASE THE EFFECTIVE HEIGHT OF THE DEVICE WHEN LARGER DIAMETER SOCKS ARE NOT READILY AVAILABLE OR EASY TO INSTALL.

INLET PROTECTION



1. THESE GUIDELINES ARE BASED UPON MANUFACTURERS RECOMMENDATIONS. PROJECT SPECIFICATIONS MAY SUPERSEDE THESE GUIDELINES.
2. REFER TO REGULATORY AUTHORITY OR PROJECT ENGINEER FOR DETAILED INSTALLATION PROCEDURES.
3. WOOD FILLER MATERIAL IS PROPERLY SIZED, BIODEGRADABLE, WEED , SEED & DISEASE FREE AND ENVIRONMENTALLY SOUND.

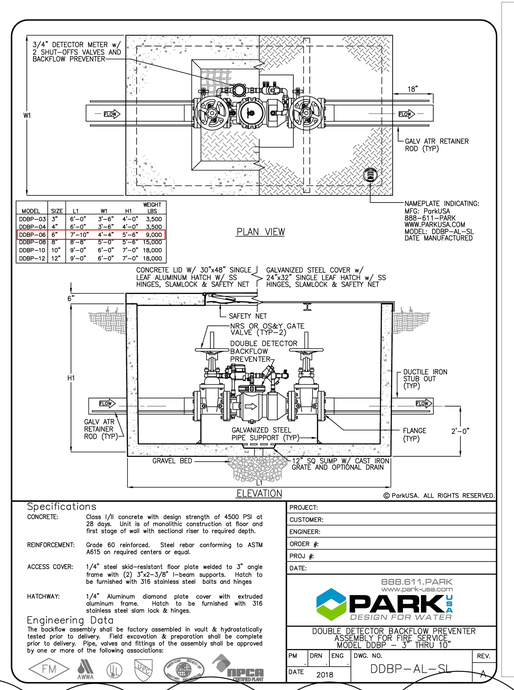
Manufacturing or Installation Support By:

Silt Sock

EROSION CONTROL PRODUCTS

info@siltsock.net

608-438-7625



MODEL	SIZE	L1	W1	H1	WEIGHT LBS.
DDBP-03	3"	6'-0"	3'-6"	4'-0"	3,500
DDBP-04	4"	6'-0"	3'-6"	4'-0"	3,500
DDBP-06	6"	7'-10"	4'-4"	5'-6"	9,000
DDBP-08	8"	8'-8"	5'-0"	5'-6"	15,000
DDBP-10	10"	9'-0"	6'-0"	7'-0"	18,000
DDBP-12	12"	9'-0"	6'-0"	7'-0"	18,000

Specifications

CONCRETE: Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

ACCESS COVER: 1/4" steel skid-resistant floor plate welded to 3" angle frame with (2) 3"x2-3/8" I-beam supports. Hatch to be furnished with 316 stainless steel bolts and hinges

HATCHWAY: 1/4" Aluminum diamond plate cover with extruded aluminum frame. Hatch to be furnished with 316 stainless steel slam lock & hinges.

Engineering Data

The backflow assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:

FM AWWA UL USC IAPMO TIPCO ENGINEER PLANT

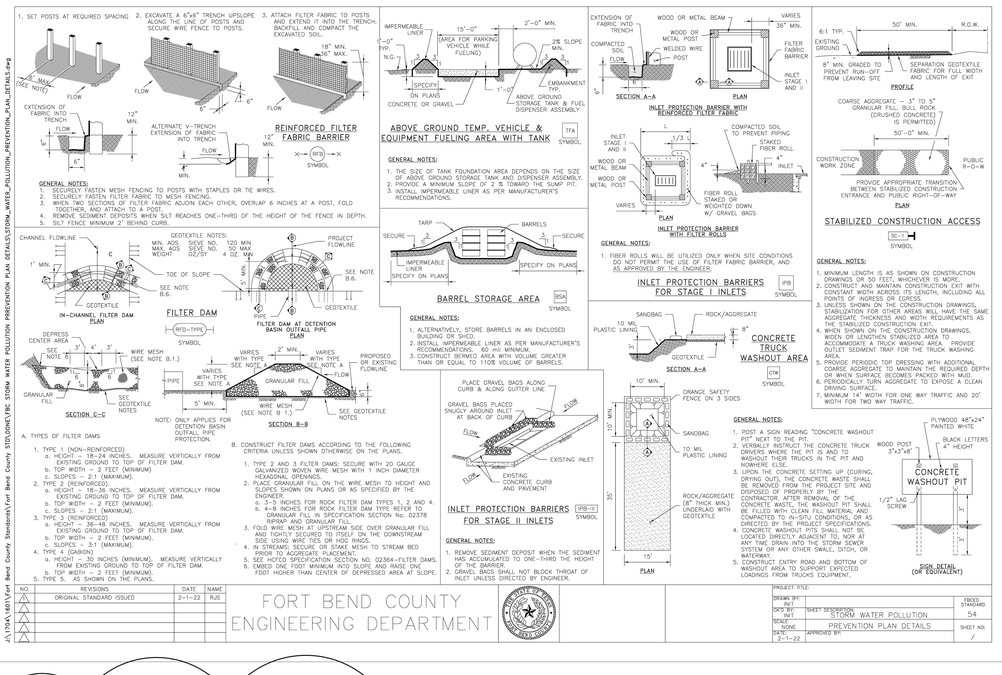
PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

888.611.PARK www.park-usa.com PARK DESIGN FOR WATER

DOUBLE DETECTOR BACKFLOW PREVENTER ASSEMBLY FOR FIRE SERVICE MODEL DDBP – 3" THRU 10"

PM	DRN	ENG	DWG. NO.	REV.
DATE 2018			DDBP–AL–SL	A

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1. SET POSTS AT REQUIRED SPACING
2. EXCAVATE A 6"x6" TRENCH UPSLOPE ALONG THE LINE OF POSTS AND SECURE WIRE FENCE TO POSTS.
3. ATTACH FILTER FABRIC TO POSTS AND EXTEND IT INTO THE TRENCH. BACKFILL AND COMPACT THE EXCAVATED SOIL.
36" MAX. (SEE NOTE)
FLOW
EXTENSION OF FABRIC INTO TRENCH
ALTERNATE V-TRENCH EXTENSION OF FABRIC INTO TRENCH
REINFORCED FILTER FABRIC BARRIER
SYMBOL
GENERAL NOTES:
1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.
5. SILT FENCE MINIMUM 2' BEHIND CURB.
ABOVE GROUND TEMP. VEHICLE & EQUIPMENT FUELING AREA WITH TANK
TFA SYMBOL
GENERAL NOTES:
1. THE SIZE OF TANK FOUNDATION AREA DEPENDS ON THE SIZE OF ABOVE GROUND STORAGE TANK AND DISPENSER ASSEMBLY.
2. PROVIDE A MINIMUM SLOPE OF 2 % TOWARD THE SUMP PIT.
3. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS.
IMPERMEABLE LINER
15'-0"
AREA FOR PARKING VEHICLE WHILE FUELING
2'-0" MIN.
2% SLOPE MIN.
SPECIFY
ON PLANS
CONCRETE OR GRAVEL
1'-0" TYP.
N.G.
1'-0"
EMBANKMENT TYP.
ABOVE GROUND STORAGE TANK & FUEL DISPENSER ASSEMBLY
CHANNEL FLOWLINE
1" MIN.
C
GEOTEXTILE
IN-CHANNEL FILTER DAM PLAN
GEOTEXTILE NOTES:
MIN. AOS SIEVE NO. 120 MIN
MAX. AOS SIEVE NO. 50 MAX
WEIGHT OZ/SY 4 OZ. MIN
TOE OF SLOPE
SEE NOTE B.6.
FILTER DAM
RFD–TYPE
SYMBOL
PROJECT FLOWLINE
SEE NOTE B.6.
PIPE
GEOTEXTILE
FILTER DAM AT DETENTION BASIN OUTFALL PIPE PLAN
BARRELS
SECURE
IMPERMEABLE LINER
SPECIFY ON PLANS
BARREL STORAGE AREA
BSA SYMBOL
GENERAL NOTES:
1. ALTERNATIVELY, STORE BARRELS IN AN ENCLOSED BUILDING OR SHED.
2. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS. 60 mil MINIMUM.
3. CONSTRUCT BERMED AREA WITH VOLUME GREATER THAN OR EQUAL TO 110% VOLUME OF BARRELS.
DEPRESS CENTER AREA
SEE NOTE 6
3"
4"
5"
WIRE MESH (SEE NOTE B.1.)
GRANULAR FILL
SEE GEOTEXTILE NOTES
SECTION C–C
4-PIPE
VARIES WITH TYPE
SEE NOTE 4
5" MIN.
NOTE: ONLY APPLIES FOR DETENTION BASIN OUTFALL PIPE PROTECTION.
2" MIN.
VARIES WITH TYPE
SEE NOTE 4
GRANULAR FILL
WIRE MESH (SEE NOTE B.1.)
PROPOSED OR EXISTING FLOWLINE
SEE GEOTEXTILE NOTES
SECTION B–B
A. TYPES OF FILTER DAMS
1. TYPE 1 (NON-REINFORCED)
a. HEIGHT – 18–24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
b. TOP WIDTH = 2-1 (MINIMUM)
c. SLOPES = 2:1 (MAXIMUM).
2. TYPE 2 (REINFORCED)
a. HEIGHT – 18–36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
b. TOP WIDTH – 2 FEET (MINIMUM).
c. SLOPES – 2:1 (MAXIMUM).
3. TYPE 3 (REINFORCED)
a. HEIGHT – 36–48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
b. TOP WIDTH = 2 FEET (MINIMUM).
c. SLOPES = 3:1 (MAXIMUM).
4. TYPE 4 (GABION)
a. HEIGHT – 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
b. TOP WIDTH = 2 FEET (MINIMUM).
5. TYPE 5. AS SHOWN ON THE PLANS.
B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.
1. TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
2. PLACE GRANULAR FILL ON THE WIRE MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
a. 3–5 INCHES FOR ROCK FILTER DAM TYPES 1, 2 AND 4.
b. 4–8 INCHES FOR ROCK FILTER DAM TYPE REFER TO GRANULAR FILL IN SPECIFICATION SECTION NO. 02378
3. WRAP AND GRANULAR FILL WITH GEOTEXTILE.
3. FOLD MESH AT THE UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
4. IN STREAMS, SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
5. SEE HDPE SPECIFICATION SECTION NO. 02364–FILTER DAMS.
6. EMBED ONE FOOT MINIMUM INTO SLOPE AND RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA AT SLOPE.
INLET PROTECTION BARRIERS FOR STAGE II INLETS
IPB–II SYMBOL
GENERAL NOTES:
1. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE–THIRD THE HEIGHT OF THE BARRIER.
2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS DIRECTED BY ENGINEER.
PLACE GRAVEL BAGS ALONG CURB & ALONG GUTTER LINE
GRAVEL BAGS PLACED SNUGLY AROUND INLET AT BACK OF CURB
FLOW
EXISTING CONCRETE CURB AND PAVEMENT
EXISTING INLET
FLOW
INLET PROTECTION BARRIERS FOR STAGE I INLETS
IPB SYMBOL
SANDBAG
10 MIL PLASTIC LINING
ROCK/AGGREGATE
GEOTEXTILE
SECTION A–A
10" MIN.
ORANGE SAFETY FENCE ON 3 SIDES
SANDBAG
10 MIL PLASTIC LINING
ROCK/AGGREGATE (6" THICK MIN.) UNDERLAID WITH GEOTEXTILE
10' MIN.
15'
PLAN
CONCRETE TRUCK WASHOUT AREA
CTW SYMBOL
GENERAL NOTES:
1. POST A SIGN READING "CONCRETE WASHOUT PIT" NEXT TO THE PIT.
2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASH OUT CHUTES IN PIT AND NOWHERE ELSE.
3. KEEP THE CONCRETE SETTING UP (CURING, DRYING) OUT. THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE CONCRETE WASTE, THE WASHOUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN-SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
4. CONCRETE WASHOUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT ANY TIME DRAIN INTO THE STORM SEWER SYSTEM OR ANY OTHER SWALE, DITCH, OR WATERWAY.
5. CONSTRUCT ENTRY ROAD AND BOTTOM OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS EQUIPMENT.
INLET PROTECTION BARRIER WITH FILTER ROLLS
EXTENSION OF FABRIC INTO TRENCH
COMPACTED SOIL
FLOW
WOOD OR METAL BEAM
WOOD OR METAL POST
WELDED WIRE MESH
POST
SECTION A–A
VARIES
36" MIN.
FILTER FABRIC BARRIER
INLET STAGE I AND II
PLAN
INLET PROTECTION BARRIER WITH FILTER ROLLS
GENERAL NOTES:
1. FIBER ROLLS WILL BE UTILIZED ONLY WHEN SITE CONDITIONS DO NOT PERMIT THE USE OF FILTER FABRIC BARRIER, AND AS APPROVED BY THE ENGINEER.
INLET STAGE I AND II
WOOD OR METAL BEAM
WOOD OR METAL POST
VARIES
L
1/3 L
COMPACTED SOIL TO PREVENT PIPING
STAKED FIBER ROLL
4"
INLET
FIBER ROLL STAKED OR WEIGHTED DOWN W/ GRAVEL BAGS
PLAN
6:1 TYP.
EXISTING GROUND
50' MIN.
R.O.W.
8" MIN. GRADED TO PREVENT RUN–OFF FROM LEAVING SITE
SEPARATION GEOTEXTILE FABRIC FOR FULL WIDTH AND LENGTH OF EXIT
PROFILE
COARSE AGGREGATE – 3" TO 5" GRANULAR FILL, BULL ROCK (CRUSHED CONCRETE IS PERMITTED)
50'–0" MIN.
CONSTRUCTION WORK AREA
PUBLIC R–O–W
PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC RIGHT–OF–WAY
PLAN
STABILIZED CONSTRUCTION ACCESS
SC–1 SYMBOL
GENERAL NOTES:
1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME CROSS SECTIONAL AND GRADE REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING AREA.
5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH MUD.
6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
7. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20' WIDTH FOR TWO WAY TRAFFIC.

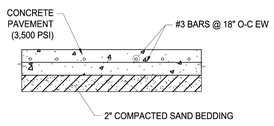
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2–1–22	RJS
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

PROJECT TITLE

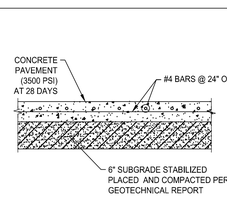
DRAWN BY: INIT		FBCED STANDARD
DSN BY: INIT	SHEET DESCRIPTION: STORM WATER POLLUTION PREVENTION PLAN DETAILS	5.4
SCALE: NONE		SHEET NO.
DATE: 2–1–22	APPROVED BY:	/

A:\1745.1601\Fort Bend County Standards\Fort Bend County STD\DWG\FBC STORM WATER POLLUTION PREVENTION PLAN DETAILS.dwg 10/15/2025 4:07 PM



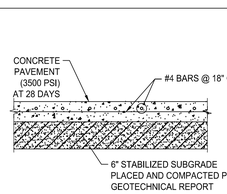
5" CONCRETE SIDEWALK

N.T.S.



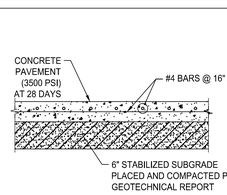
5" CONCRETE PAVEMENT

SCALE: N.T.S.



6" CONCRETE PAVEMENT

SCALE: N.T.S.

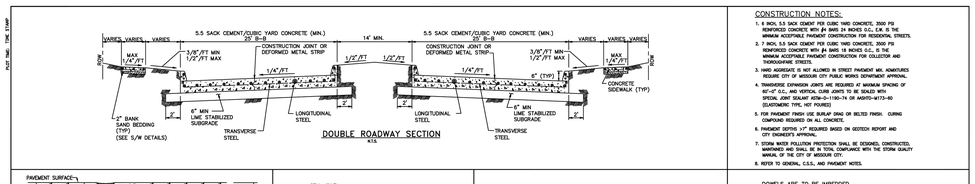


7" CONCRETE PAVEMENT

SCALE: N.T.S.

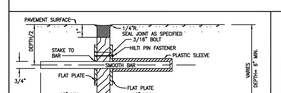
PAVING NOTES:

1. SEE GEOTECHNICAL INVESTIGATION REPORT NUMBER G103-25A (FINAL REVISION 1) FOR FORT BEND INDEPENDENT SCHOOL DISTRICT, BP022 - GYM RENOVATIONS AND ADDITIONS, HUNTER'S GLEN ELEMENTARY SCHOOL BY AVILES ENGINEERING CORPORATION DATED AUGUST 2025.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS AND A MINIMUM FLEXURAL STRENGTH OF 500 PSI AT 7 DAYS AND 600 PSI AT 28 DAYS.
3. PROVIDE 6" MINIMUM STABILIZED SUBGRADE WITH A MINIMUM OF 7 PERCENT HYDRATED LIME BY DRY SOIL WEIGHT AS PER GEOTECHNICAL REQUIREMENTS. LABRATORY TESTING SHOULD BE PERFORMED TO DETERMINE THE OPTIMUM LIME CONTENT. SUBGRADE SHALL EXTEND A MINIMUM OF 2 FEET BEYOND THE PAVED AREA.
4. FIRE LANE PAVING SHALL BE 7" THICK WITH #4 AT 18" ON CENTER EACH WAY.
5. PAVING IN PARKING AREA SHALL MATCH EXISTING THICKNESS, MINIMUM 6" THICK WITH #4 AT 18" ON CENTER EACH WAY



CONSTRUCTION NOTES:

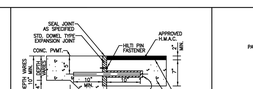
1. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES O.C. E.W. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR RESIDENTIAL STREETS.
2. 7 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 18 INCHES O.C., IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR AND THOROUGHFARE STREETS.
3. HARD AGGREGATE IS NOT ALLOWED IN STREET PAVEMENT MIX. ADMIXTURES REQUIRE CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT APPROVAL.
4. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 60'–0" O.C. AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM–D–1190–74 OR AASHTO–M173–80 (ELASTOMERIC TYPE, HOT POURED)
5. FOR PAVEMENT FINISH USE BURLAP DRAG OR BELTED FINISH. CURING COMPOUND REQUIRED ON ALL CONCRETE.
6. PAVEMENT DEPTHS ≥7" REQUIRED BASED ON GEOTECH REPORT AND CITY ENGINEER'S APPROVAL.
7. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM QUALITY MANUAL OF THE CITY OF MISSOURI CITY.
8. REFER TO GENERAL, C.S.S., AND PAVEMENT NOTES.



STEEL TO MEET ASTM STD. SPEC. FOR CONC. REBAR UNIT TO BE 24" O.C., AND 10" MIN.

DOWEL TYPE EXPANSION JOINT

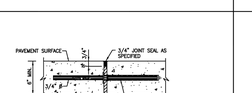
N.T.S.



DOWEL TYPE EXPANSION JOINT

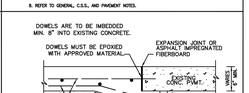
N.T.S.

(CONC. PAVING TO CONC. BASE)



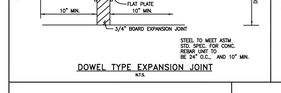
SPEED DOWEL EXPANSION JOINT

N.T.S.



UNDERCUT DETAIL WITH HEADER

N.T.S.

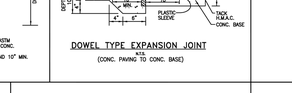


CONCRETE CURB

N.T.S.

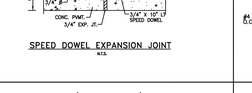
CONSTRUCTION NOTE:

ALL NEW CURB REQUIRES 3,500 P.S.I. @ 28–DAYS, AND A MINIMUM OF 1–1/2/CY OF APPROVED POLYPROYLENE FIBER MESH.



PAVING PANEL FOR 6" & 7" PAVEMENT

N.T.S.



MANHOLE BLOCKOUT (STORM & SANITARY) IN PAVEMENT



No.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2–1–22	RJS

CONCRETE PAVEMENT CONSTRUCTION DETAILS

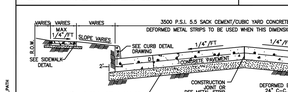
missouri CITY TEXAS

APPROVED BY:

CITY ENGINEER DATE

CONSTRUCTION PLANS FOR:

JOB NO.: SCALE: AS NOTED DATE: DECEMBER 2019 SHEET 16 OF 35 MC–17–19



NOTES:

FOR PVMT DEPTHS OF 6" & 7" USE 1/2" DEFORMED BARS, 24" O.C., 10" LAPS. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. NO. A–15–54T AND A–305–53T. LAP SPLICES TO BE A MINIMUM OF 10 INCHES. STAGGER SPLICES IN ADJACENT BARS.

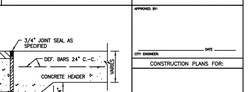
SINGLE ROADWAY SECTION

N.T.S.



CONSTRUCTION JOINT SEAL

N.T.S.



PAVING HEADER (FOR USE IN CONNECTING CONC. PVMT. TO ASPHALT PVMT.) (PROP. OR EXIST.)

No.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2–1–22	RJS

CONCRETE PAVEMENT CONSTRUCTION DETAILS

missouri CITY TEXAS

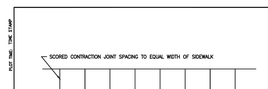
APPROVED BY:

CITY ENGINEER DATE

CONSTRUCTION PLANS FOR:

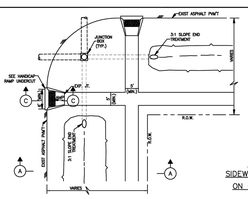
JOB NO.: SCALE: AS NOTED DATE: DECEMBER 2019 SHEET 17 OF 35 MC–17–19

A:\1745.1601\Fort Bend County Standards\Fort Bend County STD\DWG\FBC STORM WATER POLLUTION PREVENTION PLAN DETAILS.dwg 10/15/2025 4:07 PM



SIDEWALK JOINT DETAILS

N.T.S.

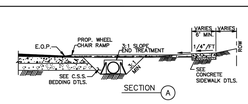


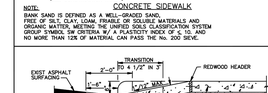
CROSS RAMP SIDEWALK CONNECTION ON OPEN DITCH



CONCRETE SIDEWALK

NOTE: BANK SAND IS DEFINED AS A WELL–GRADED SAND, FREE OF SILT, CLAY, LOAM, FRIABLE OR SOLUBLE MATERIALS AND ORGANIC MATTER, MEETING THE UNIFIED SOILS CLASSIFICATION SYSTEM GROUP SYMBOL SW CRITERIA BY A PLASTICITY INDEX OF 0, 10, AND NO MORE THAN 12% OF MATERIAL CAN PASS THE No. 200 SIEVE.

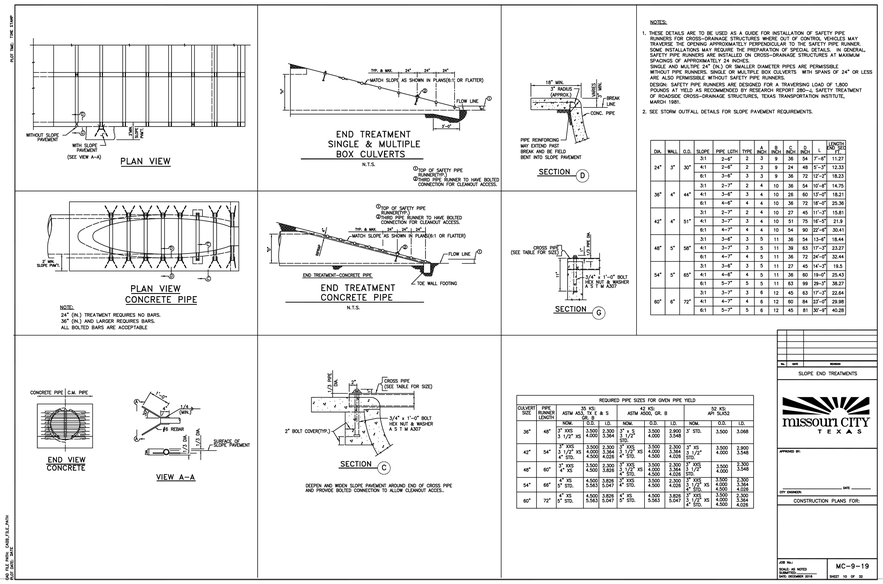




HANDICAP RAMP CURB & GUTTER*


VARIES, CONC. WALK
5' (TYP.)
1/4" / FT MAX
1/8" / FT MIN
SLOPE VARIES 1/4" PER FOOT MIN. 1/2" PER FOOT MAX.

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



NOTES:

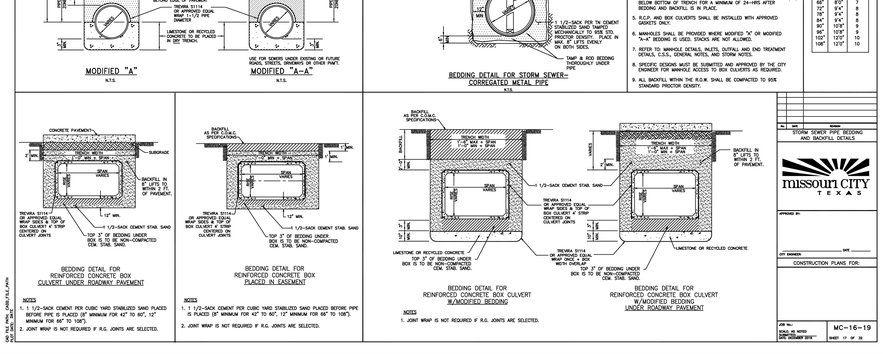
1. THESE DETAILS ARE TO BE USED AS A GUIDE FOR INSTALLATION OF SAFETY PIPE RUNNERS FOR CROSS-DRAINAGE STRUCTURES WHERE OUT OF CONTROL VEHICLES MAY TRAVERSE THE OPENING APPROXIMATELY PERPENDICULAR TO THE SAFETY PIPE RUNNER. SOME INSTALLATIONS MAY REQUIRE THE PREPARATION OF SPECIAL DETAILS. IN GENERAL, SAFETY PIPE RUNNERS ARE NOT RECOMMENDED ON CROSS-DRAINAGE STRUCTURES AT MAXIMUM SPACINGS OF APPROXIMATELY 24 INCHES.
   SINGLE AND MULTIPE 24" (IN.) OR SMALLER DIAMETER PIPES ARE PERMISSIBLE WITHOUT PIPE RUNNERS. SINGLE OR MULTIPLE BOX CULVERTS WITH SPANS OF 24" OR LESS ARE ALSO PERMISSIBLE WITHOUT SAFETY PIPE RUNNERS.
   FOR SINGLE OR MULTIPLE BOX CULVERTS WITH SPANS GREATER THAN 24" AND TRAVERSING LOAD OF 1,800 POUNDS AT YIELD AS RECOMMENDED BY RESEARCH REPORT 280--1, SAFETY TREATMENT OF ROADSIDE CROSS--DRAINAGE STRUCTURES, TEXAS TRANSPORTATION INSTITUTE, MARCH 1981.
2. SEE STORM OUTFALL DETAILS FOR SLOPE PAVEMENT REQUIREMENTS.

DIA.	WALL	O.D.	SLOPE	PIPE LGTH	TYPE	A INCH	B INCH	C INCH	D INCH	L	EXPOSED PIPE LGTH
24"	3"	30"	3:1	2'-6"	2	2	9	36	54	1'-6"	11.27
			4:1	2'-6"	2	2	9	24	48	1'-3"	12.33
			6:1	3'-6"	3	3	9	36	72	1'-7"	18.23
36"	4"	44"	3:1	2'-7"	2	4	10	36	54	1'-9"	14.75
			4:1	3'-6"	3	4	10	26	60	1'-5"	18.21
			6:1	4'-6"	4	4	10	36	72	1'-9"	25.36
42"	4"	51"	3:1	2'-7"	2	4	10	27	45	1'-1"	15.81
			4:1	3'-7"	3	4	10	51	75	1'-6"	21.9
			6:1	4'-7"	4	4	10	54	90	2'-0"	30.41
48"	5"	58"	3:1	3'-6"	3	5	11	36	54	1'-3"	18.44
			4:1	3'-7"	3	5	11	38	63	1'-1"	23.27
			6:1	4'-7"	4	5	11	36	72	1'-4"	32.44
54"	5"	65"	3:1	3'-6"	3	5	11	27	45	1'-1"	19.5
			4:1	4'-6"	4	5	11	38	60	1'-0"	25.43
			6:1	5'-7"	5	5	11	63	99	1'-7"	38.07
60"	6"	72"	3:1	3'-7"	3	6	12	45	63	1'-1"	22.64
			4:1	4'-7"	4	6	12	60	84	1'-0"	29.98
			6:1	5'-7"	5	6	12	45	81	1'-0"	40.28

NO.	REVISIONS	DATE	NAME
	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY ENGINEERING DEPARTMENT

DRAWN BY: "N"	SHEET DESCRIPTION: "TYPE A" INLET DETAILS	FBCED STANDARD
DATE: 2-1-22	FOR MAXIMUM 30" O.D. PIPE	22
SCALE: 1"=1'-0"	APPROVED BY:	SHEET NO. /



GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
2. CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
3. PRECAST STRUCTURE TO MEET ASTM C913.
4. FRAME AND GRATE SHALL BE EAST JORDAN IRON WORKS V-4050-1 (OPEN AREA 473 SQ. IN.) OR APPROVED EQUAL.
5. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, PRECAST SHALL INCORPORATE A DETAILED DRAWING INTO THE PRECAST SHOP DRAWINGS SHOWING HOW THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, REGISTERED IN THE STATE OF TEXAS.
6. SHOP DRAWINGS SHALL BE REQUIRED FOR PRECAST CONSTRUCTION OF INLET.
7. KNOCK-OUTS ARE NOT PERMISSIBLE FOR PRECAST CONSTRUCTION OF INLET.
8. CEMENT STABILIZED SAND SHALL EXTEND TO THE BOTTOM OF PAVEMENT OR SLOPE PAVING, OR 12 INCHES BELOW THE SURFACE IF INLET IS LOCATED IN AN UNPAVED AREA.

NO.	REVISIONS	DATE	NAME

SLOPE END TREATMENTS

missouri CITY TEXAS

APPROVED BY:

DATE

CITY ENGINEER

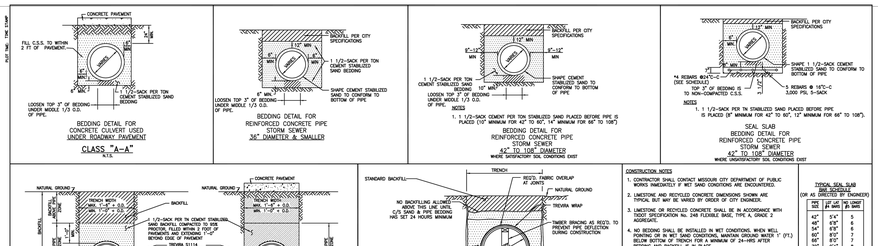
CONSTRUCTION PLANS FOR:

JOB No.: MC-9-19

SCALE: AS NOTED

DATE: NOVEMBER 2019

SHEET: 19 OF 30


CONCRETE PAVEMENT
FILL C.S.S. TO WITHIN 2 FT OF PAVEMENT
1-1/2-SACK PER TON CEMENT STABILIZED SAND BEDDING
LOOSEN TOP 3" OF BEDDING UNDER MIDDLE 1/3 O.D. OF PIPE.
BEDDING DETAIL FOR REINFORCED CONCRETE CULVERT USED UNDER ROADWAY PAVEMENT
CLASS "A-A"
N.T.S.
BACKFILL PER CITY SPECIFICATIONS
1-1/2-SACK PER TON CEMENT STABILIZED SAND BEDDING
SHAPE CEMENT STABILIZED SAND TO CONFORM TO BOTTOM OF PIPE
LOOSEN TOP 3" OF BEDDING UNDER MIDDLE 1/3 O.D. OF PIPE.
BEDDING DETAIL FOR REINFORCED CONCRETE PIPE STORM SEWER
36" DIAMETER & SMALLER
1-1/2 SACK PER TON CEMENT STABILIZED SAND BEDDING
SHAPE CEMENT STABILIZED SAND TO BOTTOM OF PIPE
1. 1-1/2-SACK CEMENT PER TON STABILIZED SAND PLACED BEFORE PIPE IS PLACED (10" MINIMUM FOR 42" TO 60", 14" MINIMUM FOR 66" TO 108")
BEDDING DETAIL FOR REINFORCED CONCRETE PIPE STORM SEWER
42" TO 108" DIAMETER
WHERE SATISFACTORY SOIL CONDITIONS EXIST
BACKFILL PER CITY SPECIFICATIONS
SHAPE 1 1/2-SACK CEMENT STABILIZED SAND TO CONFORM TO BOTTOM OF PIPE
*4 REBARS @ 90°C-C
*5 REBARS @ 180°C-C
3,000 PSI, 5-SACK
NOTES
1. 1 1/2-SACK PER TON STABILIZED SAND PLACED BEFORE PIPE IS PLACED (10" MINIMUM FOR 42" TO 60", 12" MINIMUM FOR 66" TO 108").
SEAL SLAB BEDDING DETAIL FOR REINFORCED CONCRETE PIPE STORM SEWER
42" TO 108" DIAMETER
WHERE UNSATISFACTORY SOIL CONDITIONS EXIST
NATURAL GROUND
TRENCH WIDTH
BACKFILL
1-1/2-SACK PER TON CEMENT STABILIZED SAND BACKFILL COMPACTED TO 95% PROCTOR, FILLED WITHIN 2 FOOT OF PAVEMENT OR FINISHED GRADE OF PAVEMENT
LIMESTONE OR RECYCLED CONCRETE TO BE PLACED IN SEE TRENCH
MODIFIED "A"
N.T.S.
CONCRETE PAVEMENT
USE FOR SEWERS UNDER EXISTING OR FUTURE ROAD, STREETS, DRIVEWAYS OR OTHER PAVT.
MODIFIED "A-A"
N.T.S.
STANDARD BACKFILL
TRENCH
REMOVE FABRIC OVERLAP AT JOINTS
NATURAL GROUND
NO BACKFILLING ALLOWED BEFORE TIME LAPSE UNTIL CURE STRENGTH OF CONCRETE HAS SET 24 HOURS MINIMUM
TREVIRA WRAP
TIMBER BRACING AS REQ'D. TO PREVENT PIPE DEFLECTION DURING CONSTRUCTION
1-1/2-SACK PER TON CEMENT STABILIZED SAND THOROUGHLY TO SIDE STD. PROCTOR DENSITY IN MAX. 8" LIFTS EVENLY ON BOTH SIDES.
TAMP & ROD BEDDING THOROUGHLY UNDER PIPE
BEDDING DETAIL FOR STORM SEWER-- CORREGATED METAL PIPE
N.T.S.
CONSTRUCTION NOTES
1. CONTRACTOR SHALL CONTACT MISSOURI CITY DEPARTMENT OF PUBLIC WORKS IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1' (FT.) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24--HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. R.C.P. AND BOX CULVERTS SHALL BE INSTALLED WITH APPROVED GASKET SEALS.
6. MANHOLES SHALL BE PROVIDED WHERE MODIFIED "A" OR MODIFIED "A-A" BEDDING IS USED. STACKS ARE NOT ALLOWED.
7. REFER TO MANHOLE DETAILS, INLETS, OUTFALLS AND END TREATMENT DETAILS, C.S.S., GENERAL NOTES, AND STORM NOTES.
8. SPECIFIC DESIGNS MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER FOR MANHOLE ACCESS TO BOX CULVERTS AS REQUIRED.
9. ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

TYPICAL SEAL SLAB BED SCHEDULE
(OR AS DIRECTED BY ENGINEER)

DIA.	BT. MIN.	BT. MAX.
42"	5'-6"	5
48"	6'-3"	6
54"	7'-0"	7
60"	8'-3"	7
66"	9'-0"	8
72"	9'-9"	8
78"	10'-6"	9
84"	11'-3"	9
90"	12'-0"	10
96"	12'-9"	10
102"	13'-6"	10
108"	14'-3"	10

STORM SEWER PIPE BEDDING AND BACKFILL DETAILS

missouri CITY TEXAS

APPROVED BY:

DATE

CITY ENGINEER

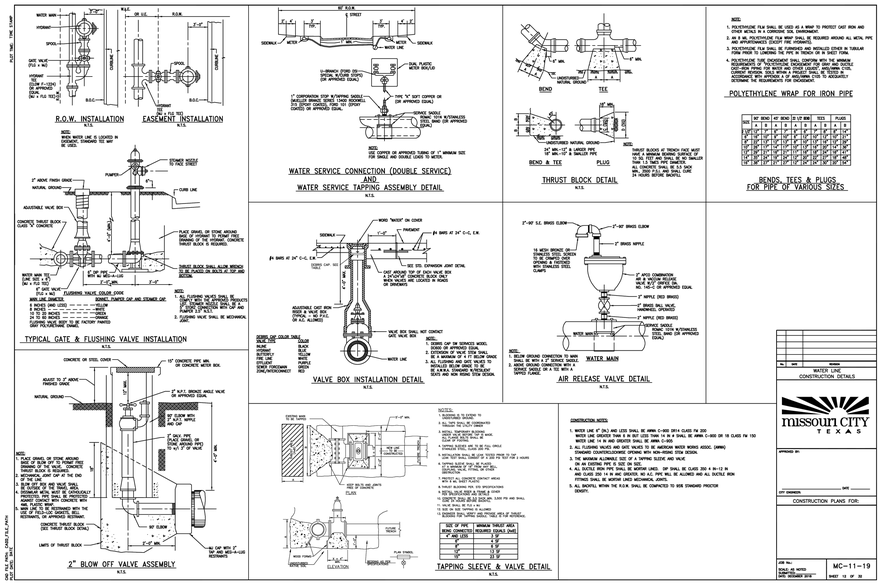
CONSTRUCTION PLANS FOR:

JOB No.: MC-16-19

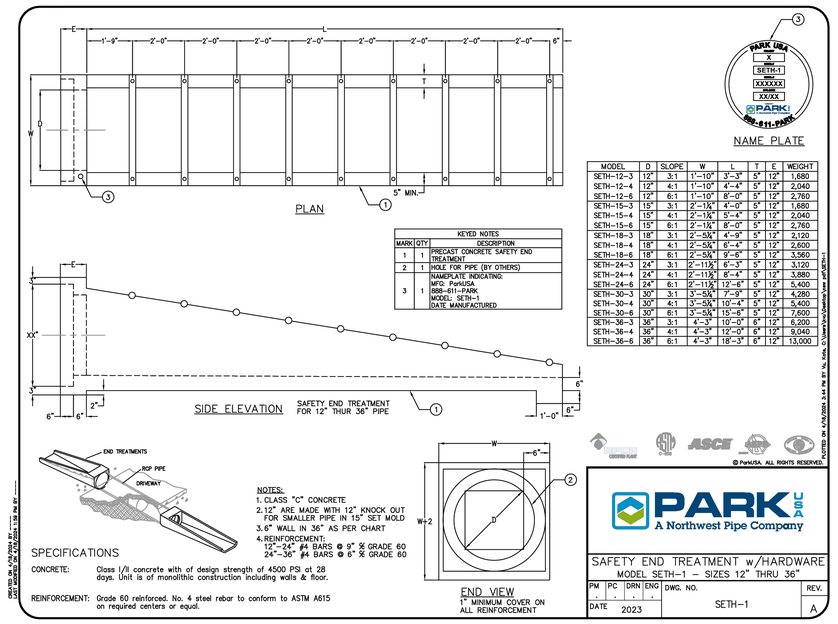
SCALE: AS NOTED

DATE: NOVEMBER 2019

SHEET: 17 OF 30


WATER MAIN
HYDRANT
SPOOL
GATE VALVE (TYP.) w/ MJ
MJ RESTRAINT GLAND (TYP.)
R.O.W. INSTALLATION
N.T.S.
W.M.
OR U.C.
R.O.W.
EASEMENT INSTALLATION
SIDEWALK
WATER METER
SPOOL
CORP STOP
CURB STOP
B.O.C.
U-BRANCH (FOR 1" SERVICE) (FOR APPROVED EQUAL)
DUAL PLASTIC WATER SVC.TUBE
1" CORPORATION STOP & TAPPING SADDLE - (FOR 1" SERVICE) (FOR APPROVED EQUAL) (SEE CONNECTION TO EXIST. WATER LINE DETAIL)
TYPE "K" SOFT COPPER OR (FOR APPROVED EQUAL)
SERVICE SADDLE (DOMIC USA W/STAINLESS STEEL BAND OR APPROVED EQUAL)
NOTE: SEE COPPER OR APPROVED TUBING OF 1" MINIMUM SIZE FOR SINGLE AND DOUBLE LINES TO METER.
WATER SERVICE CONNECTION (DOUBLE SERVICE) AND WATER SERVICE TAPPING ASSEMBLY DETAIL
N.T.S.
NOTE: WHEN WATER LINE IS LOCATED IN PAVED OR UNPAVED ROAD SET METER BOX FLUSH WITH FINISHED GRADE
HYDRANT
NATURAL GROUND
3" ABOVE FINISH GRADE
ADJUSTABLE VALVE BOX
CONCRETE THRUST BLOCK - CLASS "B" CONCRETE
WATER MAIN "TEE" OR "CROSS" (MJ x FLG)
6" GATE VALVE (MJ x FLG)
FLANGE
FLANGE
6" SAFE WAY FLUSHING VALVE COLOR CODE (DOMIC - POWER CAP AND STEAMER CAP)
1. BLUE - POTABLE WATER
2. ORANGE (AND LID) - YELLOW
3. PURPLE - RECLAIMED WATER
4. GREEN - SANITARY SEWER
5. RED - FIRE LINE
6. BLACK - STORM WATER
7. WHITE - UNKNOWN / OTHER PAINTED
FLUSHING VALVE
TYPICAL GATE & FLUSHING VALVE INSTALLATION
N.T.S.
STONED NOZZLE TO END STREET
PUMPER
FLARE GRAVEL OR STONE AROUND BASE OF HYDRANT TO PROVIDE POSITIVE DRAINAGE AWAY FROM HYDRANT
THRUST BLOCK SHALL ALLOW REMOVAL OF BOLTS ON BOLTED 90° FOR AND BOTTOM
FIRE HYDRANT ASSEMBLY DETAIL
N.T.S.
NOTE: ALL FLUSHING VALVES SHALL BE INSTALLED AT LOCATIONS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER
3. FLUSHING VALVE SHALL BE MECHANICAL JOINT
WORD "WATER" ON COVER
#4 BARS AT 24" C-C, E.W.
SIDEWALK
PAVEMENT
CURB CAP, TYP.
CAST IRON VALVE BOX (OR APPROVED EQUAL)
4 1/4" CAST IRON VALVE BOX WITH A 24"x24"x6" CONCRETE SLAB OVER TOP OF VALVE BOX
NOTE: VALVE BOX SHALL NOT BE USED AS A FORM
#4 BARS AT 24" C-C, E.W.
ADJUSTABLE CAST IRON VALVE BOX (OR APPROVED EQUAL)
VALVE BOX SHALL NOT CONTACT GATE VALVE BOX
VALVE BOX INSTALLATION DETAIL
N.T.S.
CONCRETE OR STEEL COVER
12" CONCRETE PIPE MIN. OR CONCRETE METER BOX.
ADJUST TO 2" ABOVE NATURAL GROUND
2" S.C.R. SPRUCE ANGLE VALVE OR APPROVED EQUAL
1" GATE WITH WHEEL OR APPROVED EQUAL
1" GALV. PIPE
1" GALV. ELBOW
1" GALV. PIPE
1" GALV. ELBOW
1" GALV. PIPE
1" GALV. ELBOW

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



KEYED NOTES		
MARK	QTY	DESCRIPTION
1	1	PRECAST CONCRETE SAFETY END TREATMENT
2	1	HOLE FOR PIPE (BY OTHERS)
3	1	NAMEPLATE INDICATING: MFG: ParkUSA 888-611-PARK MODEL: SETH-1 DATE MANUFACTURED

MODEL	D	SLOPE	W	L	T	E	WEIGHT
SETH-12-3	12"	3:1	1'-10"	3'-3"	5"	12"	1,680
SETH-12-4	12"	4:1	1'-10"	4'-4"	5"	12"	2,040
SETH-12-6	12"	6:1	1'-10"	8'-0"	5"	12"	2,760
SETH-15-3	15"	3:1	2'-1¾"	4'-0"	5"	12"	1,880
SETH-15-4	15"	4:1	2'-1¾"	5'-4"	5"	12"	2,040
SETH-15-6	15"	6:1	2'-1¾"	8'-0"	5"	12"	2,760
SETH-18-3	18"	3:1	2'-5¾"	4'-9"	5"	12"	2,120
SETH-18-4	18"	4:1	2'-5¾"	6'-4"	5"	12"	2,600
SETH-18-6	18"	6:1	2'-5¾"	9'-6"	5"	12"	3,560
SETH-24-3	24"	3:1	2'-11½"	6'-3"	5"	12"	3,120
SETH-24-4	24"	4:1	2'-11½"	8'-4"	5"	12"	3,880
SETH-24-6	24"	6:1	2'-11½"	12'-6"	5"	12"	5,400
SETH-30-3	30"	3:1	3'-5⅛"	7'-9"	5"	12"	4,280
SETH-30-4	30"	4:1	3'-5⅛"	10'-4"	5"	12"	5,400
SETH-30-6	30"	6:1	3'-5⅛"	15'-6"	5"	12"	7,600
SETH-36-3	36"	3:1	4'-3"	10'-0"	6"	12"	6,200
SETH-36-4	36"	4:1	4'-3"	12'-0"	6"	12"	9,040
SETH-36-6	36"	6:1	4'-3"	18'-3"	6"	12"	13,000

SPECIFICATIONS

CONCRETE: Class I/II concrete with of design strength of 4500 PSI at 28 days. Unit is of monolithic construction including walls & floor.

REINFORCEMENT: Grade 60 reinforced. No. 4 steel rebar to conform to ASTM A615 on required centers or equal.

NOTES:
1. CLASS "C" CONCRETE
2. 12" ARE MADE WITH 12" KNOCK OUT FOR SMALLER PIPE IN 15" SET MOLD
3. 6" WALL IN 36" AS PER CHART
4. REINFORCEMENT:
   12"–24" #4 BARS @ 9" ℄ GRADE 60
   24"–36" #4 BARS @ 6" ℄ GRADE 60

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PARK USA
A Northwest Pipe Company

SAFETY END TREATMENT w/HARDWARE
MODEL SETH–1 – SIZES 12" THRU 36"

PM	PC	DRN	ENG
.	.	.	.

DATE 2023 | DWG. NO. SETH–1 | REV. A

CREATED ON 4/9/2024 BY ——
LAST MODIFIED ON 4/9/2024 1:18 PM BY ——

PLOTTED ON 4/9/2024, 3:44 PM BY Tim Hall, C:\Users\Tim.Hall\Desktop\Work\Park\SETH-1

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Houston, Texas 77042 1713 337 8881
TEXAS REGISTERED ENGINEERING FIRM F-3426
D + A PROJECT No. C24-052-00

Notes

⚠ ADDENDUM #2	MN, CG By	JH Appd	2025.10.16 YYYY.MM.DD
Revision			
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: DETAILS3.dwg	KB Dwn.	MN, CG Dsgn.	JW 2025.09.24 Chkd. YYYY.MM.DD

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STATE OF TEXAS
FRED DALLY
90904
LICENSED
PROFESSIONAL ENGINEER
10/16/2025

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Title
DETAILS (3 OF 3)

Project No.
C24-052-00

Scale

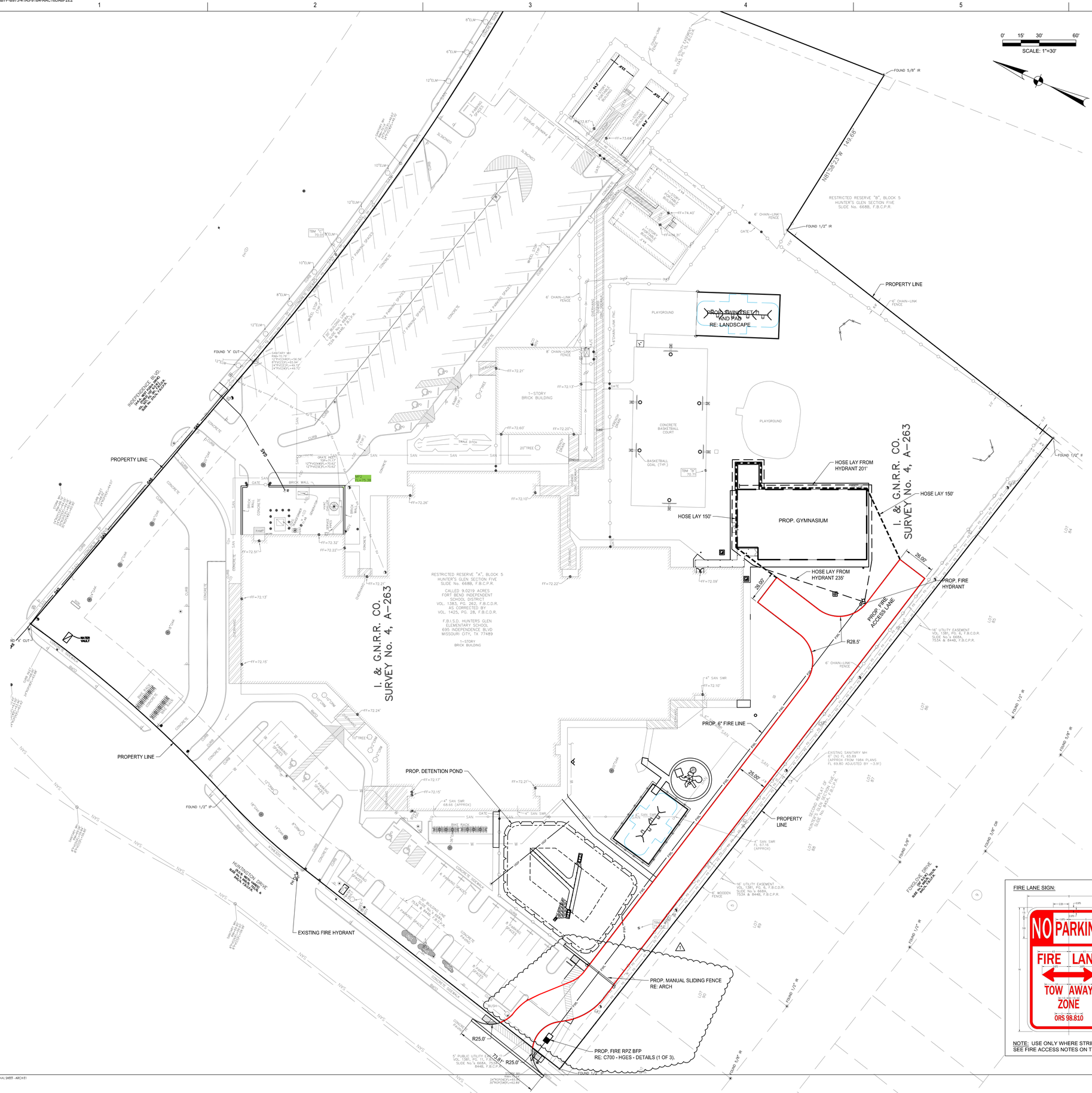
Revision

Drawing No.
C900 - HGES

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ORIGINAL SHEET - ARCH E1

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LEGEND

- PROPOSED BUILDING LIMITS
- PROPOSED FIRE LANE
- HOSE LAY TO ROAD (150' MAX)
- HOSE LAY TO HYDRANT (400' MAX)
- FIRE LANE CURB AND PAVEMENT MARKING EVERY 100 FEET

GENERAL CONSTRUCTION NOTES :

1. ALL UNDERGROUND UTILITIES SHOWN ARE NOT GUARANTEED TO BE COMPLETE OR DEFINITE, BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE.
2. CONTRACTOR TO VERIFY ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IF DISCREPANCIES OCCUR.
3. THE LOCATION OF ALL UTILITIES PRESENTED ON THESE DRAWINGS IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
4. CAUTION!!! THERE ARE OVERHEAD POWER LINES IN THE WORK AREA. CONTRACTOR SHALL FOLLOW CITY, STATE AND FEDERAL GUIDELINES WHEN WORKING AROUND EXISTING POWER LINES.
5. CONTRACTOR TO OBTAIN ALL PERMITS AND APPROVALS REQUIRED PRIOR TO STARTING CONSTRUCTION.
6. CONTRACTOR PERFORMING THE WORK SHALL BE RESPONSIBLE FOR SECURING ALL UTILITY PERMITS, PRIOR TO INSTALLATION OF ANY UTILITIES INCLUDING WATER, SEWER, ELECTRIC, CABLE TELEVISION AND GAS.
7. ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
8. ALL DIMENSIONS ARE PERPENDICULAR OR PARALLEL TO THEIR RESPECTIVE PROPERTY LINES UNLESS OTHERWISE NOTED.
9. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DIMENSIONS.
10. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE STAGING AND TRAFFIC CONTROL PLANS WITH OWNER.
11. ALL DISTURBED AREAS NOT TO BE PAVED OR LANDSCAPED SHALL BE SODDED UPON COMPLETION.
12. WATER AND SEWER MAINS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH TCEQ RULES AND REGULATIONS.
13. FIRE WATER SERVICE SHALL BE C-900 SELF-EXTINGUISHING PVC PIPE THAT BEARS UNDERWRITERS' LABORATORIES MARK OF APPROVAL AND IS ACCEPTABLE WITHOUT PENALTY TO TEXAS STATE FIRE INSURANCE COMMITTEE AND HAVE A MINIMUM COVER OF 4 FEET.



FIRE ACCESS NOTES:

1. POSTING OF FIRE LANES IS REQUIRED. FIRELANE SHALL BE INDICATED WITH PAINTED 6" RED STRIPES ON BOTH SIDES OF THE LANE WITH "FIRE LANE - NO PARKING - TOW AWAY ZONE" WRITTEN WITH 4" LETTERS IN WHITE PAINT SPACED EVERY 50 FEET. SEE DETAIL ON THIS SHEET.
2. FIRE LANE SIGNS SHOULD BE PLACED EVERY 75 FEET ALONG ANY FIRE LANE WHERE PAVEMENT OR CURB STRIPING IS NOT PRACTICAL. SEE DETAIL ON THIS SHEET.
3. PROVIDE KNOX BOX AT MANUAL GATES PER MISSOURI CITY FIRE MARSHAL REQUIREMENTS.

FIRE LANE SIGN:



NOTES:
1. AT THE BEGINNING AND END OF THE FIRE LANE, THE SIGN SHALL HAVE A SINGLE HEADED ARROW POINTING IN THE DIRECTION THE REGULATION IS IN EFFECT. THE INTERMEDIATE SIGNS SHALL HAVE DOUBLE HEADED ARROWS POINTING IN BOTH DIRECTIONS.
2. THE MAXIMUM SPACING OF THE SIGNS SHALL BE 75', CONTINGENT UPON TRAFFIC ENGINEERING'S REVIEW AND APPROVAL.
3. THE SIGNS SHALL BE SET AT AN ANGLE OF NOT LESS THAT 30° NOR MORE THAN 45° WITH THE CURB OR LINE OF TRAFFIC FLOW.
4. THE CLEARANCE TO THE BOTTOM OF THE SIGN SHALL BE 7 FEET. THERE SHALL BE NO OTHER SIGNS ATTACHED TO THE SIGN OR SIGN POLE.
5. THE SIGN PLATE SHALL BE A MINIMUM OF 12" x 18" WITH A THICKNESS OF 0.80".

NOTE: USE ONLY WHERE STRIPING IS NOT PRACTICAL. SEE FIRE ACCESS NOTES ON THIS PAGE.

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D + A PROJECT No. C24-052-00

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1 ADDENDUM #2	MN, CG	JH	2025.10.16
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: FIRE.dwg	KB	MN, CG	JW 2025.09.24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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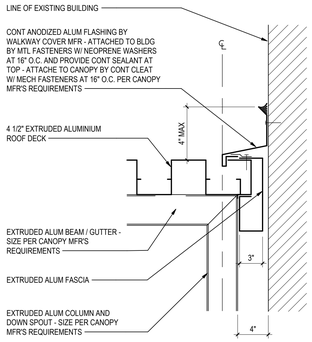
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FIRE LANE PLAN

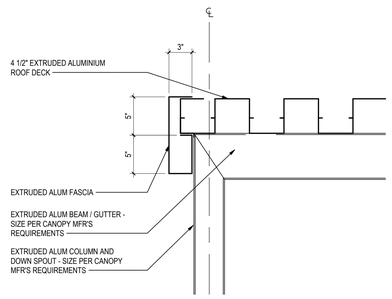
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C24-052-00	
Revision	Drawing No.

C1000 - HGES

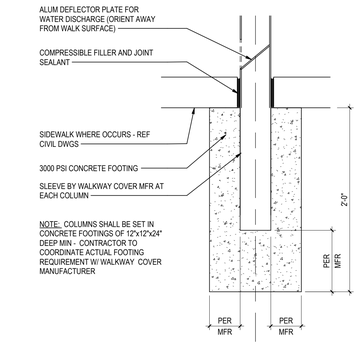
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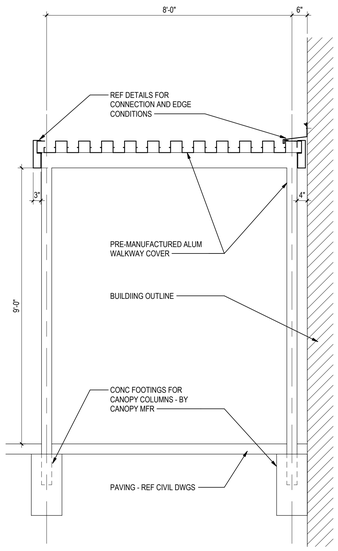
C1 WALKWAY COVER DETAILS
AS001-HGES 1 1/2" = 1'-0"



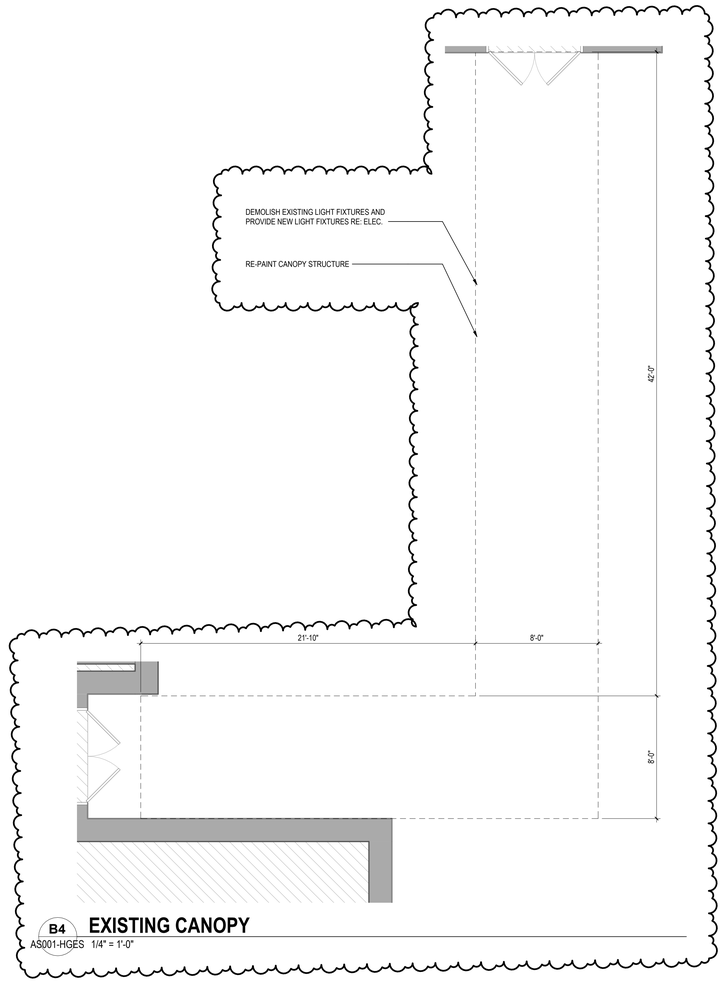
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AS001-HGES 1 1/2" = 1'-0"



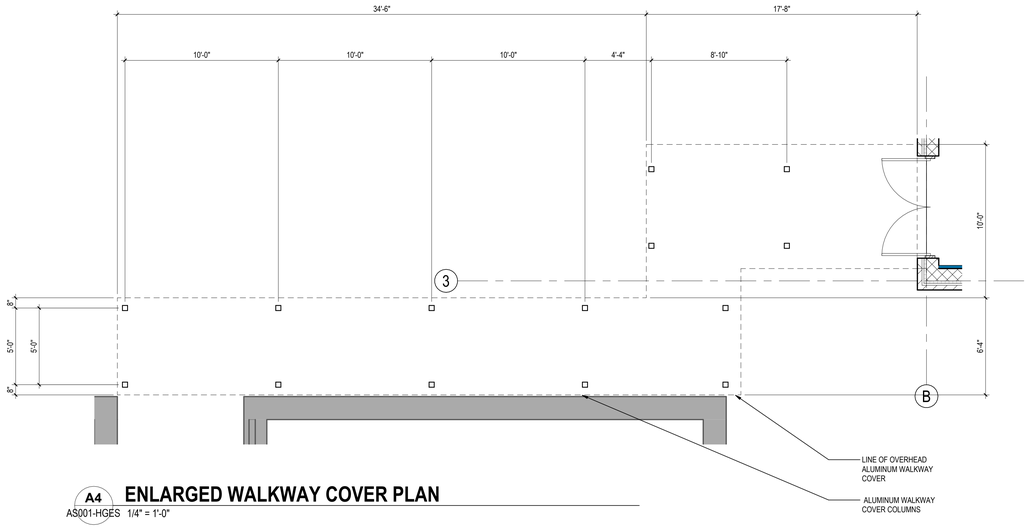
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AS001-HGES 1 1/2" = 1'-0"



A2 WALKWAY COVER DETAILS
AS001-HGES 1/2" = 1'-0"



B4 EXISTING CANOPY
AS001-HGES 1/4" = 1'-0"



A4 ENLARGED WALKWAY COVER PLAN
AS001-HGES 1/4" = 1'-0"

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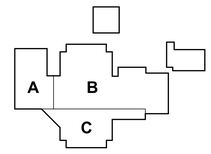
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1	Addenda #2			2025.10.16
Revision		By	Appd	YYYY.MM.DD
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File Name: N/A		Author	Designer	Checker 12/03/24
		Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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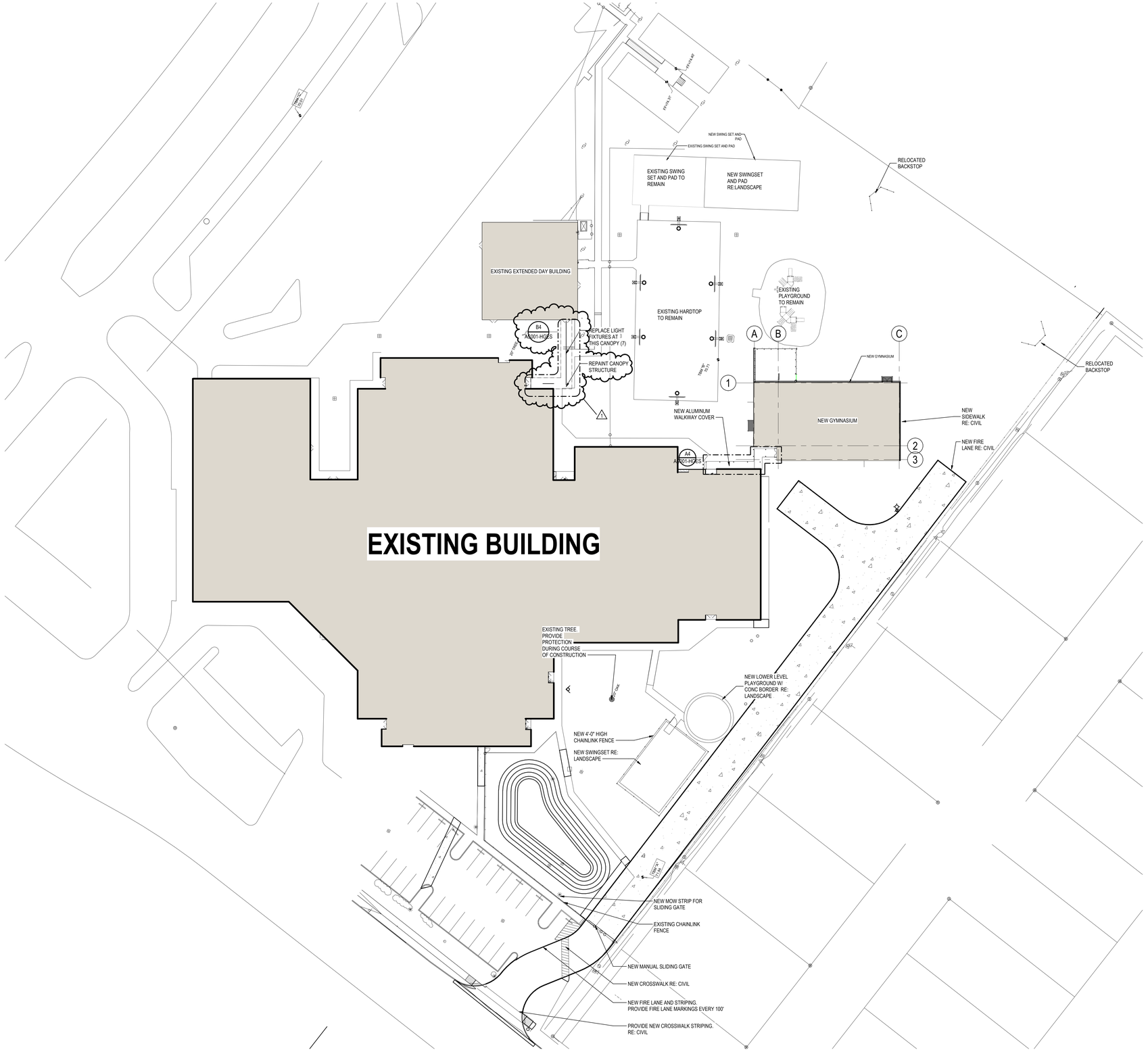
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Revision	Drawing No.
1	AS001-HGES

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A1 / AS101 — **ARCHITECTURAL SITE PLAN**
1" = 30'-0"
HGES

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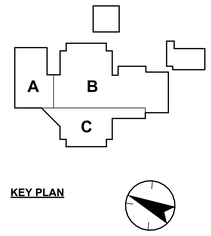
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File Name: N/A	Author	Designer	Checker 12/03/24
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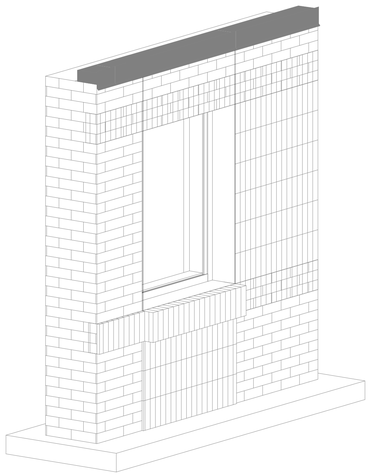
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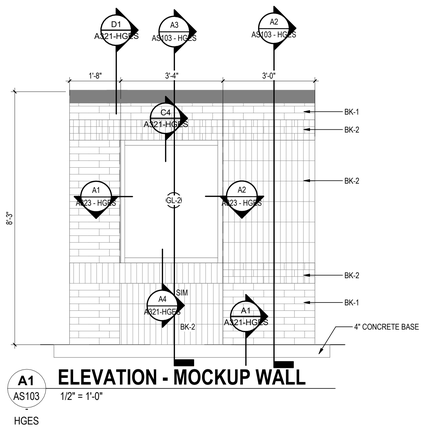
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D1
AS103
HGES

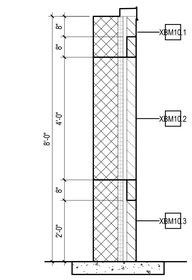
AXONOMETRIC - MOCKUP WALL



A1
AS103
HGES

ELEVATION - MOCKUP WALL

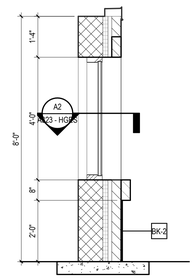
1/2" = 1'-0"



A2
AS103
HGES

WALL SECTION

1/2" = 1'-0"



A3
AS103
HGES

WALL SECTION

1/2" = 1'-0"

EXTERIOR MOCK-UP NOTES

1. COORDINATE LOCATION AND ORIENTATION OF MOCKUP WITH OWNER AND ARCHITECT PRIOR PLACING SLAB

2. PROVIDE COLD-FORMED METAL FRAMING AND MISCELLANEOUS STEEL AS REQUIRED TO CONSTRUCT MOCK-UP. REFERENCE STRUCTURAL DRAWINGS FOR DESIGN LOADS FOR EXTERIOR WALLS. CONTRACTOR SHALL BE RESPONSIBLE FOR ENGINEERING OF THE TERMPORARY STRUCVTURE.

3. BACK-UP WALL SHALL BE MIN. 10" CMU W/ 1/2" GLASS MATT GYPSUM SHEATHING, AIR BARRIER AND 2" RIGID INSULATION

4. MOCK-UP CONSTRUCTION SHALL BE PROGRESSIVE IN NATURE. EACH LAYER SHALL BE REVIEWED BY OWNER AND ARCHITECT PRIOR TO PROCEEDING TO THE FOLLOWING LAYER.

5. MOCK-UP SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS AND PROFILES IN THE A320'S, A330'S AND A340'S SERIES DRAWINGS USING THE ACTUAL SPECIFIED MATERIAL IN THE PROPER FINISHES. ALL MATERIAL TAG DESIGNATIONS REFER TO A201 & A801 FOR MATERIAL AND FINISH SCHEDULE. ALL GLAZING TO BE TYPE GL1, REFER TO A501.

6. CONSTRUCTION OF THE BUILDING ENVELOPE SHALL NOT COMMENCE UNTIL MOCK-UP IS COMPLETE. ALL DEFICIENCIES ARE CORRECTED AND OWNER AND ARCHTIECT HAVE SIGNED OFF.

7. MOCK-UP SHALL NOT BE DEMOLISHED UNTIL COMPLETION OF THE BUILDING ENVELOPE

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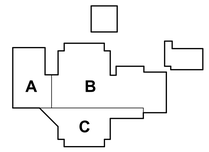
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File Name: N/A	Author	Designer	Checker	12/03/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Title

MOCKUP WALL

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
1	AS103 - HGES

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ORIGINAL SHEET - ARCH E1

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GYMNASIUM FLOOR PLAN

A1 / A103 — 1/4" = 1'-0"

HGES

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	Revision	By	Appd	
2	Addenda #2			2025.10.16
1	Addenda #1			2025.10.09
	100% ISSUE FOR BID AND PERMIT			2025.09.24

Issued

File Name: N/A — Author: Dwn. — Designer: Dsgn. — Checker: Chkd: — 11/13/24 YYYY.MM.DD

Permit/Seal

REGISTERED ARCHITECT — DANIELLE DUNN — 28298 — STATE OF TEXAS

Client/Project Logo

2023 BOND — FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project

FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title

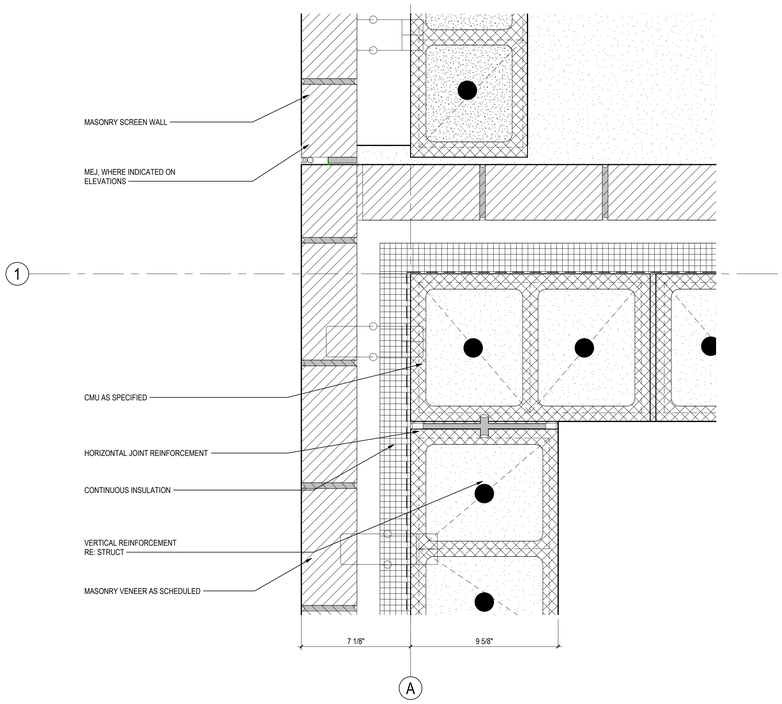
FLOOR PLAN - GYMNASIUM

Project No. 214001246 — Scale 1/4" = 1'-0"

Revision 2 — Drawing No.

A103 - HGES

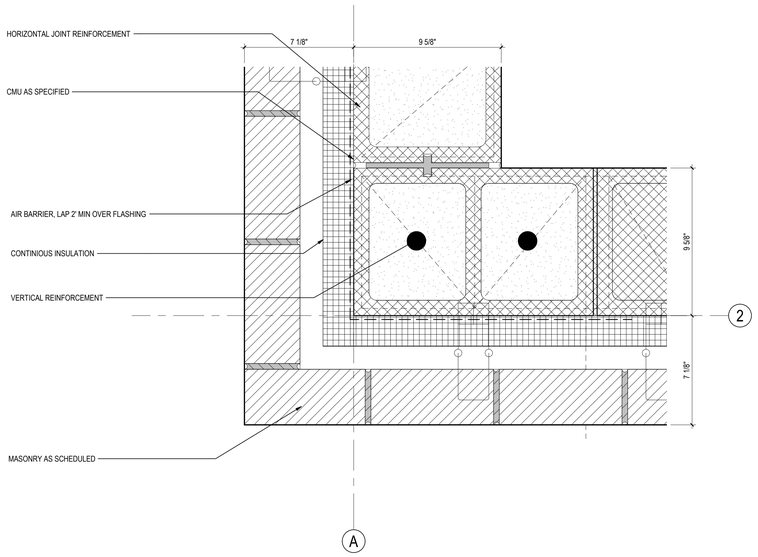
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C1 A320 PLAN DETAIL

3" = 1'-0"

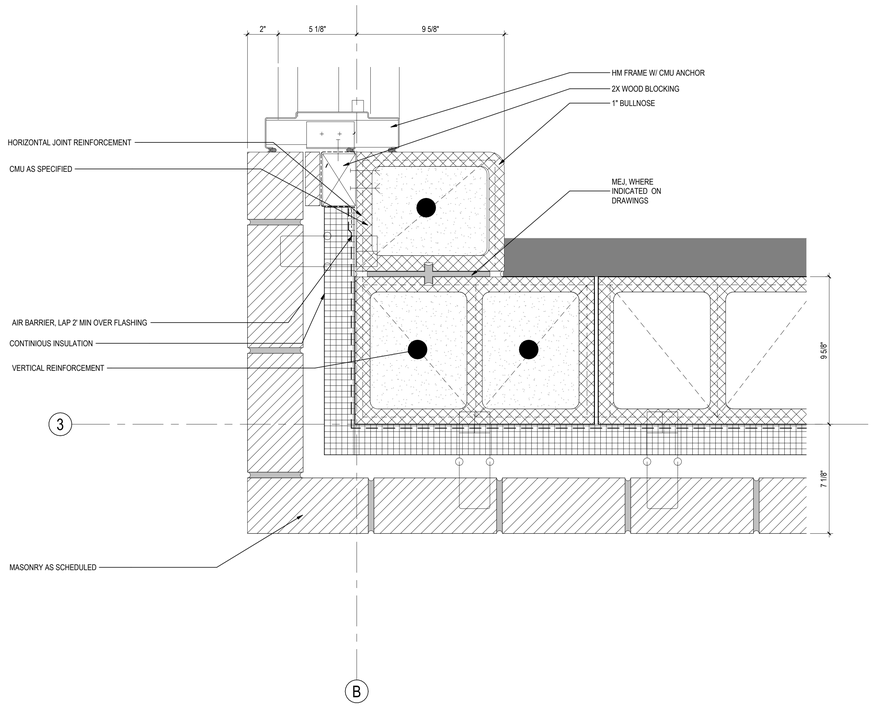
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C3 A320 PLAN DETAIL

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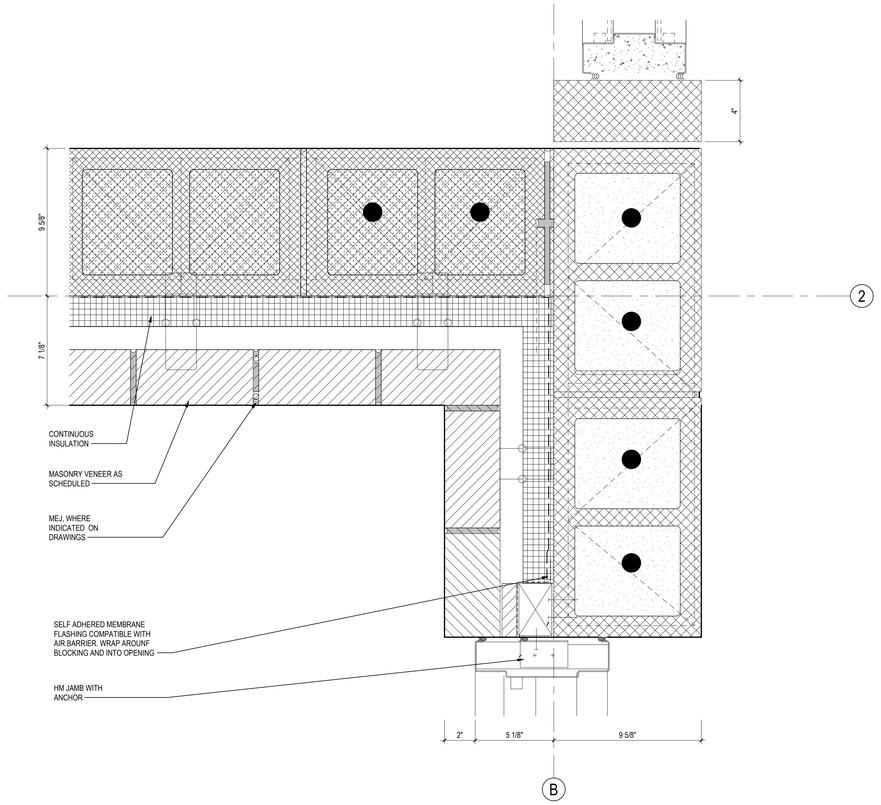
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A1 A320 PLAN DETAIL

3" = 1'-0"

HGES



A3 A320 PLAN DETAIL

3" = 1'-0"

HGES

Stantec

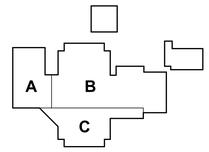
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Revision	By	Appd	
1 Addenda #2			2025.10.14

Issued	By	Appd	
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	Author	Designer	Checker	
	Dwn.	Dsgn.	Chkd.	
	04/18/25			YYYY.MM.DD

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Title

EXTERIOR PLAN DETAILS

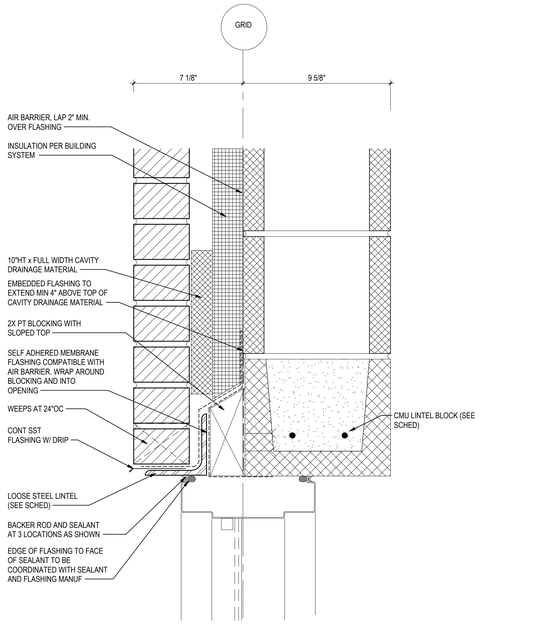
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214001246	3" = 1'-0"

Revision	Drawing No.
1	A320 - HGES

ORIGINAL SHEET - ARCH E1

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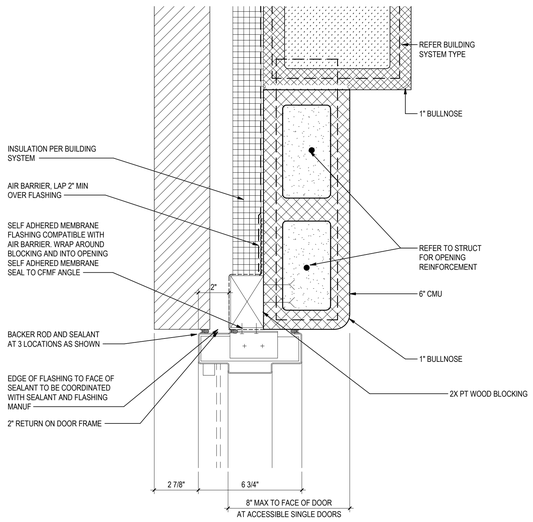
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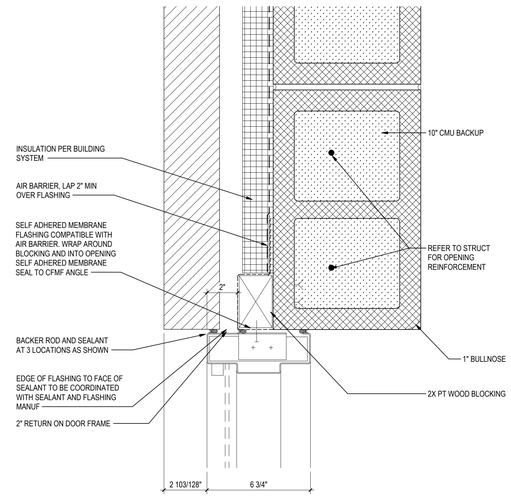
D1 A322 — **HEAD DETAIL**

3" = 1'-0"

HGES



AT SINGLE DOOR



AT DOUBLE DOORS

B1 A322 — **JAMB @ HM DOOR FRAMES**

3" = 1'-0"

HGES

*Plot location in Project Information
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ORIGINAL SHEET - ARCH D1

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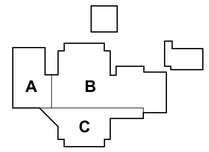
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100% ISSUE FOR BID AND PERMIT				2025.09.24
Issued		By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker	04/18/25
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal



Client/Project Logo

BOND 2025
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project

FORT BEND ISD

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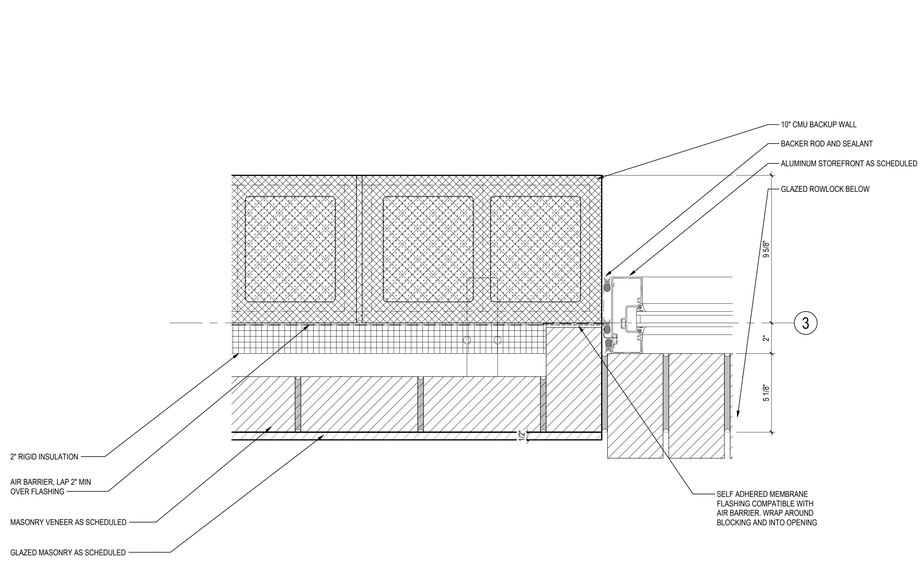
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Title

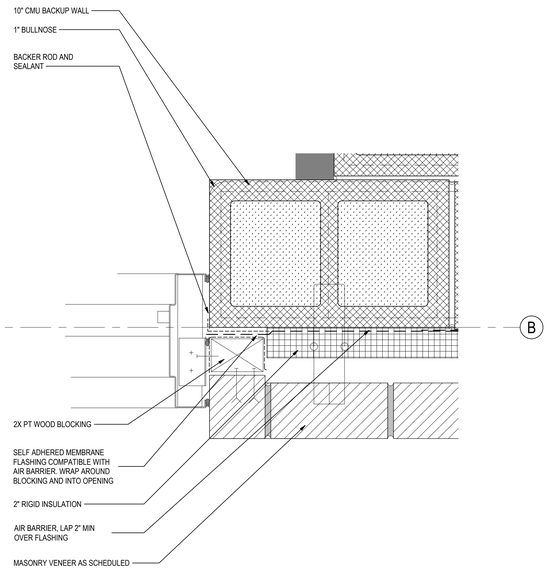
EXTERIOR SECTION DETAILS

Project No.	Scale
214001246	3" = 1'-0"
Revision	Drawing No.
1	A322 - HGES

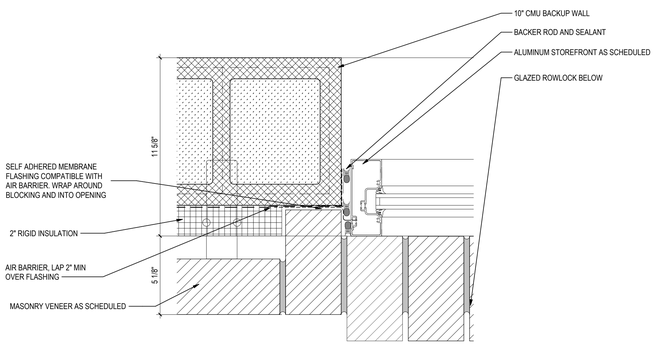
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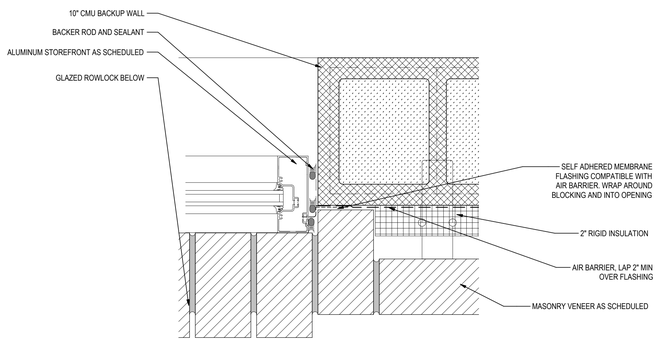
B1 A323 **PLAN DETAIL**
3" = 1'-0"
HGES



B3 A323 **PLAN DETAIL**
3" = 1'-0"
HGES



A1 A323 **PLAN DETAIL**
3" = 1'-0"
HGES



A2 A323 **PLAN DETAIL**
3" = 1'-0"
HGES

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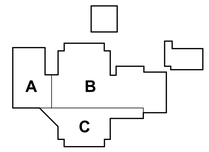
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File Name: N/A	Author	Designer	Checker	04/18/25
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Title
EXTERIOR PLAN DETAILS

Project No.	Scale
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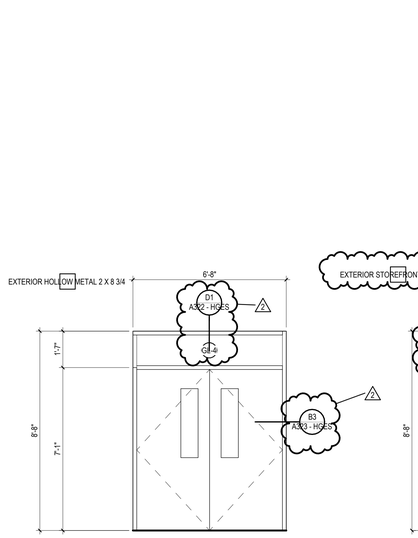
Revision 1

Drawing No. **A323 - HGES**

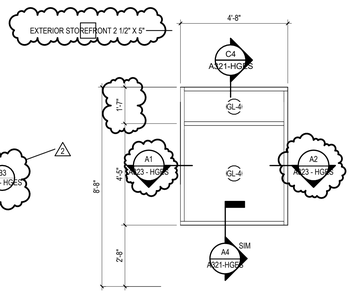
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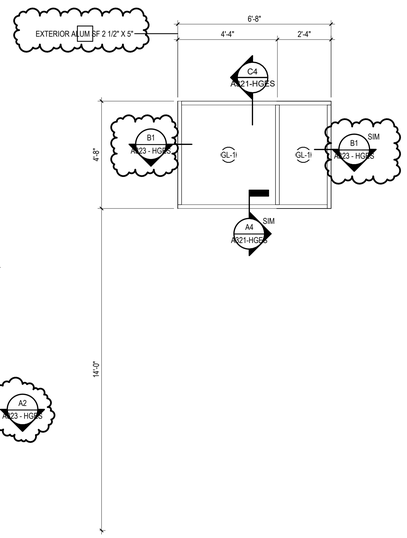
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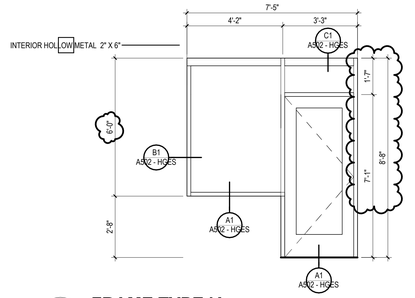
D1 FRAME TYPE A
A501 — 3/8" = 1'-0"
HGES



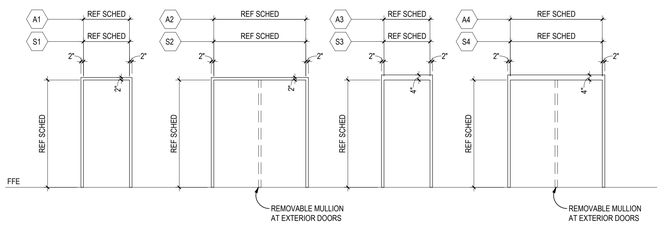
D2 FRAME TYPE B
A501 — 3/8" = 1'-0"
HGES



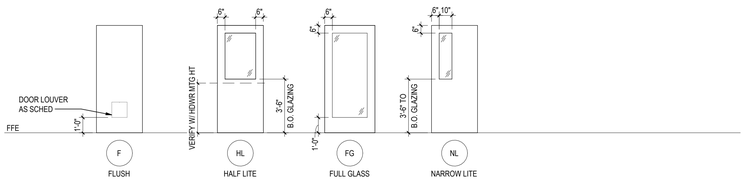
D3 FRAME TYPE C
A501 — 3/8" = 1'-0"
HGES



D4 FRAME TYPE iA
A501 — 3/8" = 1'-0"
HGES



5 Frame Types
A501 — 1/4" = 1'-0"
HGES

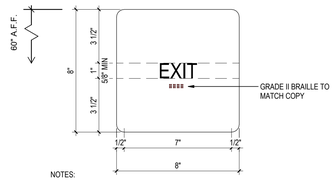


NOTES:
1. PROVIDE INSULATED LAMINATED GLAZING UNITS IN ALL EXTERIOR DOORS, UNO
2. PROVIDE ¼" CLEAR TEMPERED SAFETY GLASS IN ALL INTERIOR DOORS, UNO
3. AT DOORS MARKED AS ACOUSTICAL DOORS, PROVIDE SOUND SEALS FOR AN EQUIVALENT STC 47 DOOR

6 Door Types
A501 — 1/4" = 1'-0"
HGES

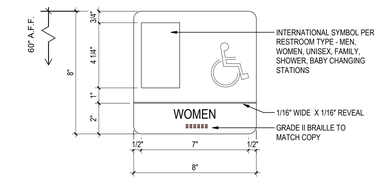
DOOR SCHEDULE-BY NUMBER

NO.	ROOM NAME	ROOM NO.	DOOR WIDTH	DOOR HEIGHT	DOOR THICK	DOOR TYPE	DOOR MAT'L	DOOR FIN	FRAME Frame Type	FRAME MAT'L	FRAME FIN	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	FIRE LABEL	HDWR SET	DOOR COMMENTS
Level 1																	
HG100A			6'-4"	7'-0"	1 3/4"	NL	STL	PNT	RE: FRAME ELEV	STL	PNT				45 MIN	C714MR	2,3
HG100B			6'-4"	7'-0"	1 3/4"	HL	STL	PNT	RE: FRAME ELEV	STL	STL				45 MIN	C714MR	2,3
HG101	OFFICE	HG101	3'-0"	7'-0"	1 3/4"	FL	STL	PLAM	RE: ELEV	STL	PNT	1/A502	4/A502	5/A502		103	
HG102	OUTDOOR STOR	HG102	3'-0"	7'-2"	1 3/4"	F	STL	PLAM	S1	STL	PNT			5/A502	45 MIN	205N	
HG103	PE STOR	HG103	3'-0"	7'-2"	1 3/4"	F	STL	PLAM	S1	STL	PNT	2/A502	4/A502	5/A502		C201	
HG104	HALL	HG106	3'-0"	7'-2"	1 3/4"	F	STL	PLAM	S1	STL	PNT	2/A502	4/A502			341	
HG105	HALL	HG106	3'-0"	7'-2"	1 3/4"	F	STL	PLAM	S1	STL	PNT	2/A502	4/A502			341	
HG106	MULTI-PURPOSE	22	3'-0"	7'-2"	1 3/4"	F	S1										
HG107			26'-0"	8'-0"			CHAINLINK	CHAINLINK		CHAINLINK		1/A5102	B1/A5102	B1/A5102		J-2PL	GATE; PROVIDE KNOXBOX
HG108	IDF	HG108	3'-0"	7'-2"	1 3/4"	F	STL	PLAM	S1	STL	PNT	6/A502	7/A502	5/A502		C201	
HG109			4'-0"	6'-0"			CHAINLINK	CHAINLINK		CHAINLINK	CHAINLINK					J-1PL	GATE
HG119			5'-0"	6'-0"			VC COATED	BLACK VINYL		VC COATED	BLACK VINYL					J-1PL	GATE
HG121	OFFICE	HG101	3'-0"	7'-0"	1 3/4"	FL	STL	PLAM	RE: ELEV	STL	PNT	1/A502	4/A502	5/A502		103	

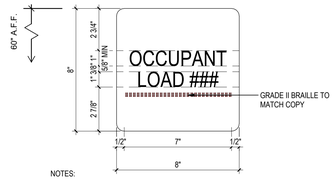


NOTES:
1. INCLUDE LOCATION SUCH AS STAIR NUMBER WHERE APPLICABLE
2. INCLUDE AREA OF REFUGE WHERE APPLICABLE, REFER TO SIGN TYPE E2

B3 EXIT SIGN
A501 — 3" = 1'-0"
HGES

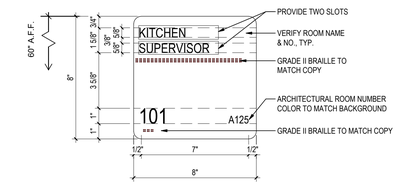


B4 RESTROOM SIGN
A501 — 3" = 1'-0"
HGES



NOTES:
1. PROVIDE SIGN AT EACH EXIT POINT.
2. COORDINATE ON SITE TO COMPLY WITH THE REQUIREMENTS

A3 OCCUPANT LOAD SIGN
A501 — 3" = 1'-0"
HGES



A4 TYP. ROOM SIGNAGE
A501 — 3" = 1'-0"
HGES

GENERAL NOTES - DOORS AND WINDOWS:

1. REFER TO SHEET A501 FOR DOOR SCHEDULE.
2. REFER TO SHEET A006 AND A005 FOR LINTEL SCHEDULES AND DOOR AND WINDOW JAMB STUD FRAMING SCHEDULE.
3. ALL INTERIOR DOORS TO BE 1 ¾" THICK *(UNO)*. EXTERIOR STOREFRONT DOORS SHALL BE 2" THICK, THERMALLY BROKEN. EXTERIOR HOLLOW METAL DOORS TO BE 1 ¾" THICK, INSULATED WITH THERMALLY BROKEN FRAMES
4. ALL STL FRAMES TO HAVE A 2" FACE DIMENSION UNO, W/ ⅝" STOP. ³/₁₆" STOP REQUIRED FOR FIRE RATED FRAMES.
5. STEEL FRAME DEPTHS INDICATED IN THE DETAILS ARE NOMINAL. PROVIDE STANDARD WIDTH FRAME WITH THROAT OPENING APPROPRIATE TO PARTITION TYPE.
6. COORDINATE WITH MECH DOCUMENTS FOR DOOR UNDERCUTS AND DOOR LOUVERS, IF ANY.
7. ALL LITES IN DOORS TO HAVE INSULATED LAMINATED GLAZING *(UNO)*.
8. FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING FRAMES.
9. PROVIDE WD BLKG IN GYP BD WALLS BEHIND DOORS SCHEDULED TO HAVE WALL MOUNTED DOOR STOPS. *(REFER HARDWARE SCHEDULE SUBMITTAL)*.
10. REFER DTLS A1/A006 FOR TYP WINDOW AND DOOR CONTROL JOINTS IN MASONRY WALLS. REFER DTLS A2/A006 FOR TYP WINDOW AND DOOR CONTROL JOINTS IN STEEL STUD FRAMED WALLS.
11. FLOOR MATERIAL CHANGES BETWEEN ROOMS TO OCCUR UNDER DOOR.
12. PROVIDE WATER RESISTANT TREATED WOOD BLOCKING AT WINDOW SURROUND MEMBERS AS REQUIRED FOR PROPER ATTACHMENT WHERE ALUMINUM WINDOWS ARE TO BE INSTALLED.
13. AT ALL EXISTING STL FRAMES WHERE DOOR SWING IS TO BE CHANGED, PATCH, REPAIR AND GRIND SMOOTH EXISTING STL DOOR FRAME. PRIME AND USE ONLY IF FRAME IS TO BE RETAINED. PAINT ACCORDING TO FINISH SCHEDULE SHEET A801.
14. DOOR HARDWARE *(CLOSERS, LEVERS, PANIC HARDWARE, ETC.)* SHALL NOT CONFLICT WITH THE GLASS OR TRIM FOR THE LITE.

GLAZING LEGEND

GL-1 - 1 5/16" INSULATED LAMINATED GLAZING

GL-2 - 9/16" LAMINATED GLAZING

GL-3 - 1/4" CLEAR TEMPERED GLAZING

GL-4 5/8" FIRE RATED LAMINATED INSULATED GLAZING UNIT

GL-5 1-3/4" 45 MIN INSULATED LAMINATED GLAZING

DOOR MARK KEY

DOOR SCHEDULE REMARKS:

1. PROVIDE REMOVABLE MULLION.
2. REFER TO ELECTRICAL DOCUMENTS FOR POWER FOR CARD KEY ACCESS. AT DOUBLE DOORS PROVIDE ELECTRIC STRIKE AT REMOVABLE MULLION.
3. PROVIDE DRIP AT HEAD OF DOOR
4. MANUAL OPERATED, TYPICAL.
5. MOTOR OPERATED, TYPICAL. REFER TO MEP DOC.
6. PREMANUFACTURED DOOR AND FRAME ASSEMBLY. PROVIDE PLAM FACING COLOR AS SCHEDULED ON SHEET A601. REFER TO ELECTRICAL DOCUMENTS FOR HOLD-OPEN DEVICES.
7. PROVIDE 2" WIDE ADA COMPLIANT MARBLE THRESHOLD WITH CHAMFERED EDGES AT ENTRY DOOR.
8. FIELD VERIFY ROUGH OPENING PRIOR TO DOOR FABRICATION.

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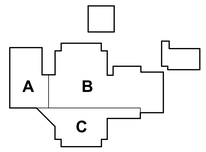
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1	Addenda #1			2025.10.09
Revision		By	Appd	YYYY.MM.DD

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Issued		By	Appd	YYYY.MM.DD

File Name: N/A	Author	Designer	Checker	06/02/25
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2025 BOND — FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
FRAME ELEVATIONS & DOOR SCHEDULE

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
2	A501 - HGES

ORIGINAL SHEET - ARCH E1

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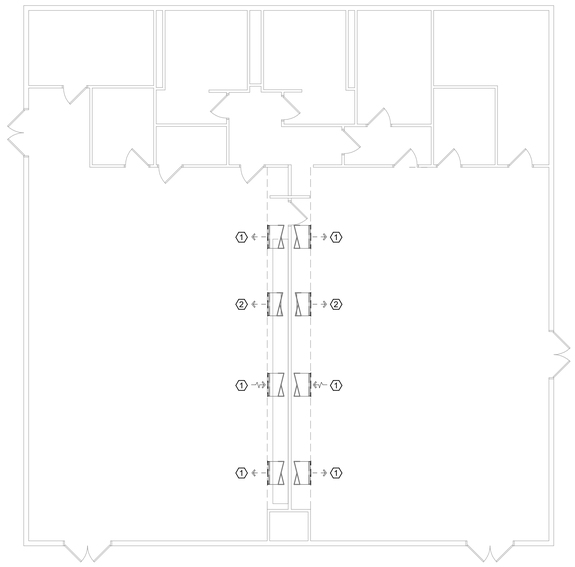
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GENERAL NOTES:

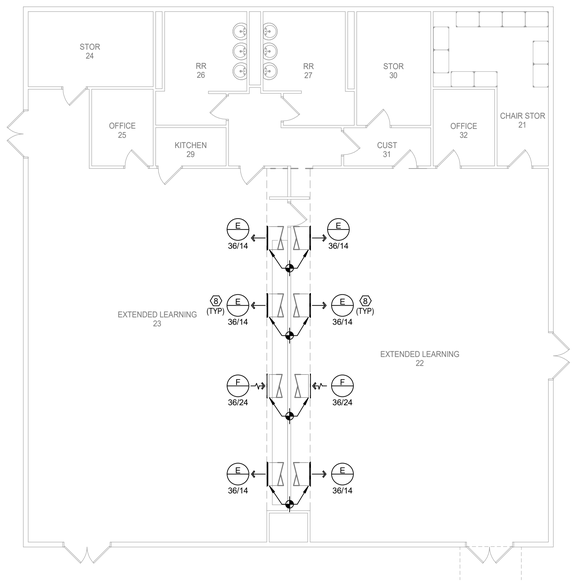
1. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT BEING REMOVED FROM THIS PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CHILLERS, AIR HANDLING UNITS, FANS, CONDENSING UNITS, BMCS CONTROL PANELS, TEMPERATURE SENSORS, AND CONTROL VALVES.
2. THESE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC, AND DO NOT NECESSARILY REFLECT ACTUAL DIMENSIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD-VERIFY ALL DIMENSIONS AND COORDINATE PLACEMENT OF ALL EQUIPMENT AND ROUTING OF ALL PIPING AND/OR DUCT SYSTEMS.
3. ALL MECHANICAL SYSTEMS SHOWN ON THIS PLAN ARE FROM EXISTING DRAWINGS AND PRELIMINARY FIELD WORK. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL LOCATIONS AND SIZES OF MECHANICAL SYSTEMS PRIOR TO THE START OF WORK.

DEMOLITION KEYED NOTES:

1. REMOVE EXISTING SUPPLY GRILLE, EXISTING DUCTWORK SHALL REMAIN AND BE REUSED.
2. REMOVE EXISTING RETURN GRILLE, EXISTING DUCTWORK SHALL REMAIN AND BE REUSED.



3 MECHANICAL DEMOLITION PLAN - LEVEL 1 - EXTENDED DAY LEARNING
Scale: 1/8" = 1'-0"



2 MECHANICAL PLAN - LEVEL 1 - EXTENDED DAY LEARNING
Scale: 1/8" = 1'-0"

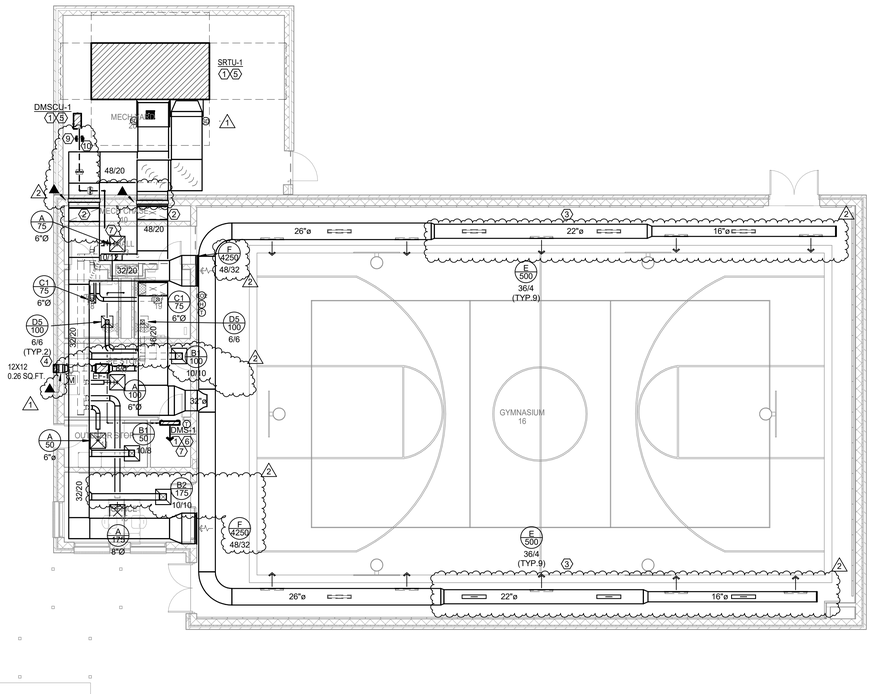
RENOVATIONS	
⊕	POINT OF CONNECTION FROM NEW TO EXISTING
▭	ITEM TO REMAIN
▭	ITEM TO BE REMOVED

GENERAL NOTES:

1. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT BEING REMOVED FROM THIS PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CHILLERS, AIR HANDLING UNITS, FANS, CONDENSING UNITS, BMCS CONTROL PANELS, TEMPERATURE SENSORS, AND CONTROL VALVES.
2. THESE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC, AND DO NOT NECESSARILY REFLECT ACTUAL DIMENSIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD-VERIFY ALL DIMENSIONS AND COORDINATE PLACEMENT OF ALL EQUIPMENT AND ROUTING OF ALL PIPING AND/OR DUCT SYSTEMS.
3. ALL MECHANICAL SYSTEMS SHOWN ON THIS PLAN ARE FROM EXISTING DRAWINGS AND PRELIMINARY FIELD WORK. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL LOCATIONS AND SIZES OF MECHANICAL SYSTEMS PRIOR TO THE START OF WORK.

MECHANICAL KEYED NOTES:

1. VERIFY SERVICE CLEARANCE WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
2. ROUTE DUCTWORK WITHIN CHASE AND UP TO PLENUM SPACE AS INDICATED.
3. SPIRAL INSULATED DOUBLE WALL DUCTWORK PAINTED BY ARCHITECT. DUCTWORK SHALL BE TIGHTS TO STRUCTURE.
4. PROVIDE RUSKIN MODEL HZ700 WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER OR APPROVED EQUAL WITH MINIMUM FREE AREA INDICATED. PROVIDE WITH BIRD SCREEN AND PAINT TO MATCH WALL OR AS SPECIFIED BY ARCHITECT.
5. PROVIDE 4" THICK CONCRETE HOUSEKEEPING PAD.
6. ROUTE FULL SIZE CONDENSATE DRAIN PIPE TO LAVATORY WYE TAILPIECE LOCATED IN TLT 18. REFER TO PLUMBING DRAWINGS FOR MORE INFORMATION.
7. ROUTE REFRIGERANT PIPING TO ASSOCIATED OUTDOOR UNIT. REFRIGERANT PIPE ELEVATION INSIDE THE BUILDING SHALL NOT BE LESS THAN 7'3" AFF.
8. MAINTAIN EXISTING CFM WITH NEW GRILLLE REPLACEMENT.
9. PROVIDE REFRIGERANT PIPE SUPPORTS (TYP).
10. REFRIGERANT PIPING SHALL BE INSULATED AND PAINTED PER SPECIFICATIONS.



1 MECHANICAL PLAN - LEVEL 1 - NEW GYM
Scale: 1/8" = 1'-0"

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Notes

Revision	By	Appd	
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	Dwn.	Dsgn.	Ckkd.	
	ER	ER	VP	11/27/24

Permit/Seal



Client/Project Logo

BOND
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
MECHANICAL FLOOR PLANS

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
2	M201-HGES

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ORIGINAL SHEET - ARCH E1

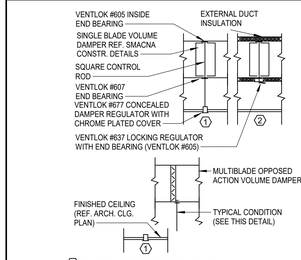
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SYMBOL LEGEND

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
GENERAL	
(#)	KEY NOTE TAG
(A)	REVISION TAG
	NEW EQUIPMENT
DUCTWORK	
	SUPPLY AIR DUCTWORK
	RETURN AIR AND OUTSIDE AIR DUCTWORK
	EXHAUST AIR DUCTWORK
	FLEXIBLE DUCTWORK
	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	RETURN AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	FIRE DAMPER (VERTICAL)
	FIRE DAMPER (HORIZONTAL)
(S)	SMOKE DAMPER (VERTICAL)
	SMOKE DAMPER (HORIZONTAL)
CFD FS	COMBINATION FIRE & SMOKE DAMPER (VERTICAL)
	COMBINATION FIRE & SMOKE DAMPER (HORIZONTAL)
M	MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)
M	MOTORIZED DAMPER (SEE DAMPER SCHEDULE)
SENSORS	
(T)	THERMOSTAT AND TEMPERATURE SENSOR
(H)	HUMIDISTAT
SDI	SMOKE DETECTOR
HEAT	HEAT DETECTOR
AIR DEVICES	
	GRILLE SIZE TAG (REFER TO GRILLE SIZE LEGEND)
	SUPPLY AIR GRILLE WITH FOUR-WAY THROW
	SUPPLY AIR GRILLE WITH THREE-WAY THROW
	SUPPLY AIR GRILLE WITH TWO-WAY THROW
	SUPPLY AIR GRILLE WITH TWO-WAY CORNER THROW
	SUPPLY AIR GRILLE WITH ONE-WAY THROW
	RETURN AIR GRILLE
	RETURN AIR GRILLE WITH SOUND BOOT
	EXHAUST AIR GRILLE
	SUPPLY AIR SIDEWALL GRILLE
	RETURN AIR SIDEWALL GRILLE
20X12	RETURN AIR OPENING ABOVE CEILING
PIPING	
–CWS&R–	CONDENSER WATER SUPPLY & RETURN (TOTAL OF TWO PIPES. ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CWS–	CONDENSER WATER SUPPLY
–CWR–	CONDENSER WATER RETURN
–CHWS&R–	CHILLED WATER SUPPLY & RETURN (TOTAL OF TWO PIPES. ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CHWS–	CHILLED WATER SUPPLY
–CHWR–	CHILLED WATER RETURN
–HWS&R–	HOT WATER FOR HYDRONIC HEATING SUPPLY & RETURN (TOTAL OF TWO PIPES. ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–HWS–	HOT WATER FOR HYDRONIC HEATING SUPPLY
–HWR–	HOT WATER FOR HYDRONIC HEATING RETURN
—D—	CONDENSATE DRAIN LINE
—AD—	AUXILIARY CONDENSATE DRAIN LINE
—RLR—	REFRIGERANT LIQUID & GAS RECIRCULATION LINE (TOTAL OF TWO PIPES. ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
—RL—	REFRIGERANT LIQUID LINE
—HG—	REFRIGERANT HOT GAS LINE
—RS—	REFRIGERANT SUCTION LINE
	ELBOW UP
	ELBOW DOWN
	90° ELBOW
	45° ELBOW
	TEE
	TEE DOWN
	TEE UP
	TOP BRANCH CONNECTION
	BOTTOM BRANCH CONNECTION
	FLANGE
	CAP
	CONTINUATION
	FLOOR DRAIN (REFER TO PLUMBING DRAWINGS)
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	BUTTERFLY VALVE WITH OPERATOR
	PLUG VALVE
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BALL VALVE
	STRAINER
	UNION
	THERMOMETER WELL
	PETE'S PLUG
	PRESSURE GAUGE
	TEMPERATURE SENSOR IN PIPE
	VENTURI FLOW METER
	FLOW SWITCH
FM	FLOW MEASURING STATION
	EXPANSION JOINT
	FLEXIBLE CONNECTION
LG.C.	GAUGE COCK
	SITE GLASS
	DIFFERENTIAL PRESSURE SENSOR
	TURBINE FLOW METER
	ANCHOR
	PIPE GUIDE

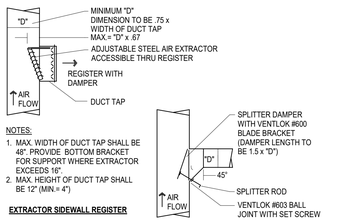
SUBSCRIPTS AND ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
BBS	BELOW BOTTOM OF STRUCTURE
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CA	COMBUSTION AIR
CFM	CUBIC FEET PER MINUTE
EA	EXHAUST AIR
FPM	FEET PER MINUTE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR

DUCTWORK CONSTRUCTION DETAILS



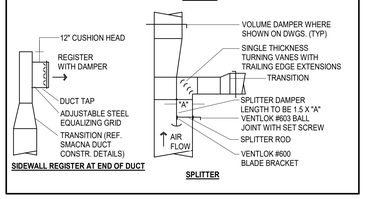
1 **DAMPER ABOVE INACCESSIBLE CEILING**

2 **DAMPER ABOVE LIFT-OUT CEILING**



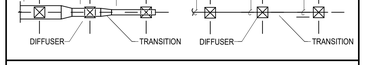
NOTES:
1. MAX. WIDTH OF DUCT TAP SHALL BE 48". PROVIDE BOTTOM BRACKET FOR SUPPORT WHERE EXTRACTOR EXCEEDS 16".
2. MAX. HEIGHT OF DUCT TAP SHALL BE 12" (MIN.= 4")

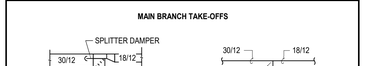
EXTRACTOR SIDEWALL REGISTER **DUCT TAP**

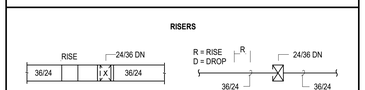


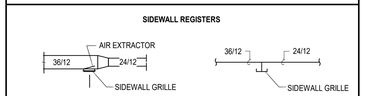
SIDEWALL REGISTER AT END OF DUCT **SPLITTER**

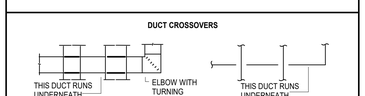
DUCTWORK SYMBOLS LEGEND

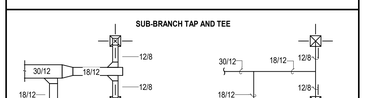


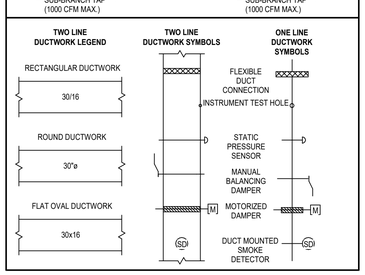






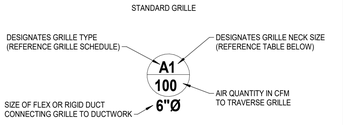






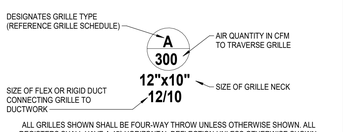
GRILLE SIZING SCHEDULE

STANDARD GRILLE



ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN.

REGISTER OR NONSTANDARD GRILLE



ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN. ALL REGISTERS SHALL HAVE A 45° HORIZONTAL DEFLECTION UNLESS OTHERWISE SHOWN.

GRILLE SIZE DESIGNATION	GRILLE NECK SIZE	GRILLE SIZE DESIGNATION	GRILLE NECK SIZE
1	6" x 6"	7	15" x 15"
2	8" x 8"	8	16" x 16"
3	9" x 9"	9	18" x 18"
4	10" x 10"	10	20" x 20"
5	12" x 12"	11	22" x 22"
6	14" x 14"	12	24" x 24"

DUCTLESS MINI-SPLIT - INDOOR UNIT

MARK	SUPPLY AIR CFM	WATTS	CURRENT CHARAC. V	P	F	AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	COOLING MIN. TOTAL CAPACITY (BTUH)	MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ SEER	REMARKS
DMS-1	370	40.0	208	1	60	75.0	62.5	17,105	11,628	-/15.0	(1,2,3,4,5,6)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. DUCTLESS WALL MOUNTED UNIT.
2. UNIT TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. CONTROLLED BY PROGRAMMABLE WIRED THERMOSTAT.
4. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.
5. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.
6. PROVIDE ASPEN MINI AQUA PUMP TO BE INSTALLED INSIDE UNIT.

DUCTLESS MINI-SPLIT - OUTDOOR UNIT

MARK	MIN. TOTAL CAPACITY (BTUH)	OUTDOOR AIR TEMP (°F)	MINIMUM EER/ SEER	CURRENT CHARAC. V	PH	F	RELATED UNIT MARK	REMARKS
DMSCU-1	17,100	95	-/15.0	208	1	60	DMS-1	(1,2,3)

GENERAL NOTES:
1. MINIMUM RECOMMENDED CLEARANCE AROUND ROOFTOP UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE FOR CONDENSER AIR FLOW AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE WITHLOW AMBIENT CONTROL DOWN TO 20°F.
2. PROVIDE WITH DISCONNECT SWITCH.
3. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.

SPECIALIZED PACKAGED ROOFTOP UNIT - ELECTRIC HEAT

MARK	FAN SUPPLY AIR CFM	FAN OUTSIDE AIR CFM	FAN EXT.STATIC PRESSURE (IN. W.C.)	FAN HORSE POWER	FAN CURRENT CHARAC. V	P	F	COOLING AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	AMBIENT TEMP	COOLING MIN. TOTAL CAPACITY (BTUH)	COOLING MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ IEER	ELECTRIC HEATING ENTERING AIR TEMP.(°F)	MINIMUM CAPACITY (BTUH)	KW	NUMBER OF STAGES	REMARKS
SRTU-1	9,550	2,000	1.15	10.0	480	3	60	79.9	66.6	98.0	335,100	251,200	10.0/13.2	61.8	245,664	72	SCR	(1,2,3,4,5,6,7,8,9,10, 11,12,13,14)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE SRTU FOR GROUND MOUNT WITH SIDE DISCHARGE AND DISCONNECT SWITCH.
2. PROVIDE UNIT WITH FACTORY MOUNTED GFCI RECEPTACLE FOR UNIT WITH LOW AMBIENT CONTROL. ELECTRICIAN TO WIRE TO SEPARATE CIRCUIT.
3. PROVIDE FACTORY MOUNTED DDC CONTROLLER.
4. PROVIDE DIGITAL COMPRESSOR AND PREMIUM EFFICIENT MOTORS.
5. PROVIDE METAL MESH OUTSIDE AIR PRE FILTER WITH 2" PLEATED AND 4" FINAL FILTERS.
6. PROVIDE FAN CYCLING AND ADJUSTABLE COMPRESSOR LOCKOUT FOR LOW AMBIENT OPERATION.
7. PROVIDE MODULATING HOT GAS REHEAT.
8. PROVIDE A WATER LEVEL SENSING DEVICE IN THE PRIMARY DRAIN PAN. THIS DEVICE SHALL SHUT OFF THE APPLIANCE IN THE EVENT THE PRIMARY DRAIN LINE BECOMES RESTRICTED.
9. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL COSTS IF ALTERNATE UNIT IS PROVIDED WITH GREATER ELECTRICAL CHARACTERISTICS THAN SHOWN.
10. SRTU SHALL PROVIDE A MINIMUM OF 800 CFM OF OUTSIDE AIR TO SPACE.
11. PROVIDE WITH HORIZONTAL DISCHARGE OR TRANSITION PLENUM (S).
12. PROVIDE UNIT WITH DIFFERENTIAL ENTHALPY CONTROLLED ECONOMIZER AND POWERED EXHAUST. ECONOMIZER DAMPER SHALL BE ULTA LOW LEAK EQUIVALENT TO RUSKIN CD60 OR BETTER.
13. PROVIDE WITH DUCT STATIC PRESSURE SENSOR.
14. PROVIDE WITH EVAPORATOR COIL LEAVING AIR TEMPERATURE SENSOR.

FAN SCHEDULE

TAG	LOCATION	CFM	EXT. STATIC PRESSURE (IN.W.C.)	MAX RPM	HORSE POWER	CURRENT CHAR V	P	F	LOCALLY SWITCHED	INTERLOCK WITH	FAN TYPE	DRIVE TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
EF-1	RESTROOMS	200	0.55	1800	0.5	120	1	60	-	SRTU-1	INLINE	DIRECT	COOK	SQN	(1,2,3,4)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MINIMUM RECOMMENDED CLEARANCE AROUND UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE WITH DISCONNECT.
2. PROVIDE WITH MOTORIZED DAMPER.
3. SUSPEND UNIT WITH FOUR THREADED HANGER RODS ATTACHED TO UNISTRUT RUNNERS SECURED TO STRUCTURE. PROVIDE SPRING ISOLATION. REFER TO MANUFACTURER FOR MORE DETAILS.
4. PROVIDE WITH FAN SPEED CONTROLLER.

GRILLE

MARK	SERVICE	TYPE	DAMPER	CONSTRUCTION MATERIAL	FINISH COLOR	MANUFACTURER	MODEL NUMBER	DESCRIPTION
A	SUPPLY AIR	DIFFUSER	-	STEEL	WHITE	TITUS	OMNI	EXPOSED T-BAR CEILING FRAME STYLE WITH 24"X24" OR 12"X12" FACE.
B	RETURN AIR	DIFFUSER	-	STEEL	WHITE	TITUS	PAR	SURFACE MOUNT CEILING FRAME STYLE WITH 24"X24".
C	SUPPLY AIR	DIFFUSER	-	STEEL	WHITE	TITUS	OMNI	SURFACE MOUNT CEILING FRAME STYLE WITH 18"X18" OR 12"X12" FACE.
D	EXHAUST AIR	DIFFUSER	-	STEEL	WHITE	TITUS	50F	SURFACE MOUNT CEILING FRAME STYLE WITH 18"X18" OR 12"X12" FACE. PERFORATED FACE.
E	GRILLE	SUPPLY AIR	-	STEEL	WHITE	TITUS	DL	LONG THROW SIDEWALL GRILLE WITH ROTATING DRUM.
F	GRILLE	RETURN AIR	-	STEEL	WHITE	TITUS	350RL	DOUBLE DEFLECTION SIDEWALL GRILLE WITH HORIZONTAL FRONT BARS. SURFACE MOUNTED (1)

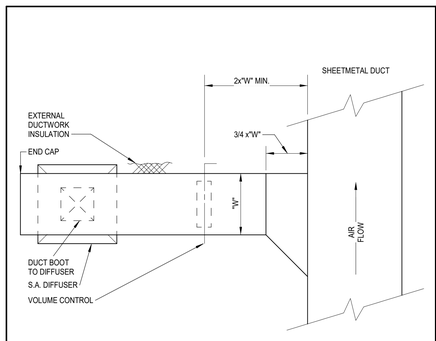
GENERAL NOTES:
1. DAMPERS NOTED AS U.L. SHALLBE A 'U.L.' CLASSIFIED CEILING RADIATION DAMPER WITH THERMAL BLANKET.
2. COORDINATE FINAL AIR DEVICE LOCATION AND FINISH COLOR WITH ARCHITECT.

REMARKS:
1. N/A

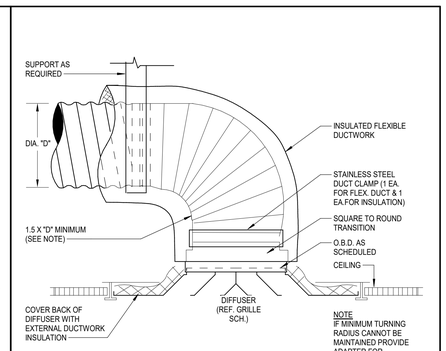
DAMPER

MARK	ACTUATOR	DUTY	BLADE ACTION	MANUFACTURER	MODEL NUMBER	REMARKS
D-1	MANUAL BALANCING	UNDER 9" WIDE	N/A	N/A	N/A	SEE SMACNA CONSTRUCTION DETAILS REFERENCED "TYPICAL CONSTRUCTION DETAILS FOR LOW VELOCITY DUCTS."
D-2	MANUAL BALANCING	OVER 9" WIDE	OPPOSED	RUSKIN	MD-35	MANUAL DAMPER WITH STANDARD CONSTRUCTION FEATURES AND VENTLOCK #639 LOCKING REGULATOR.
D-3	MOTORIZED	OVER 9" WIDE	OPPOSED	RUSKIN	CD-60	LOW LEAKAGE DAMPER WITH BLADE SEALS

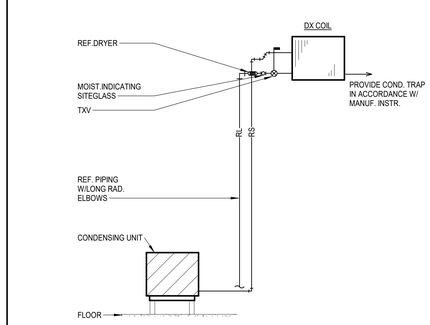
NOTES:
N/A - NOT APPLICABLE



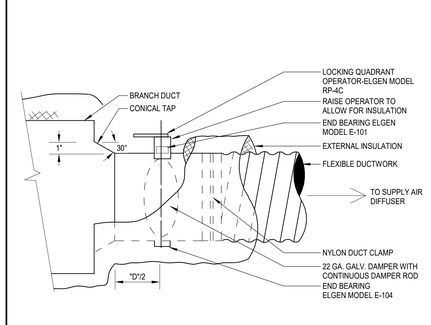
4 RIGID DUCT TAP TO SINGLE SUPPLY AIR DIFFUSER
SCALE: NONE



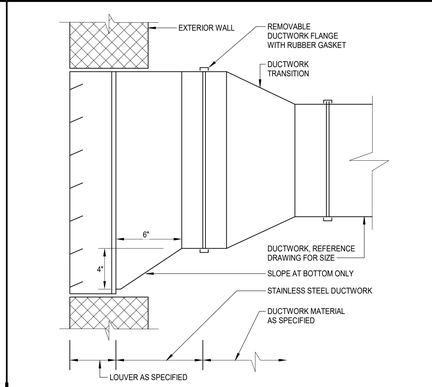
2 FLEX DUCT CONNECTION AT SUPPLY AIR DIFFUSER
SCALE: NONE



5 REFRIGERANT PIPING DIAGRAM
SCALE: NONE



3 FLEXIBLE DUCT TAP - CONICAL
SCALE: NONE



1 DUCTWORK AT LOUVER
SCALE: NONE

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Notes

2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	ER	ER	VP 11/27/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit/Seal



10-20-2025

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2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
MECHANICAL SCHEDULE

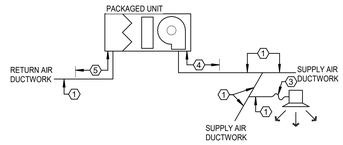
Project No. 214001246
Scale
Revision 2
Drawing No. **M301-HGES**

10/17/2025 1:01:02 PM

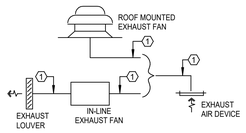
ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

DUCT LINER AND INSULATION



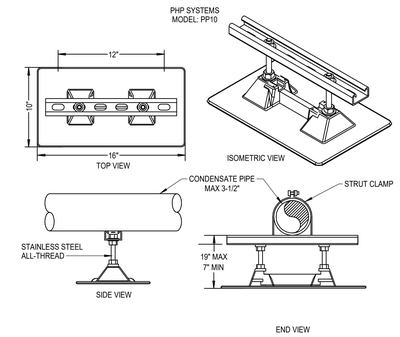
PACKAGED UNIT



EXHAUST AIR SYSTEMS

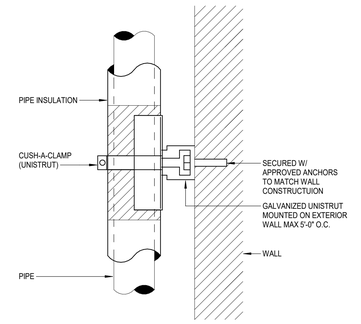
KEYED NOTES:

1. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
2. SHEETMETAL DUCTWORK RETURN AIR PLENUM WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
3. FLEXIBLE DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
4. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT DISCHARGE TO 10'-0" DOWNSTREAM.
5. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT INLET TO 10'-0" UPSTREAM.
6. EXHAUST DUCTWORK AS SPECIFIED WITH FIREBOARD INSULATION AS SPECIFIED.
7. SHEETMETAL DUCTWORK ONLY. NO INSULATION REQUIRED.



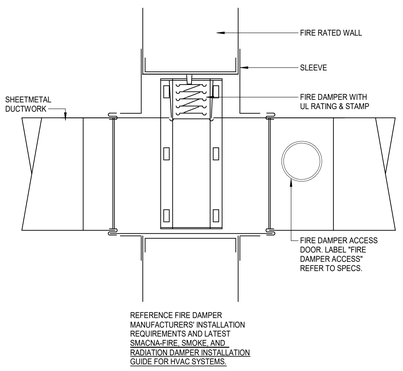
4 PIPE SUPPORT

SCALE: NONE



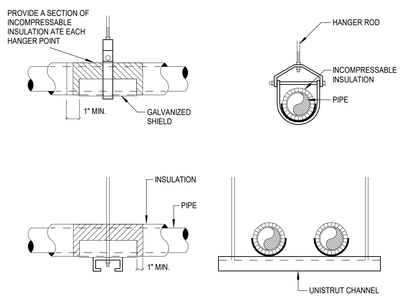
3 EXTERIOR PIPE MOUNTING DETAIL

SCALE: NONE



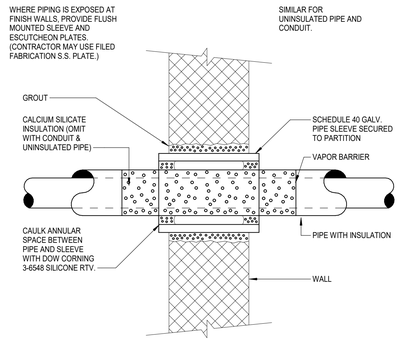
6 FIRE DAMPER

SCALE: NONE



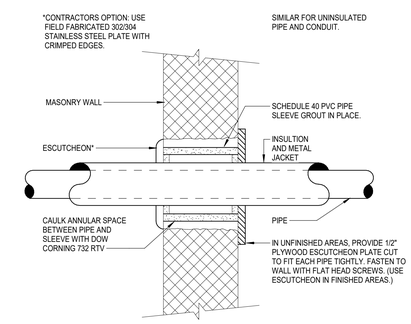
2 PIPE HANGERS

SCALE: NONE



5 PIPE THRU FIRE RATED WALL

SCALE: NONE



1 PIPE THROUGH EXTERIOR WALL

SCALE: NONE

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Project No: 2023-04376-00

Notes

2 Addendum 02			10/20/2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
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	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title

MECHANICAL DETAILS

Project No.	Scale
214001246	12" = 1'-0"
Revision	Drawing No.
2	M401-HGES

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

ELECTRICAL KEYED NOTES

KEYED NOTE	Description
1	MOUNT AT +54" AFF. FOR BMCS CONNECTION.
2	MOUNT AT +54" AFF. FOR F/A CONNECTION.
3	NOT USED.
4	ROUTE CAT 6 TO ASSOCIATED OUTDOOR UNIT. ROUTE PARALLEL WITH REFRIGERATION LINES.
5	RECEPTACLE TO BE MOUNTED HORIZONTALLY BELOW GYM WALL PADDING AT 12' A.F.F.. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

ELECTRICAL GENERAL NOTES

1. CONNECT NEW LIGHT FIXTURES AND/OR EXIT SIGNS TO EXISTING CIRCUITS LEFT IN PLACE AFTER DEMOLITION OR NEW AS SHOWN. PROVIDE EMERGENCY CIRCUIT FOR HATCHED FIXTURE AND/OR EXIT SIGNS. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT TO EXISTING LOCATION AND/OR NEW FIXTURES. FIELD VERIFY CONNECTED LOAD NOT TO EXCEED 3500 W @ 277V. TYPICAL.

2. LOCATION OF NEW LIGHT FIXTURES SHALL REUSE EXISTING J-BOX AND EXISTING LIGHT FIXTURE WHIPS AS PRACTICAL. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT AND PROVIDE NEW J-BOX ABOVE ACCESSIBLE CEILING WITH ½-INCH FLEXIBLE STEEL CONDUIT OR STEEL MC CABLE. LENGTH NOT TO EXCEED 6-FEET, "DAISY CHAINING" LIGHT FIXTURES INSTALLED FOR LAY-IN CEILING AREAS IS NOT ALLOWED. FOR NON-ACCESSIBLE CEILINGS, LIGHT FIXTURE WHIPS SHALL BE ½-INCH FLEXIBLE STEEL CONDUIT, LENGTH AS REQUIRED TO MAKE A TAP AT AN ACCESSIBLE J-BOX. RECESSED LIGHT FIXTURES IN NON-ACCESSIBLE CEILINGS MAY BE DAISY CHAINED USING THE LIGHT FIXTURE'S INTEGRAL, UL LISTED J-BOX OR INTERNAL WIRE WAY THAT IS ACCESSIBLE THROUGH FIXTURE FROM BELOW THE CEILING. REFER TO 26 05 33 CONDUIT SYSTEMS.

3. PROVIDE NEW LIGHTING CONTROLS, SENSORS AND ASSOCIATED DEVICES, AND 20A EMERGENCY LOAD CONTROL RELAYS/TRANSFER DEVICES. REFER TO 26 09 24 LIGHTING CONTROLS.

4. OCCUPANCY/VACANCY SENSOR AND DAYLIGHTING SENSOR LOCATIONS INDICATE SPACE OR AREA CONTROLLED, CONTRACTOR TO PROVIDE ACTUAL QUANTITIES, TYPES, AND MOUNTING LOCATIONS AS RECOMMENDED BY MANUFACTURER AND IECC-2015 C405.

5. SPACES WITH MULTIPLE OCCUPANCY/VACANCY SENSORS OR WHERE LINE OF SIGHT MAY BE OBSCURED, SHALL BE LINKED TOGETHER FOR SIMULTANEOUS OPERATION WITHIN THE SPACE.

6. CONTRACTOR SHALL MAINTAIN CONSTANT UNSWITCHED CIRCUITS FROM EXISTING SOURCE AND/OR NEW AS SHOWN FOR EMERGENCY FIXTURES, EMERGENCY LOAD RELAYS, TRANSFER SWITCHES AND EXIT SIGNS.

7. COORDINATE LOCATION OF LIGHT FIXTURES IN ALL MECHANICAL AND ELECTRICAL ROOMS WITH MECHANICAL EQUIPMENT, PIPING, AND ALL OTHER TRADES.

8. REFER TO TECHNOLOGY DRAWINGS, DIVISION 27 AND 28 FOR TELECOMMUNICATIONS PATHWAYS AND OTHER ADDITIONAL REQUIREMENTS TO BE PROVIDED AS SPECIFIED IN DIVISION 26.

LINETYPE LEGEND

———	EXISTING TO REMAIN
- - - -	DISCONNECT AND REMOVE
———	NEW WORK

IN NON-ACCESSIBLE AND/OR HIGH CEILING AREAS, LOCATE DIGITAL LIGHTING CONTROLLER AND/OR EMERGENCY LOAD CONTROL RELAY/TRANSFER SWITCH IN ADJACENT ANCILLARY AREA WITH ACCESSIBLE CEILING; IN AREAS WITH NO CEILING AND/OR IN EXTERIOR APPLICATIONS LOCATE ADJACENT TO NORMAL POWER PANEL SERVING THE LOAD. PROVIDE LABEL WITH WORDING PER SPECIFICATIONS.

FIRE ALARM SYSTEM SHALL COMPLY WITH ALL CITY OF HOUSTON IBC AMENDMENTS. SMOKE DETECTORS SHALL BE PROVIDED IN ALL APPLICABLE ROOMS LISTED IN SECTION 907.2.3.1 OF THE 2021 IBC CITY OF HOUSTON AMENDMENTS.

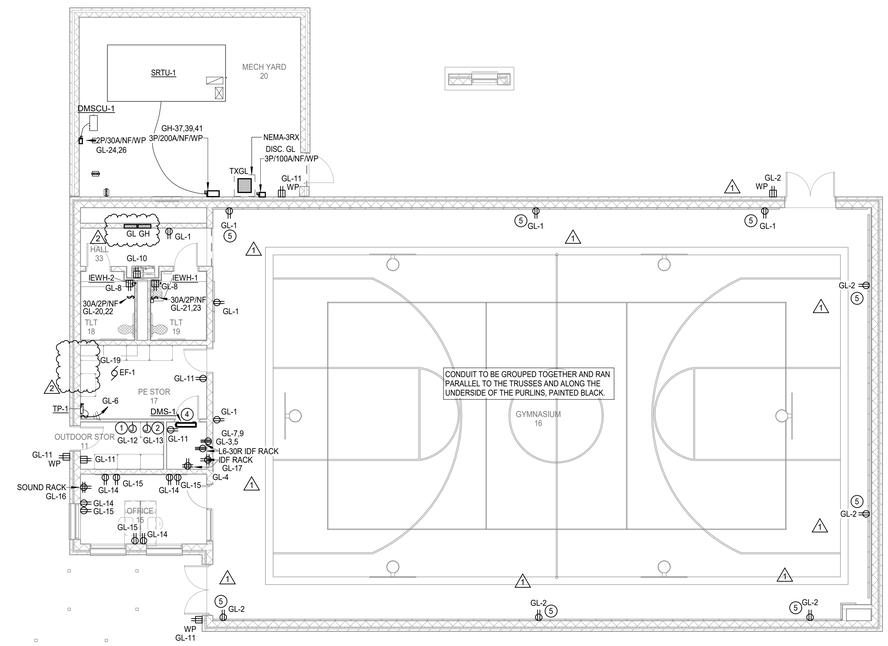
DEMOLITION / EXISTING DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED. CONTRACTOR TO VERIFY EXISTING CONDITIONS ON FIELD AND NOTIFY ENGINEER IF THERE ARE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND DRAWINGS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL REMOVE SUCH EXISTING WORK AS CALLED FOR ON THE DRAWINGS OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.

PROVIDE NEW LIGHTING DEVICES AND SWITCH BOX EXTENSIONS IN ALL AREAS WHERE GYPSUM BOARD OR OTHER WALL COVERING ADDS TO THE THICKNESS OF WALLS. SEE ARCHITECTURAL DRAWINGS FOR AREAS AFFECTED.

EXISTING RACEWAYS AND LOCATION OF ELECTRICAL OUTLETS ON EXISTING WALLS TO REMAIN SHALL BE RE-USED AS PRACTICAL FOR NEW DEVICES AS PART OF NEW WORK.

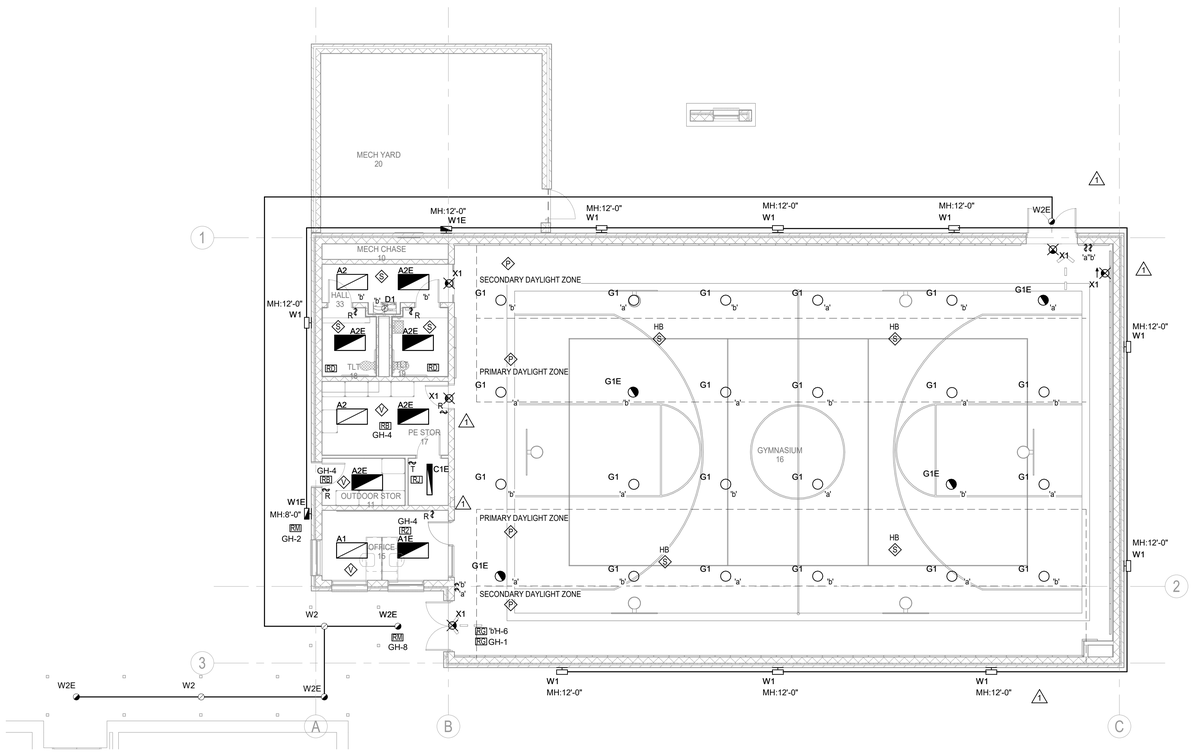
IECC-2021, C405.11 AUTOMATIC RECEPTACLE CONTROL. AT LEAST 50 PERCENT OF ALL 125V, 15-AMP AND 20-AMP RECEPTACLES INSTALLED IN ENCLOSED OFFICES, CONFERENCE ROOMS, ROOMS USED PRIMARILY FOR COPY OR PRINT FUNCTIONS, BREAKROOMS, CLASSROOMS AND INDIVIDUAL WORKSTATIONS, INCLUDING THOSE INSTALLED IN MODULAR PARTITIONS AND MODULE OFFICE WORKSTATION SYSTEMS SHALL HAVE AUTOMATIC RECEPTACLE CONTROL. AN OCCUPANT SENSOR SHALL TURN OFF INDICATED RECEPTACLES WITHIN 20 MINUTES AFTER DETERMINING THAT THE AREA IS UNOCCUPIED.

2 PROVIDE POWER FOR ALL MOTORIZED/SMOKE DAMPERS IN THIS AREA FROM CIRCUIT GL-18. COORDINATE WITH DIVISION 23 FOR FINAL QUANTITY AND LOCATIONS. PROVIDE FINAL CONNECTION TO EACH FIRE/SMOKE DAMPER WITH 2#12, 1#12G. 3/4"C.



N

1 **ELECTRICAL POWER PLAN - LEVEL 1 - NEW GYM**
Scale: 1/8" = 1'-0"



N

2 **ELECTRICAL LIGHTING PLAN - LEVEL 1 - NEW GYM**
Scale: 1/8" = 1'-0"



N

3 **ELECTRICAL LIGHTING PLAN - LEVEL 1 - EXTENDED DAY LEARNING**
Scale: 1/8" = 1'-0"

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Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
Issued		By	Appd	YYYY.MM.DD
File Name: N/A		KJ Dwn.	KJ Dsgn.	JZ Chkd. 11/27/24 YYYY.MM.DD

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
ELECTRICAL FLOOR PLANS

Project No.	Scale
214001246	1/8" = 1'-0"
Revision	Drawing No.
2	E201-HGES

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

GENERATOR LOAD ANALYSIS
EXIST. PANEL GH

277/480, 3PH, 4W
40kVA/32kW - 60A

LOAD DESCRIPTION	LOAD KVA
EXISTING CALCULATED LOAD	1.3
CALCULATED EXISTING LOAD (125%)	1.7
NEW LOAD:	
RECEPTACLES (CONNECTED NEC 220.44)	11.4
1ST 10KVA @100% (NEC 220.44)	10
REMAINDER @50% (NEC 220.44)	0.7
HVAC - FANS, AHU'S (NEC 220)	--
LIGHTING	0.5
LIGHTING @ 125%	0.6
TOTAL KVA	13
TOTAL AMPS	15.6

TWO-HOUR FIRE RATED CABLE:

1. TWO-HOUR FIRE RATED POWER CABLE SHALL BE APPROVED BY THE LOCAL AHJ AND INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS IN COMPLIANCE WITH UL FIRE RESISTANCE DIRECTORY, ELECTRICAL CIRCUIT PROTECTIVE SYSTEMS (FHIT), AND SYSTEM 27.

2. TWO-HOUR FIRE RATED POWER CABLE SHALL BE INSTALLED AS APPROVED BY THE LOCAL AHJ IN STEEL EMT OR STEEL RIGID CONDUIT WITH STEEL SET SCREW OR THREADED FITTINGS. UL LISTED FLEXIBLE METALLIC STEEL CONDUIT MAY BE USED IN LENGTHS NOT TO EXCEED 6-FEET. SUPPORT CONDUIT EVERY 5-FEET ON CONCRETE OR MASONRY WALLS OR A CONCRETE FLOOR-CEILING ASSEMBLY. THE FIRE RATING OF THE WALL OR FLOOR-CEILING ASSEMBLY MUST BE EQUAL TO OR GREATER THAN THE RATING OF THE ELECTRICAL CIRCUIT PROTECTIVE SYSTEM. PROVIDE J-BOX AT EACH END OF THE FIRE RATED CABLES IN THE FIRE RATED ROOM TO ALLOW SPLICE TO STANDARD BUILDING CABLE TO THE EQUIPMENT. PROVIDE SEALANT TO THE END OF THE RACEWAY TO PREVENT GASES FROM MIGRATING FROM THE FIRE RATED CABLE DOWN INTO THE EQUIPMENT.

INSULATION FOR TWO-HOUR FIRE RATED POWER CABLE:

1. INSULATION SHALL MEET OR EXCEED THE REQUIREMENTS OF UL 2196 FIRE TEST FOR CIRCUIT INTEGRITY OF FIRE-RESISTIVE POWER, INSTRUMENTATION, CONTROL AND DATA CABLES, AND UL 44, THERMOSET INSULATED WIRES AND CABLES.

a. INSULATION FOR CONDUCTORS SHALL BE UL TYPE RHW-2 OR RW90, 90 DEGREES C FOR WET LOCATIONS AND 90 DEGREES C FOR DRY LOCATIONS.
b. ELECTRICAL CIRCUIT PROTECTIVE SYSTEMS (FHIT) – SYSTEM 27 OF THE UL FIRE RESISTANCE DIRECTORY.

FEEDER SCHEDULE-GENERATOR

AMPERAGE	# SETS	CONDUCTOR (QTY.)/SIZE	GROUND (QTY.)/SIZE	CONDUIT
100A	1	(4) #3	#8	1-1/2"C

TRANSFORMER SCHEDULE

PRIMARY (480V 3PH 3W +GND)			SECONDARY (120/208V 3PH 4W +GND)		
KVA	WIRE & CONDUIT	CIRCUIT BREAKER	WIRE & CONDUIT	CIRCUIT BREAKER	GROUNDING ELECTRODE CONDUCTOR
30KVA	3#6, 1-1/4"C, 1#10G	3P-50A	4#2, 1-1/2"C, 1#8G	3P-100A	#8

LIGHTING CONTROLS SCHEDULE - ALTERNATE

Type	Sensor Operation	Description
ER	-	UL924 LOAD CONTROL RELAY, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM
ES	-	UL1008 GENERATOR TRANSFER DEVICE, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM

LIGHTING FIXTURE SCHEDULE-ALTERNATE

Type Mark	CATALOG NUMBER MANUFACTURER	CATALOG NUMBER MODEL	MOUNTING	LAMP TYPE	CCT	CRI	VOLTAGE	LOAD	REMARKS
A1	METALUX	24CGTS540C	T-GRID/GYP	5500L LED	4000 K	80	277 V	50 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED.
A2	METALUX	24CGT4540C	T-GRID/GYP	4500L LED	4000 K	80	277 V	40 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED.
C1	METALUX	4SNLED-LD5-LN-41SL-LN-UNV-L840-CD1-U	SUSPENDED/SURFACE	4100L LED	4000 K	80	277 V	35 W	1x4 SUSPENDED/SURFACE STRIP.
G1	METALUX	SSLED-LD5-12-M-UNV-L84	SUSPENDED/SURFACE	12000L LED	4000 K	80	277 V	100 W	ROUND HIGH BAY FIXTURE .
W1	GARDCO	GWM-A09-840-T3M-UNV	WALL	6000L LED	4000 K	80	277 V	40 W	LED ARCHITECTURAL WALLPAK, ALUMINUM HOUSING. COORDINATE FINISH WITH EXISTING EXTERIOR FIXTURES. DLC CERTIFIED.
W2	FAIL-SAFE	TRO11-LD4-25W-40-OPL-XX-UNV-EDC1	SURFACE	1695L LED	4000 K	80	277 V	25 W	LED 11-INCH ARCHITECTURAL ROUND FIXTURE, SURFACE MOUNTED, WET LOCATION LISTED. ALUMINUM HOUSING, POLYCARBONATE LENS. COORDINATE FINISH WITH ARCHITECT. DLC CERTIFIED.
XG	SURE-LITES	LPXW6-W	CEILING	LED	4000 K	0	277 V	5 W	VANDAL PROOF POLYCARBONATE UNIVERSAL LED EXIT SIGN WITH WHITE HOUSING, RED LETTERING AND EMERGENCY BATTERY BACK-UP.

1

Branch Panel: GHE — NEW PANEL

Location: OUTDOOR STOR 11 **Volts:** 277/480 Wye **A.I.C. Rating:** 18,000
Supply From: **Phases:** 3 **Enclosure:** Type 1
Mounting: Surface **Wires:** 4 **Mains:** 60A MCB LSI 1
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	Lighting	#12	20 1	0.1 / 0.0			1	-- --	SPACE	2	
	3	Lighting	#12	20 1		0.1 / 0.0		1	-- --	SPACE	4	
	5	Room 17, 11, 15, 33, 16, 19, 18	#12	20 1			0.7 / 0.0	1	-- --	SPACE	6	
	7	SPARE	--	20 1	0.0 / 0.0			1	-- --	SPACE	8	
	9	SPARE	--	20 1		0.0 / 0.0		1	-- --	SPACE	10	
	11	SPARE	--	20 1			0.0 / 0.0	1	-- --	SPACE	12	
	13				5.1 / 0.0						14	
	15	TGLE	ONE LINE	50 3		3.3 / 0.0		3	30 --	SPDL	16	
	17						3.0 / 0.0				18	
			Total Load:		5.1 kVA	3.4 kVA	3.7 kVA					
			Total Amps:		19 A	12 A	14 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	0.9 kVA	125.00%	1.1 kVA		
Motor	0.3 kVA	100.00%	0.3 kVA	**Total Conn. Load:**	12.2 kVA
Receptacles	11.1 kVA	95.21%	10.5 kVA	**Total Est. Demand:**	11.9 kVA
				Total Conn. Current:	15 A
				Total Est. Demand Current:	14 A

Notes:

Abbreviations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: GLE — NEW PANEL

Location: OUTDOOR STOR 11 **Volts:** 120/208 Wye **A.I.C. Rating:** 10,000
Supply From: TGLE **Phases:** 3 **Enclosure:** Type 1
Mounting: Surface **Wires:** 4 **Mains:** 100A MCB LSI 1
Phase in kVA

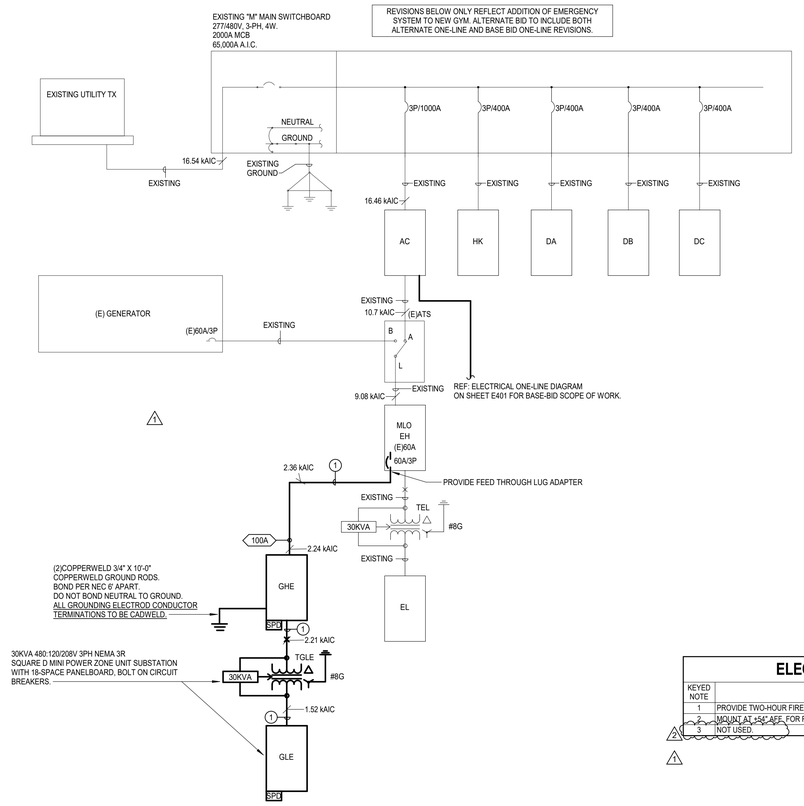
Note	CKT	Circuit Description	Wire	Breaker	A	B	C	Breaker	Wire	Circuit Description	CKT	Note
	1	IDF Rack L6-30R PE STOR 17	#10	30 2	1.8 / 1.2			1	20 #12	Receptacles PE STOR 17	2	
	3					1.8 / 1.0		1	20 #12	Sound Rack OFFICE 15	4	
	5	IDF Rack PE STOR 17	#12	20 1			1.2 / 1.8	2	30 #10	IDF Rack L6-30R PE STOR 17	6	
LO	7	Motorized Dampers PE STOR 17	#12	20 1	0.3 / 1.8						8	
LO	9	F/A OUTDOOR STOR 11	#12	20 1		0.5 / 0.0		1	-- --	SPACE	10	
	11	SPACE	--	-- 1			0.0 / 0.0	1	-- --	SPACE	12	
	13	SPARE	--	20 1	0.0 / 0.0						14	
	15	SPARE	--	20 1		0.0 / 0.0		3	30 --	SPDL	16	
	17	SPARE	--	20 1			0.0 / 0.0				18	
			Total Load:		5.1 kVA	3.3 kVA	3.0 kVA					
			Total Amps:		42 A	28 A	25 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	0.3 kVA	100.00%	0.3 kVA		
Receptacles	11.1 kVA	95.21%	10.5 kVA	**Total Conn. Load:**	11.3 kVA
				Total Est. Demand:	10.8 kVA
				Total Conn. Current:	31 A
				Total Est. Demand Current:	30 A

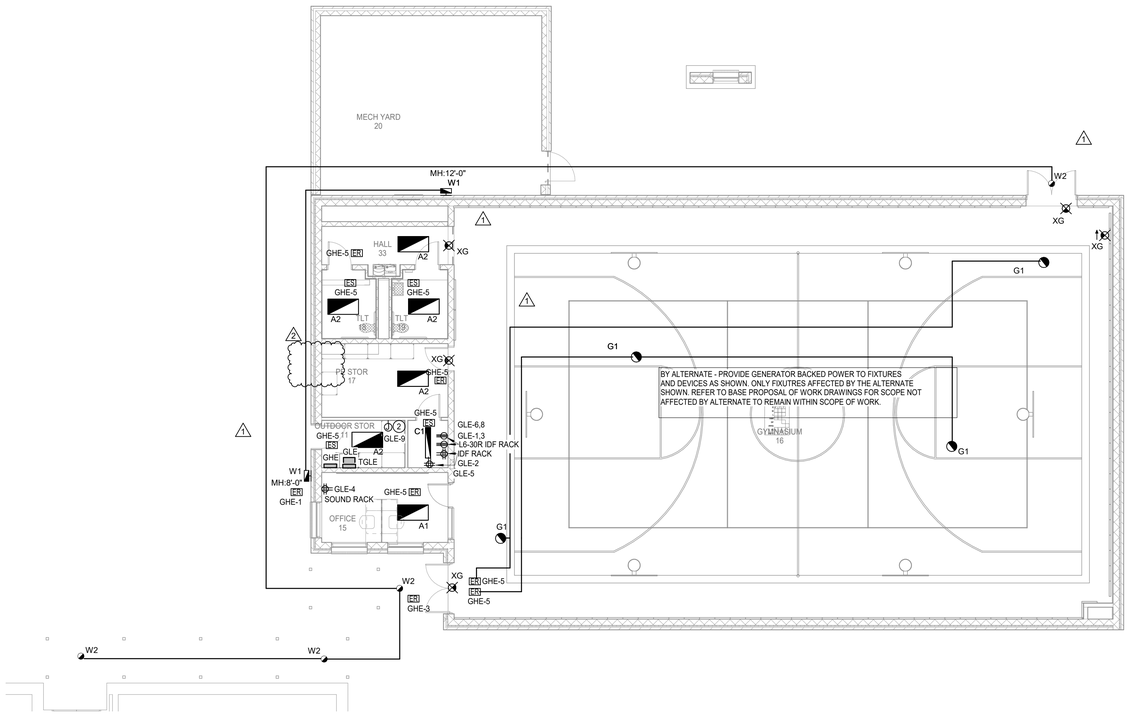
Notes:

Abbreviations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

2 PROVIDE POWER FOR ALL MOTORIZED/SMOKE DAMPERS IN THIS AREA FROM CIRCUIT GLE-7. COORDINATE WITH DIVISION 23 FOR FINAL QUANTITY AND LOCATIONS. PROVIDE FINAL CONNECTION TO EACH FIRE/SMOKE DAMPER WITH 2#12, 1#12G, 3/4"C.



2 ELECTRICAL ONE-LINE DIAGRAM - ALTERNATE
Scale: N.T.S.



1 ELECTRICAL POWER PLAN - LEVEL 1 - NEW GYM -ALTERNATE
Scale: 1/8" = 1'-0"

LINETYPE LEGEND

———	EXISTING TO REMAIN
- - - -	DISCONNECT AND REMOVE
———	NEW WORK

IN NON-ACCESSIBLE AND/OR HIGH CEILING AREAS, LOCATE DIGITAL LIGHTING CONTROLLER AND/OR EMERGENCY LOAD CONTROL RELAY/TRANSFER SWITCH IN ADJACENT ANCILLARY AREA WITH ACCESSIBLE CEILING; IN AREAS WITH NO CEILING AND/OR IN EXTERIOR APPLICATIONS LOCATE ADJACENT TO NORMAL POWER PANEL SERVING THE LOAD. PROVIDE LABEL WITH WORDING PER SPECIFICATIONS.

ELECTRICAL GENERAL NOTES

1. CONNECT NEW LIGHT FIXTURES AND/OR EXIT SIGNS TO EXISTING CIRCUITS LEFT IN PLACE AFTER DEMOLITION OR NEW AS SHOWN. PROVIDE EMERGENCY CIRCUIT FOR HATCHED FIXTURE AND/OR EXIT SIGNS. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT TO EXISTING LOCATION AND/OR NEW FIXTURES. FIELD VERIFY CONNECTED LOAD NOT TO EXCEED 3500 W @ 277V, TYPICAL.

2. LOCATION OF NEW LIGHT FIXTURES SHALL REUSE EXISTING J-BOX AND EXISTING LIGHT FIXTURE WHIPS AS PRACTICAL. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT AND PROVIDE NEW J-BOX ABOVE ACCESIBLE CEILING WITH ½-INCH FLEXIBLE STEEL CONDUIT OR STEEL MC CABLE, LENGTH NOT TO EXCEED 6-FEET, "DAISY CHAINING" LIGHT FIXTURES INSTALLED FOR LAY-IN CEILING AREAS IS NOT ALLOWED. FOR NON-ACCESIBLE CEILINGS, LIGHT FIXTURE WHIPS SHALL BE ½-INCH FLEXIBLE STEEL CONDUIT, LENGTH AS REQUIRED TO MAKE A TAP AT AN ACCESSIBLE J-BOX. RECESSED LIGHT FIXTURES IN NON-ACCESSIBLE CEILINGS MAY BE DAISY CHAINED USING THE LIGHT FIXTURE'S INTEGRAL, UL LISTED J-BOX OR INTERNAL WIRE WAY THAT IS ACCESSIBLE THROUGH FIXTURE FROM BELOW THE CEILING. REFER TO 26 05 33 CONDUIT SYSTEMS.

3. PROVIDE NEW LIGHTING CONTROLS, SENSORS AND ASSOCIATED DEVICES, AND 20A EMERGENCY LOAD CONTROL RELAYS/TRANSFER DEVICES. REFER TO 26 09 24 LIGHTING CONTROLS.

4. OCCUPANCY/VACANCY SENSOR AND DAYLIGHTING SENSOR LOCATIONS INDICATE SPACE OR AREA CONTROLLED. CONTRACTOR TO PROVIDE ACTUAL QUANTITIES, TYPES, AND MOUNTING LOCATIONS AS RECOMMENDED BY MANUFACTURER AND IECC-2015 C405.

5. SPACES WITH MULTIPLE OCCUPANCY/VACANCY SENSORS OR WHERE LINE OF SIGHT MAY BE OBSCURED, SHALL BE LINKED TOGETHER FOR SIMULTANEOUS OPERATION WITHIN THE SPACE.

6. CONTRACTOR SHALL MAINTAIN CONSTANT UNSWITCHED CIRCUITS FROM EXISTING SOURCE AND/OR NEW AS SHOWN FOR EMERGENCY FIXTURES, EMERGENCY LOAD RELAYS, TRANSFER SWITCHES AND EXIT SIGNS.

7. COORDINATE LOCATION OF LIGHT FIXTURES IN ALL MECHANICAL AND ELECTRICAL ROOMS WITH MECHANICAL EQUIPMENT, PIPING, AND ALL OTHER TRADES.

8. REFER TO TECHNOLOGY DRAWINGS, DIVISION 27 AND 28 FOR TELECOMMUNICATIONS PATHWAYS AND OTHER ADDITIONAL REQUIREMENTS TO BE PROVIDED AS SPECIFIED IN DIVISION 26.

ELECTRICAL KEYED NOTES

KEYED NOTE	Description
1	PROVIDE TWO-HOUR FIRE RATED CABLE.
2	MOUNT AT +54" AFF. FOR F/A CONNECTION.
3	NOT USED.

2 1

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Project No: 2023-04376-00

Notes

2	Addendum 02		10/20/2025
1	Addendum 01		10/10/2025
Revision		By	Appd YYYY.MM.DD

100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued		By	Appd YYYY.MM.DD

File Name: N/A	KJ	KJ	JZ	11/27/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
ELECTRICAL FLOOR PLANS - ALTERNATE

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
2	E301-HGES

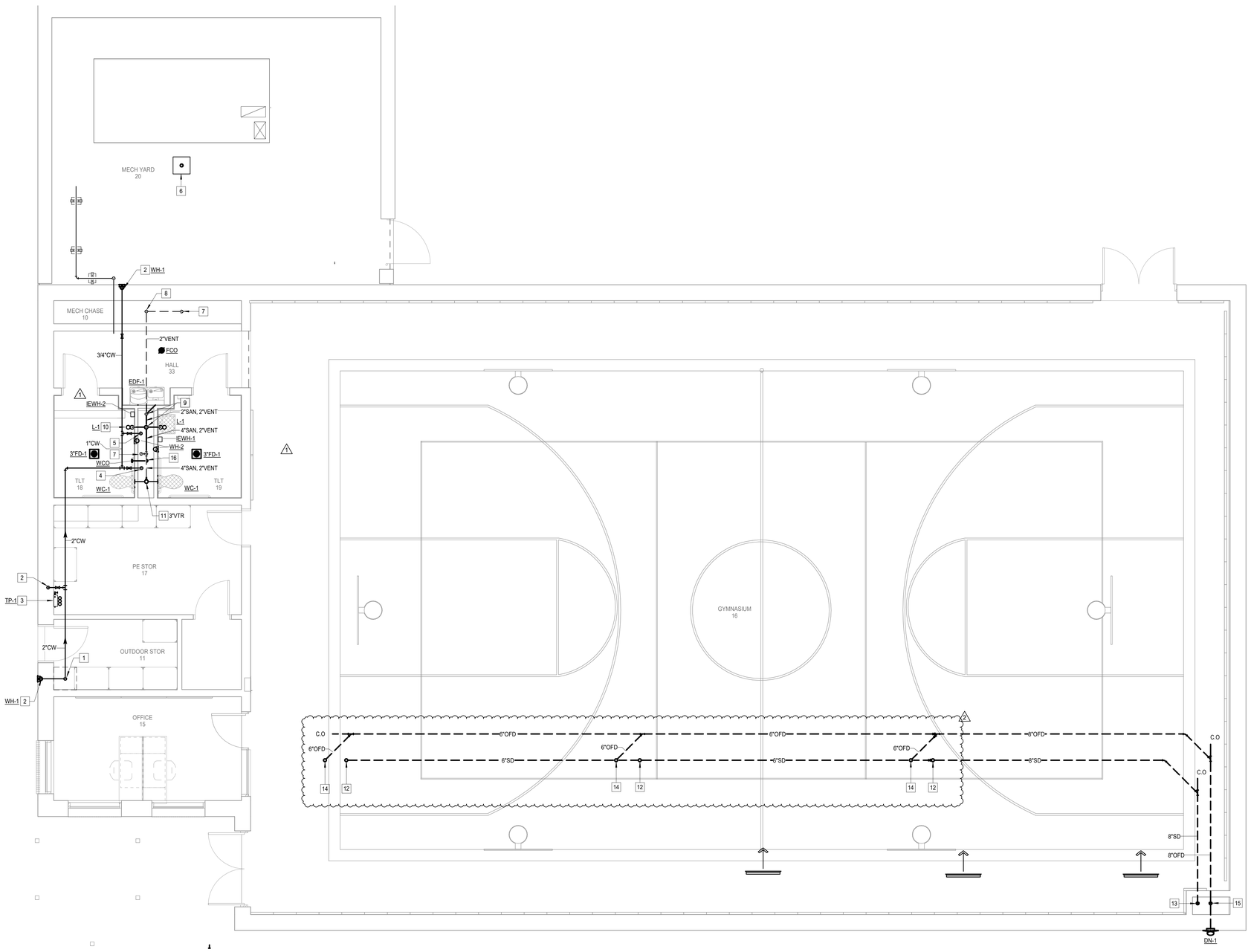
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PLUMBING GENERAL NOTES

1. CONTRACT DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. CONTRACTOR TO VERIFY AT SITE EXACT LOCATIONS, AND SIZES OF EXISTING PIPING. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF THERE ARE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND DRAWINGS PRIOR TO COMMENCEMENT OF WORK.
2. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE CONTRACTORS BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.
3. PLUMBING FIXTURES/EQUIPMENT SHOWN ON PLAN THAT ARE NOT IDENTIFIED AND DO NOT HAVE A FIXTURE DESIGNATION ARE EXISTING AND ARE TO REMAIN.
4. REFER TO ARCHITECTS DRAWING FOR EXACT LOCATION OF FLOOR DRAINS.
5. DO NOT SCALE THE PLUMBING DRAWINGS, REFER TO THE DIMENSIONED ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONAL DATA.
6. REFER TO PLUMBING SCHEDULES, AND DETAILS.

PLUMBING KEYED NOTES

1 2" CW FROM BELOW SLAB. 2" WATER ENTRY. REFER TO PLUMBING DETAILS SHEET.
2 3/4" CW DOWN TO SERVE PLUMBING FIXTURE/S.
3 PROVIDE AND INSTALL NEW TRAP PRIMER AT 5'-0" ABOVE GRADE. RE: PLUMBING SCHEDULES AND DETAILS SHEETS FOR MORE INFORMATION.
4 2" COLD WATER DOWN IN CHASE. EXTEND 1-1/2" LINE TO EACH WATER CLOSET.
5 1" COLD WATER DOWN IN CHASE. EXTEND 1" LINE TO SERVE WALL HYDRANTS, INSTANTANEOUS WATER HEATERS, AND LAVATORIES. EXTEND 3/4" LINE TO SERVE ELECTRIC WATER FOUNTAIN.
6 ELEVATED CONDENSATE FLOOR SINK. RE: PLUMBING DETAILS SHEET FOR MORE INFORMATION.
7 2" VENT FROM BELOW.
8 2" VENT UP.
9 2" SANITARY DOWN, 2" VENT UP.
10 PROVIDE WYE-TAILPIECE FOR DMS-1 CONDENSATE DRAIN. RE: M201 FOR ADDITIONAL INFORMATION.
11 4" SANITARY DOWN THROUGH SLAB, 2" VENT UP. UPSIZE VENT PIPE TO 3" AT THE TEE AND VENT THROUGH ROOF.
12 4" STORM FROM ROOF DRAIN ABOVE.
13 8" STORM DOWN TO BELOW SLAB.
14 4" STORM OVERFLOW FROM OVERFLOW DRAIN ABOVE.
15 8" STORM OVERFLOW DOWN TO DOWNSPOUT NOZZLE. REFER TO ARCHITECTURAL DRAWING FOR EXACT ELEVATION.
16 4" SANITARY DOWN FROM WCO ABOVE.



N

1 **PLUMBING PLAN - LEVEL 1 - ENLARGED - NEW GYM**
Scale: 1/4" = 1'-0"

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Project No: 2023-04376-00

Notes

2	Addendum 02		10/20/2025
1	Addendum 01		10/10/2025
Revision		By	Appd YYYY.MM.DD

100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued		By	Appd YYYY.MM.DD
File Name: N/A	AA Dwn.	AA Dsgn.	EH Chkd. 11/27/24 YYYY.MM.DD

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
PLUMBING ENLARGED PLAN - LEVEL 1 - NEW GYM

Project No. 214001246	Scale As indicated
Revision 2	Drawing No. P301-HGES

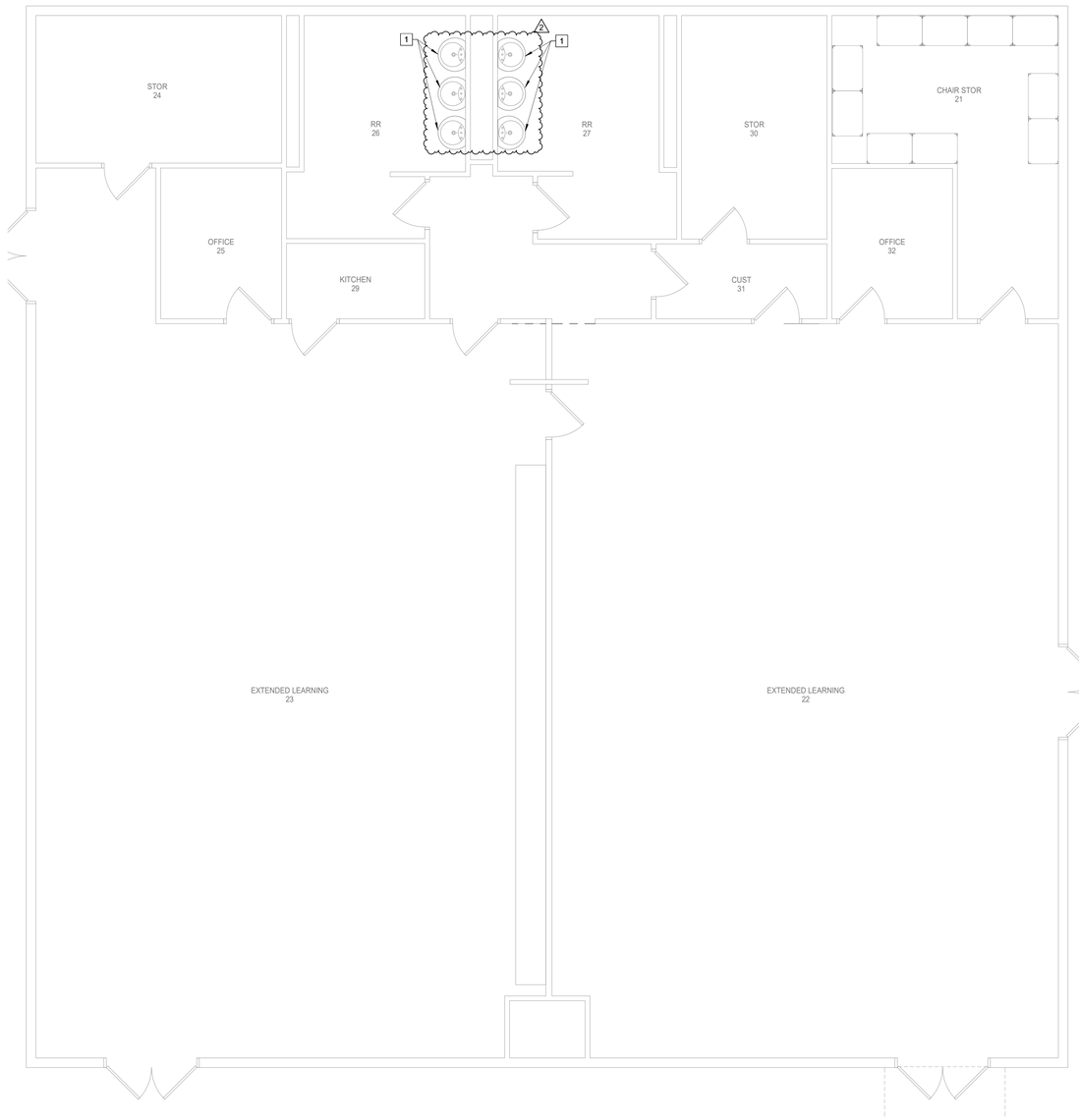
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ORIGINAL SHEET - ARCH E1

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PLUMBING KEYED NOTES

1 PROVIDE INSULATION KITS AT ALL LAVATORIES. RE: GENERAL NOTES, PLUMBING LEGENDS AND SCHEDULES SHEET.



N

1 **PLUMBING PLAN - LEVEL 1 - ENLARGED - EXTENDING DAY LEARNING**
Scale: 1/4" = 1'-0"

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Project No: 2023-04376-00

Notes

2 Addendum 02			10/20/2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	AA	AA	BH 11/27/24
	Dwn.	Dsgn.	Ckkd. YYYY.MM.DD

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10-20-2025

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695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
PLUMBING ENLARGED PLAN - LEVEL 1 - EXTENDED DAY LEARNING

Project No.	Scale
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Revision	Drawing No.
2	P302-HGES

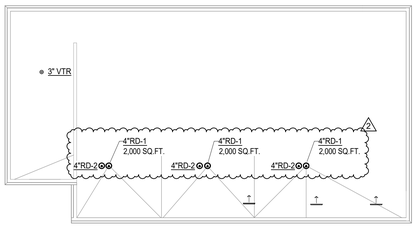
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ORIGINAL SHEET - ARCH E1

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HUNTER GLEN ES
EXTENDED DAY LEARNING

HUNTER GLEN ES - EXISTING BUILDING



N

1 **PLUMBING ROOF PLAN**
Scale: 1/16" = 1'-0"

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Project No: 2023-04376-00

Notes

2 Addendum 02	By	Appd	10/20/2025
Revision			YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT	By	Appd	2025.09.24
Issued			YYYY.MM.DD
File Name: N/A	AA	AA	EH 11/27/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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BRADLEY KALMANS
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PROFESSIONAL ENGINEER
10-20-2025

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
PLUMBING ROOF PLAN

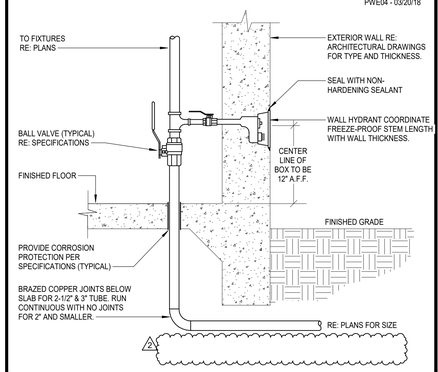
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Revision	Drawing No.
2	P401-HGES

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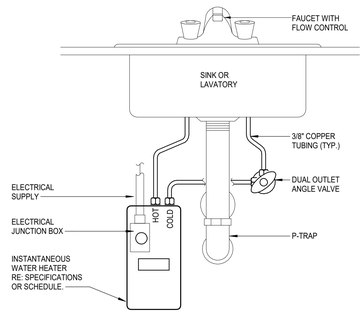
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PWE04 - 03/20/18



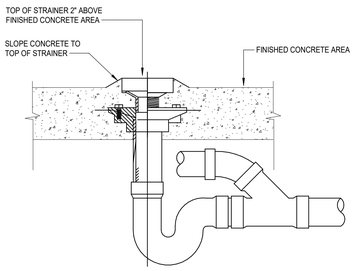
16 DOMESTIC WATER ENTRY
SCALE: NONE

PHW02 - 09/10/18



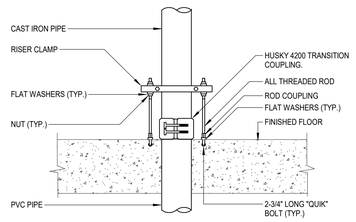
INSTANTANEOUS ELECTRIC WATER HEATER PIPING FOR SINK OR LAVATORY
12
SCALE: NONE

PCON04 - XX/XX/XX



8 OUTDOOR CONDENSATE DRAIN
SCALE: NONE

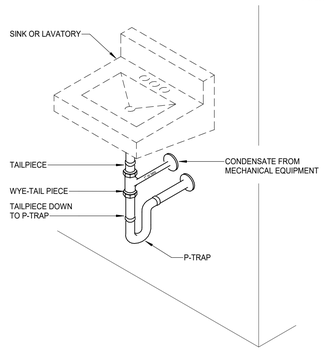
PSAN12- 05/16/24



NOTE:
1. MAKE CONNECTION FROM PVC BELOW SLAB TO CAST IRON ABOVE SLAB WITH HUSKY 4200 TRANSITION COUPLING.
2. THERE IS TO BE NO EXPOSED PVC ABOVE SLAB.

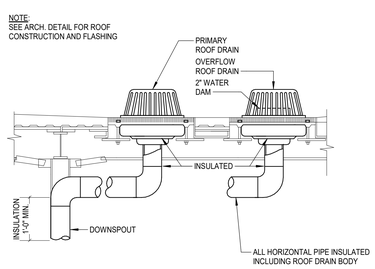
4 CAST IRON TO PVC TRANSITION
SCALE: NONE

PSAN12- 05/16/24



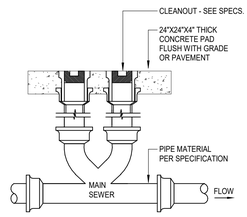
19 WYE-TAILPIECE CONDENSATE CONNECTION
SCALE: NONE

PST02 - 10/29/20



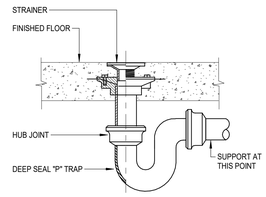
15 STORM DRAIN INSULATION
SCALE: NONE

PSAN05- XX/XX/XX



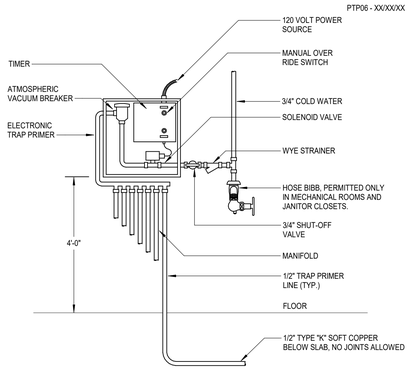
11 TWO-WAY EXTERIOR CLEANOUT
SCALE: NONE

PSAN07- XX/XX/XX

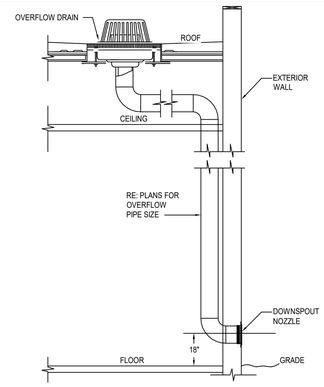


7 FLOOR DRAIN
SCALE: NONE

PTP06 - XX/XX/XX

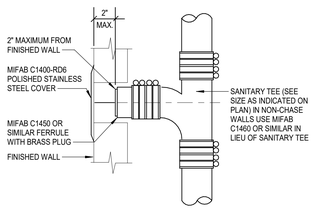


18 ELECTRONIC TRAP PRIMER
SCALE: NONE



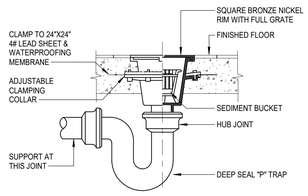
14 DOWNSPOUT NOZZLE
SCALE: NONE

PSAN03- XX/XX/XX



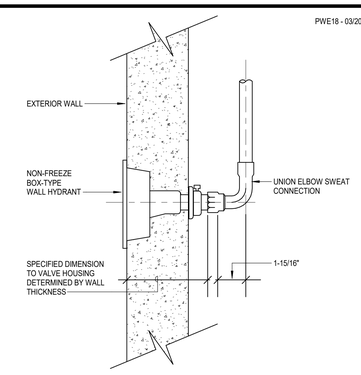
10 WALL CLEANOUT
SCALE: NONE

PSAN08- XX/XX/XX



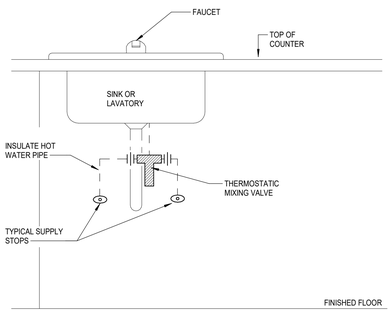
6 FLOOR SINK
SCALE: NONE

PWE18 - 03/20/18



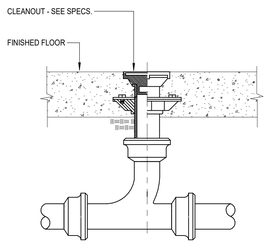
17 NON-FREEZE WALL HYDRANT CONNECTION
SCALE: NONE

PHW04 - 08/10/20



THERMOSTATIC MIXING VALVE AT SINK/LAVATORY SINGLE TEMPERATURE
13
SCALE: NONE

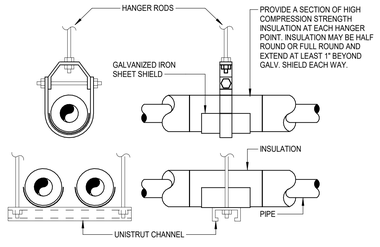
PSAN01- XX/XX/XX



9 FLOOR CLEANOUT
SCALE: NONE

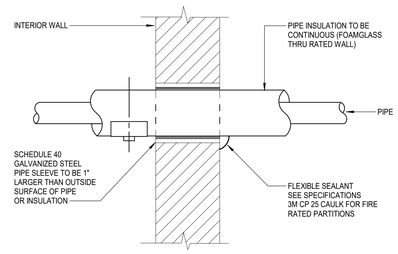
PP01 - XX/XX/XX

MINIMUM DIMENSIONS OF GALVANIZED SHEETMETAL PROTECTION SHIELDS AT PIPE HANGERS		
NOMINAL SIZE PIPE	SHIELD LENGTH (IN.)	GAUGE THICKNESS
1/2" & 3/4"	12	18
1" - 2-1/2"	12	18
3" - 4"	16	18
6"	18	16



5 PIPE SHIELDS FOR INSULATED PIPING
SCALE: NONE

PSL01- XX/XX/XX



1 INTERIOR WALL PENETRATION
SCALE: NONE

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Notes

2 Addendum 02			10/20/2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	AA	AA	EH 11/27/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit/Seal



Client/Project Logo

BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
PLUMBING DETAILS

Project No.	Scale
214001246	12" = 1'-0"
Revision	Drawing No.
2	P501-HGES

10/17/2025 1:01:07 PM
ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

PLUMBING GENERAL NOTES

1. WITHIN THE EXISTING BUILDING, EXISTING WATER, WASTE AND VENT SERVICES ARE TO BE MODIFIED AS REQUIRED AND REUSED FOR THE INSTALLATION OF NEW AND/OR RELOCATED PLUMBING FIXTURES. REFER TO PLUMBING FLOOR PLANS FOR POINTS OF CONNECTION.
2. WITHIN THE EXISTING BUILDING, SAWCUT AND REMOVE EXISTING FLOOR SLAB AS REQUIRED TO PROVIDE NEW AND/OR RELOCATED PLUMBING FIXTURES, CLEANOUTS, AND UNDERSLAB WASTE AND VENT PIPING. PATCH AND REFINISH FLOOR TO MATCH EXISTING.
3. IN AREAS WHERE THE FLOOR SLAB IS REMOVED, CONTRACTOR SHALL ALSO REMOVE UNDERSLAB WASTE AND VENT PIPING WHICH SERVES FIXTURES DESIGNATED FOR REMOVAL. PRIOR TO ANY REMOVAL, FIELD VERIFY THAT LINES TO BE REMOVED DO NOT SERVE ANY EXISTING FIXTURES TO REMAIN OR NEW FIXTURES TO BE INSTALLED.
4. IN AREAS WHERE THE FLOOR SLAB IS NOT REMOVED, CONTRACTOR SHALL ABANDON IN PLACE ANY UNDERSLAB WASTE AND VENT PIPING NO LONGER NEEDED, UNLESS THE PIPING MUST BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION. IF NEW WORK DOES NOT NECESSITATE THEIR REMOVAL, CUT AND PLUG SUCH LINES BELOW SLAB, AND PATCH FLOOR TO MATCH EXISTING.
5. FIELD VERIFY EXACT LOCATION, SIZE, DEPTH, DIRECTION OF FLOW, CAPACITY, PIPE MATERIAL AND CONDITION OF EXISTING WASTE PIPING PRIOR TO BEGINNING CONSTRUCTION. ENSURE THAT PROPER CONNECTIONS TO AND EXTENSION OF SUCH UTILITIES CAN BE MADE.
6. WASTE LINES TO BE RE-USED OR RECONNECTED TO SHALL BE THOROUGHLY RODDED OUT AND FLUSHED TO ENSURE THEY ARE FREE FROM BLOCKAGES.
7. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING BELOW SLAB WITH COLUMN FOOTINGS, GRADE BEAMS, UNDERGROUND PLUMBING AND ELECTRICAL UTILITIES, AND OTHER SUB-SURFACE BUILDING ELEMENTS.
8. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH 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.
9. CONTRACTOR TO COORDINATE ALL REMODEL WORK WITH THE WORK OF OTHER TRADES TO AVOID CONFLICTS AND TO MINIMIZE INTERRUPTION OF SERVICES.
10. COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY ROUGH-INS.
11. DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS.
12. CONTRACTOR TO FIELD VERIFY AS NECESSARY THE EXACT ROUTING AND SIZES OF ALL PIPING.
13. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE, INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION.
14. THE PROPER INSTALLATION OF NEW FIXTURES AND THE PROPER CONTINUED OPERATION OF EXISTING FIXTURES TO REMAIN SHALL DETERMINE THE EXTENT AND NATURE OF PLUMBING REMODEL WORK.
15. EACH VENT SHALL TERMINATE VERTICALLY NOT LESS THAN 6" ABOVE ROOF, MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF AND ALL FRESH AIR INTAKES, AND A MINIMUM 5'-0" FROM ANY EXTERIOR WALL.
16. PRIOR TO BEGINNING CONSTRUCTION, COORDINATE BUILDING BACKFLOW PREVENTION REQUIREMENTS WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PROVIDE AS DIRECTED.

SHOCK ARRESTOR SCHEDULE

P.D.I. SYMBOLS:	FIXTURE UNITS:	THREADED CONNECTION	CERTIFICATION
A	1 - 11	1/2"	ASSE 1010
B	12 - 32	3/4"	ASSE 1010
C	33 - 60	1"	ASSE 1010
D	61 - 113	1"	ASSE 1010
E	114 - 154	1"	ASSE 1010
F	155 - 330	1"	ASSE 1010

TANKLESS ELECTRIC WATER HEATER SCHEDULE

ITEM NO.	TEMP RISE AT 0.5 GPM (°F)	WATER TEMP MAXIMUM (°F)	STORAGE CAPACITY	ACTIVATION FLOW (GPM)	TOTAL KW INPUT	VOLT/PHASE	MANUFACTURER / COMMENTS
EWH-1	66	120	NA	0.3	4.9	208V/1PH.	Eemax, AccuMix® AM007240T
1 EWH-2	66	120	NA	0.3	4.9	208V/1PH.	Eemax, AccuMix® AM007240T

NOTES:

1. 30 PSI MINIMUM OPERATING PRESSURE REQUIRED. CONTRACTOR SHALL VERIFY AVAILABLE WATER PRESSURE PRIOR TO PURCHASING AND INSTALLING EQUIPMENT.
2. INSTALL HEATER AND ROUTE PIPING BASED ON MANUFACTURERS RECOMMENDATIONS.
3. UNIT SHALL HAVE REPLACEABLE FILTER IN THE INTEL CONNECTOR.
4. HEATER SHALL BE PROVIDED WITH ASSE 1070 APPROVED INTEGRATED MIXING VALVE TO CONFORM TO UPC 407.3.
5. MOUNTING LOCATION MUST BE LOCATED WITHIN TWO FEET OF FIXTURE.

PLUMBING FIXTURE SCHEDULE

TYPE: WC-1 (T.A.S. COMPLIANT)
DESCRIPTION: WATER CLOSET, WALL HUNG, WHITE VITREOUS CHINA WITH EVERCLEAN, 1.28 GALLON PER FLUSH SIPHON JET ACTION, ELONGATED CLOSET BOWL WITH 1-1/2" TOP SPUD AND BOLT COVERS. AMERICAN STANDARD "AFWALL" #3351.101
SEAT: ELONGATED OPEN FRONT WHITE PLASTIC SEAT WITH SELF SUSTAINING CONCEALED CHECK HINGES. BEMIS #1955SSCT.
FLUSH VALVE: 1.28 GALLON FLUSH CYCLE. EXPOSED, DIAPHRAGM TYPE, CHROME PLATED CLOSET FLUSHOMETER. VACUUM BREAKER, SPUD COUPLING FOR 1-1/2" TOP SPUD. SLOAN ROAYL #111-1.28.
CARRIER: WADE #311 AND #330 SERIES -AM1.
ROUGH-IN: 4" WASTE, 2" VENT, 1" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: L-1 (T.A.S. COMPLIANT) METERED - STUDENT - TEMPERED
DESCRIPTION: LAVATORY, WALL HUNG, WHITE VITREOUS CHINA, 20-1/2" X 18-1/4" WITH FRONT OVERFLOW AND CONCEALED ARM SUPPORTS, 4" FAUCET SPREAD. AMERICAN STANDARD "LUCERNE" #0355.012.
FAUCET: CHROME PLATED BRASS DECK MOUNTED, 4" FIXED CENTERS LAVATORY FAUCET WITH COVER PLATE, 4-1/8" SPOUT, AND PUSH BUTTON HANDLE INDEXED "PUSH", SELF CLOSING METERING CARTRIDGE, VANDAL PROOF 0.5 GPM LAMINAR SPRAY. CHICAGO MODEL #857-E280S-665PSHAB.
2
STRAINER: 1-1/4" 17 GAUGE CHROME PLATED BRASS GRID STRAINER WITH TAILPIECE. MCGUIRE #155A.
P-TRAP: 1-1/4" 17 GAUGE CHROME PLATED HEAVY CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE. MCGUIRE #8872.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE WITH (4) 1/2" BOLTS, ADJUSTABLE SLEEVE, THREADED CONCEALED ARMS, ALIGNMENT BAR, LOCKING DEVICE, AND LEVELING SCREWS. WADE #520-08.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER - TEMPERED OUT. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: EDF-1 (T.A.S. COMPLIANT) - INTERIOR
DESCRIPTION: WALL HUNG, BOTTLE FILLING STATION AND BI-LEVEL VANDAL-RESISTANT COOLER HIGH EFFICIENCY NON-FILTERED REFRIGERATED STAINLESS. CHILLING CAPACITY OF 8.0 GPH (GALLONS PER HOUR) OF 50F DRINKING WATER, BASED ON 80F INLET WATER AND 90F AMBIENT, PER ASHRAE 18 TESTING. FEATURES SHALL INCLUDE ANTIMICROBIAL, GREEN COUNTER, HIGH EFFICIENCY, LAMINAR FLOW, REAL DRAIN, SANITARY SENSOR ACTIVATED, VANDAL RESISTANT SMARTFLOW BUBBLER. ELECTRONIC BOTTLE FILLER SENSOR WITH MECHANICAL FRONT BUBBLER BUTTON ACTIVATION. PRODUCT SHALL BE WALL MOUNT. HALSEY TAYLOR #HTHB-HVRGRNBL-NF. PROVIDE CANE TOUCH APRON IN ALL STAINLESS STEEL ON ALL UNITS MOUNTED WITH A CLEAR KNEE SPACE GREATER THAN 27" HIGH. ELKAY APRON #98324C.
P-TRAP: 1-1/4" CHROME PLATED CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON. MCGUIRE #8872.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE SLAB WITH (4) 1/2" BOLTS. ADJUSTABLE SLEEVE FOR CONNECTION TO HANGER PLATE PROVIDED BY FIXTURE MANUFACTURER. WADE #403-BL.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: FS-1
SERVICE: MECHANICAL ROOM EQUIPMENT CONDENSATE.
DESCRIPTION: CAST IRON FLANGED RECEPTOR WITH SEEPAGE HOLES, ACID RESISTANT COATED INTERIOR, NICKEL BRONZE RIM AND SECURED ADA GRATE. 12" SQUARE FLOOR SINK WITH 8" DEEP DOME BOTTOM STAINER. WHITE ABS SEDIMENT BUCKET. FLASHING CLAMP. NB RIM AND ½ STAINLESS STEEL GRATE, TRAP PRIMER. JAY R SMITH # 3150-C-12-NBSS-P
TRAP PRIMER: SERVED BY ELECTRONIC TRAP PRIMER, REFER TO PLANS.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATE FINAL LOCATION WITH EQUIPMENT PLACEMENT.

TYPE: FD-1
SERVICE: TOILET ROOMS AND GENERAL USE
DESCRIPTION: FLOOR DRAIN, DUCO CAST IRON BODY WITH FLASHING COLLAR AND ADJUSTABLE STRAINER HEAD WITH ADA GRATE. 6" ROUND TOP, 4" OUTLET, 1 STAINLESS STEEL GRATE, TRAP PRIMER CONNECTION 1/2", WITH VANDAL PROOF SCREWS. JAY R SMITH #2005-A06NBSS-P050-U
2
1
TRAP PRIMER: SERVED BY ELECTRONIC TRAP PRIMER, REFER TO PLANS.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATE FINAL LOCATION AND INSTALLATION WITH ARCHITECTURAL DRAWINGS / FLOOR CONSTRUCTION.

TYPE: TP-1 (FLUSH MOUNT)
SERVICE: TLT 18, TLT 19, AND MECH YARD 20
DESCRIPTION: ELECTRONIC TRAP PRIMER WITH FLUSH MOUNT CABINET AND STAINLESS STEEL ACCESS DOOR, SOLENOID VALVE, 1/2" COMPRESSION FITTING ATMOSPHERIC VACUUM BREAKER, CIRCUIT BREAKER, AND TIMER. 120V. PRECISION PLUMBING PRODUCTS "PRIME-TIME" #PT-4.
ROUGH-IN: 3/4" COLD WATER.

TYPE: RD-1
DESCRIPTION: ROOF DRAIN. DUCO CAST IRON BODY WITH COMBINED FLASHING CLAMP AND GRAVEL STOP WITH ALUMINUM DOME. SUMP RECEIVER, ADJUSTABLE EXTENSION FOR ROOF CONSTRUCTION, AND UNDERDECK CLAMP. JAY R SMITH# 1015-AD-R-C FOR 8" AND SMALLER OUTLET.
2
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES.

TYPE: RD-2
DESCRIPTION: OVERFLOW ROOF DRAIN. DUCO CAST IRON BODY WITH COMBINED FLASHING CLAMP AND GRAVEL STOP WITH ALUMINUM DOME. SUMP RECEIVER, ADJUSTABLE EXTENSION FOR ROOF CONSTRUCTION AND UNDERDECK CLAMP. JAY R SMITH# 1045-AD-R-C FOR 8" AND SMALLER OUTLET.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES.

TYPE: DN-1
DESCRIPTION: OVERFLOW DOWNSPOUT NOZZLE WITH HINGED PERFORATED COVER. VANDAL PROOF. FABRICATED STAINLESS STEEL WITH NO HUB OUTLET AND FLANGE TO SECURE NOZZLE TO WALL. INSTALL AT 12" ABOVE FINISHED SLAB OR AS DIRECTED BY ARCHITECT. JAY R SMITH : 1775 - U
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES.

TYPE: WH-1 - COLD WATER - NON FREEZ
DESCRIPTION: ENCASED, LEAD-FREE, NON-FREEZ WALL HYDRANT. INTEGRAL BACKFLOW PREVENTER WITH ANTI-SIPHON TECHNOLOGY, COPPER CASING, ALL-BRONZE INTERIOR COMPONENTS WITH 1/2 TURN CERAMIC CARTRIDGE, COMBINATION 3/4" FEMALE SOLDER AND 3/4" MALE PIPE THREAD INLET CONNECTION, AND 3/4" MALE HOSE CONNECTION. 304 SS HOUSING WITH LOCKING HINGED. INSTALL WITH BOTTOM OF HYDRANT 18" A.F.F. WADE #8701-L6.
ROUGH-IN: 3/4" COLD WATER.

TYPE: WH-2 - COLD WATER - RESTROOMS
DESCRIPTION: ENCASED, LEAD-FREE, INTERIOR WALL HYDRANT. INTEGRAL BACKFLOW PREVENTER WITH ANTI-SIPHON TECHNOLOGY, COPPER CASING, ALL-BRONZE INTERIOR COMPONENTS WITH 1/2 TURN CERAMIC CARTRIDGE, COMBINATION 3/4" FEMALE SOLDER AND 3/4" MALE PIPE THREAD INLET CONNECTION, AND 3/4" MALE HOSE CONNECTION. 304 SS FLANGED BOX WITH LOCKING HINGED COVER. INSTALL WITH BOTTOM OF HYDRANT 18" A.F.F. WADE #8708
ROUGH-IN: 3/4" COLD WATER.

TYPE: WCO
DESCRIPTION: WALL CLEANOUT. CAST IRON CLEANOUT FERRULE WITH COUNTERSUNK BRONZE PLUG AND ROUND STAINLESS COVER PLATE WITH CENTER SECURING SCREW. WADE #8550-75 WITH #8304-VP. PROVIDE WADE #8560 CAST IRON CLEANOUT TEE IN LIEU OF FERRULE AS REQUIRED FOR WALL CONSTRUCTION.

TYPE: FCO
DESCRIPTION: FLOOR CLEANOUT, PAINTED CAST IRON ADJUSTABLE FLOOR CLEANOUT WITH ABS THREADED ADJUSTABLE HOUSINGS, FLANGED CAST IRON FERRULE, INTEGRAL CLAMPING COLLAR, GASKETED ABS THREADED PLUG AND SCORIATED STAINLESS STEEL TOP. WADE #6000-85. FOR CARPETED FLOORS PROVIDE WADE #6000-85-CM. FOR TERRAZO TILES #6000-85-U, FOR RECESSED TILE #6000-85-T. FOR VCT TILES COORDINATE WITH MANUFACTURER FOR INSTALLATION INSTRUCTIONS.

TYPE: ECO
DESCRIPTION: EXTERIOR CLEANOUT TO GRADE, PAINTED CAST IRON BODY WITH ANCHOR FLANGE ADJUSTABLE TOP ASSEMBLY, AND ROUND SCORIATED VANDAL RESISTANT DUCTILE IRON TRACTOR TYPE COVER. IF LOCATED IN ASPHALT OR DIRT PROVIDE 18"X18"X12" CONCRETE PAD. WADE #6000-Z.

GENERAL NOTES

ALL LAVATORIES AND SINKS SHALL BE SUPPLIED WITH HOT AND COLD WATER (UNLESS NOTED TO BE COLD WATER ONLY) TO FAUCETS AS INDICATED ON PLANS AND FIXTURE SCHEDULE. PROVIDE CHROME PLATED BRASS SUPPLY STOPS WITH LOOSE KEYS AND WALL ESCUTCHEONS. PROVIDE CHROME PLATED FLEXIBLE RISERS OF SIZE REQUIRED TO PROPERLY CONNECT FIXTURES. PROVIDE 17 GAUGE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON (UNLESS NOTED TO BE AN ACID WASTE FIXTURE). REFER TO FIXTURE SCHEDULE FOR MINIMUM SIZES OF PLUMBING FIXTURE ROUGH-INS.

INSULATION KITS AT ALL LAVATORIES AND SINKS REQUIRED TO BE T.A.S. ACCESSIBLE (MCGUIRE OR TRUEBRO). ALL SUCH FIXTURES AND FINAL INSTALLATIONS SHALL COMPLY WITH THE STATE ACCESSIBILITY STANDARDS REQUIREMENTS.

INSERT TRAP GUARDS AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS-TIGHT SEAL. FOR DRAIN RODDING AFTER INSTALLATION. INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

PLUMBING PIPING LEGEND

SYMBOLS	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
GW	GREASE WASTE PIPING (GW)
GW	GREASE WASTE PIPING BELOW GRADE (GW)
SD	STORM DRAIN PIPING (SD)
SD	STORM DRAIN PIPING BELOW GRADE (GW)
SSD	SUB-SOIL DRAIN OR FOOTING DRAIN (SSD)
AW	ACID WASTE PIPING (AW)
AW	ACID WASTE PIPING BELOW GRADE (AW)
PD	PUMPED DISCHARGE (PD)
CD	CONDENSTATE DRAIN PIPING (CD)
D	CONDENSTATE - INDIRECT DRAIN PIPING (D)
	VENT PIPING (V)
CW	COLD WATER PIPING (CW)
HW	HOT WATER PIPING (HW)
HWR	HOT WATER RETURN PIPING (HWR)
SCW	SOFT COLD WATER PIPING (SCW)
CDW	CHILLED DRINKING WATER PIPING (CDW)
TP	TRAP PRIMER LINE (TP)
F	FIRE PROTECTION PIPING (F)
AS	AUTOMATIC SPRINKLER PIPING (AS)
GAS	NATURAL GAS PIPING (G)
GV	GAS VENT PIPING (GV)
AIR	COMPRESSED AIR PIPING (A)
	FLOW DIRECTIONAL ARROW
	SHUT-OFF VALVE
	BALANCING VALVE (BV)
	SOLENOID VALVE (SV)
	BALL VALVE (BV)
	BUTTERFLY VALVE
	LUBRICATED PACKED PLUG STOP STOP COCK (PC)
	HORIZONTAL SWING CHECK
	UNION
	HORIZONTAL SWING CHECK
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	REDUCED PRESSURE BACKFLOW PREVENTER (RPBFP)
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CAP ON END OF PIPE
	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)
	FIRE DEPARTMENT VALVE AT RISER
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
	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
	VALVE IN RISE
	ASME TEMPERATURE & PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	ANGLE VALVE
	OS&Y VALVE
	ROOF DRAIN
1	REFER TO KEYED NOTE
FS	FLOW SWITCH
	FLOOR SINK (FS)
	FLOOR DRAIN (FD)
	FLOOR DRAIN WITH P-TRAP (FD)
	FLOOR DRAIN WITH P-TRAP AT 45° ANGLE (FD)
	HUB DRAIN (HD)
	ACCESS PANEL FOR TRAP PRIMER OR SHOCK ABSORBER
AP	ACCESS PANEL LOCATION SYMBOL
A	SHOCK ABSORBER
	AIR CHAMBER
(E)	EXISTING
(N)	NEW
VTR	VENT THRU ROOF
B.F.F.	BELOW FINISHED FLOOR
A.F.F.	ABOVE FINISHED FLOOR
	NEW CONNECTION
"IE=100.00"	INVERT ELEVATION
1	DELTA CHANGE SYMBOL
P 1 4" VTR	RISER FLAG

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Project No: 2023-04376-00

Notes

Revision	By	Appd	
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	AA	AA	EH	11/27/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
PLUMBING LEGENDS AND SCHEDULES

Project No. 214001246
Scale 12" = 1'-0"
Revision 2
Drawing No. P601-HGES

10/17/2025 1:01:04 PM
ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

FIRE ALARM

BASEB BID - PROJECT SCOPE INCLUDES ADDING A NEW STANDALONE FIRE ALARM SYSTEM IN THE GYMNASIUM ADDITION WITH VOICE EVACUATION. CONTRACTOR TO TIE SYSTEM INTO THE MAIN CAMPUS FACP FOR MONITORING.

ALTERNATE 6A - CONTRACTOR TO REPLACE THE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY WITH NEW VOICE EVACUATION FIRE ALARM SYSTEM. CONTRACTOR TO DEMOLISH ALL EXISTING DEVICES AND WIRING UPON ACCEPTANCE OF NEW SYSTEM BY THE AHJ AND OWNER.

LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL
FAA	FIRE ALARM ANNUNCIATOR PANEL

NOTES:

1. FIRE ALARM SYSTEM IS PERFORMANCE BASED PER SPECIFICATIONS. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. A LICENSED FIRE ALARM PLANNING SUPERINTENDENT CERTIFIED TO A MINIMUM LEVEL 3, IN THE SUBFIELD OF FIRE ALARM SYSTEMS THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET), SHALL PROVIDE PLANS AND CALCULATIONS FOR A MANUAL AND AUTOMATIC FIRE DETECTION AND ALARM SYSTEM TO COMPLY WITH THE BUILDING SPACE LAYOUT, BUILDING OCCUPANCY, CURRENT NFPA 72, LOCAL AND STATE CODE REQUIREMENTS, AND THE FIRE ALARM AND DETECTION SYSTEM SPECIFICATIONS.

TECHNOLOGY KEYED NOTES:

1. REFER TO ELECTRICAL SHEET E100-HGES FOR CONDUIT REQUIREMENTS.
2. EXISTING BUILDING FIRE ALARM CONTROL PANEL. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.



N

1 **FIRE ALARM COMPOSITE PLAN**
Scale: 1/16" = 1'-0"

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Project No: 2023-04376-00

Notes

2 Addendum 02			10/20/2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 10/19/25 YYYY.MM.DD

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
FIRE ALARM FLOOR PLAN

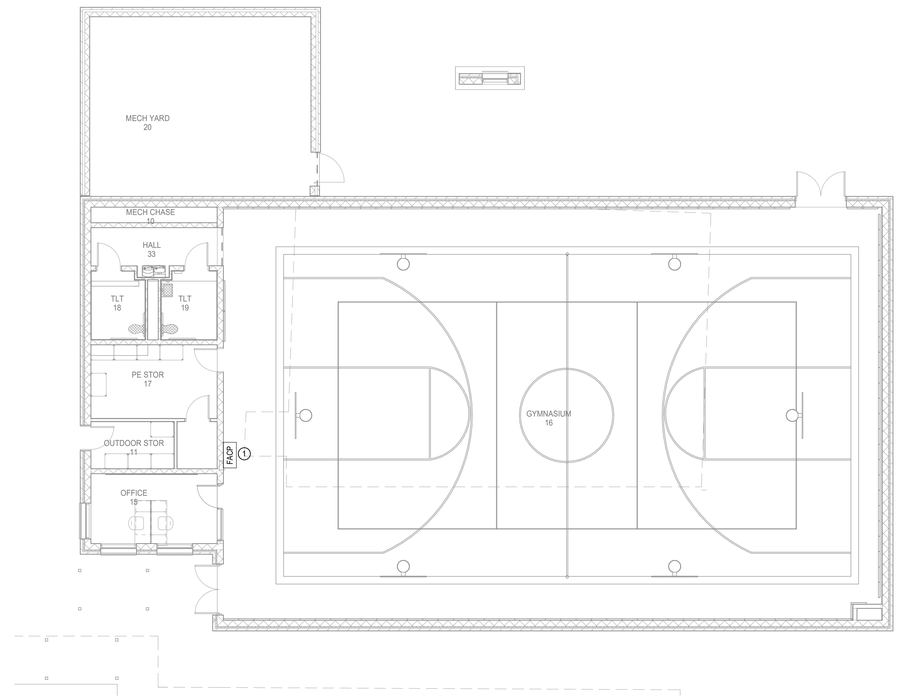
Project No.	Scale
214001246	1/16" = 1'-0"

Revision 2

Drawing No. FA100-HGES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



N

1 **FIRE ALARM FLOOR PLAN - GYMNASIUM**
Scale: 1/8" = 1'-0"

FIRE ALARM

BASEB BID - PROJECT SCOPE INCLUDES ADDING A NEW STANDALONE FIRE ALARM SYSTEM IN THE GYMNASIUM ADDITION WITH VOICE EVACUATION. CONTRACTOR TO TIE SYSTEM INTO THE MAIN CAMPUS FACP FOR MONITORING.

ALTERNATE 6A - CONTRACTOR TO REPLACE THE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY WITH NEW VOICE EVACUATION FIRE ALARM SYSTEM. CONTRACTOR TO DEMOLISH ALL EXISTING DEVICES AND WIRING UPON ACCEPTANCE OF NEW SYSTEM BY THE AHJ AND OWNER.

LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL
FAA	FIRE ALARM ANNUNCIATOR PANEL

NOTES:

1. FIRE ALARM SYSTEM IS PERFORMANCE BASED PER SPECIFICATIONS. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. A LICENSED FIRE ALARM PLANNING SUPERINTENDENT CERTIFIED TO A MINIMUM LEVEL 3, IN THE SUBFIELD OF FIRE ALARM SYSTEMS THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET), SHALL PROVIDE PLANS AND CALCULATIONS FOR A MANUAL AND AUTOMATIC FIRE DETECTION AND ALARM SYSTEM TO COMPLY WITH THE BUILDING SPACE LAYOUT, BUILDING OCCUPANCY, CURRENT NFPA 72, LOCAL AND STATE CODE REQUIREMENTS, AND THE FIRE ALARM AND DETECTION SYSTEM SPECIFICATIONS.

TECHNOLOGY KEYED NOTES:

1. PROPOSED FIRE ALARM CONTROL PANEL LOCATION. VERIFY FINAL LOCATION WITH OWNER PRIOR TO ROUGH-IN.

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Notes

2	Addendum 02			10/20/2025
Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
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File Name: N/A		Author	Designer	Checker	10/19/25
		Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
10-20-2025

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
FIRE ALARM FLOOR PLAN - GYMNASIUM

Project No.	Scale
214001246	1/8" = 1'-0"
Revision	Drawing No.
2	FA201-HGES

10/19/2025 8:15:23 PM
ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

AUDIO/VISUAL MULTIMEDIA LEGEND

SYMBOL	DESCRIPTION
A##▷ V##▷	WALL AV ROUGH-IN DETAIL
A## V##	CEILING AV ROUGH-IN DETAIL
A## V##	FLOOR AV ROUGH-IN DETAIL
IWB# IWB	INTERACTIVE WHITE BOARD - WALL - CEILING
PJ# PJ	MULTIMEDIA PROJECTOR
FP# FP#	MULTIMEDIA FLAT PANEL DISPLAY
S# S#	LOUDSPEAKER, WALL MOUNTED AND CEILING MOUNTED RESPECTIVELY - # INDICATES TYPE
CP#	CONTROL PANEL
TP#	TOUCH PANEL
M#	MICROPHONE, CEILING MOUNTED - # INDICATES TYPE
VC ▷	VOLUME CONTROL
WB	WALL BOX ENCLOSURE
D1 A1	D1 = DIGITAL SINGLE SIDED CLOCK / A1 = ANALOG SINGLE SIDED CLOCK
D2 A2	D2 = DIGITAL DOUBLE SIDED CLOCK / A2 = ANALOG DOUBLE SIDED CLOCK
ENC	CEILING AV ENCLOSURE
C C	PRESENTATION CAMERA - CEILING - WALL MOUNTED

PREMISE SECURITY LEGEND

SYMBOL	DESCRIPTION
CR	CARD READER
CR M	CARD READER MULLION
KP	INTRUSION DETECTION KEYPAD
IC	INTERCOM (1 DATA CABLE)
IC MS	INTERCOM MASTER STATION (1 DATA CABLE)
PB	PANIC/DURESS BUTTON
LD	LOCK DOWN BUTTON
MD	MOTION DETECTOR
GB	ACCOUSTICAL GLASS BREAK SENSOR
BM	BIOMETRIC READER
RX	REQUEST TO EXIT - SURFACE PIR
KS	KEY SWITCH
LA	LOCAL ALARM SOUNDER
RG	RED/GREEN INDICATOR LIGHT
DB	DOORBELL
DH	MAGNETIC DOOR HOLD
DR	DOOR RELEASE
RX	REQUEST TO EXIT - INTEGRAL TO DOOR HARDWARE
DC	DOOR CONTACT / MONITOR
ES EL EH	ELECTRIFIED STRIKE - ELECTRIFIED LATCH - ELECTRIFIED HARDWARE (REFER TO SCHEDULES)
C C	STANDARD IP SURVEILLANCE CAMERA, (1) CABLE
C C C	180° MULTI-IMAGER IP SURVEILLANCE CAMERA, (1) CABLE
C	360° MULTI-IMAGER IP SURVEILLANCE CAMERA, (1) CABLE
C	360° FISHEYE LENS CAMERA
IR	IR ILLUMINATOR

STRUCTURED CABLING LEGEND

SYMBOL	DESCRIPTION
#	TELECOMMUNICATIONS OUTLET, # =NUMBER OF DATA CABLE(S)/JACK(S)
##	TELECOMMUNICATIONS OUTLET, ## = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S)
#	TELECOMMUNICATIONS OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S), SURFACE MOUNT
##	TELECOMMUNICATIONS OUTLET, ## = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S), SURFACE MOUNT
W	WALL MOUNT PHONE (1 CABLE/JACK)
W	WALL MOUNT PHONE, SURFACE MOUNT (1 CABLE/JACK)
#	FLOOR MOUNTED OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S) (FLOOR BOX BY E.C.)
##	FLOOR MOUNTED OUTLET, ## = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S) (FLOOR BOX BY E.C.)
#	CEILING MOUNTED DATA OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S)
AP#	CEILING MOUNTED OUTLET FOR WIRELESS ACCESS POINT #=NUMBER OF CABLE(S)/JACK(S)
APE▷	WALL MOUNTED OUTLET FOR WIRELESS ACCESS POINT #=NUMBER OF CABLE(S)/JACK(S)
	CABLING SLEEVE(S)
	TYPICAL LADDER RACK
	TYPICAL CABLE TRAY, BASKET STYLE

GENERAL ANNOTATION LEGEND

SYMBOL	DESCRIPTION
MER	MAIN EQUIPMENT ROOM
TR	TELECOMMUNICATION ROOM
MDF	MAIN DISTRIBUTION FRAME
IDF	INTERMEDIATE DISTRIBUTION FRAME
ETR	EXISTING TO REMAIN
PBO	PROVIDED BY OTHERS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AC	ABOVE COUNTER
EC	ELECTRICAL CONTRACTOR
PSC	PREMISE SECURITY CONTRACTOR
SCC	STRUCTURAL CABLING CONTRACTOR
AVC	AV/MULTIMEDIA CONTRACTOR
UNO	UNLESS NOTED OTHERWISE
ACS	ACCESS CONTROL SYSTEM
VSS	VIDEO SURVEILLANCE SYSTEM

TECHNOLOGY SHEET INDEX

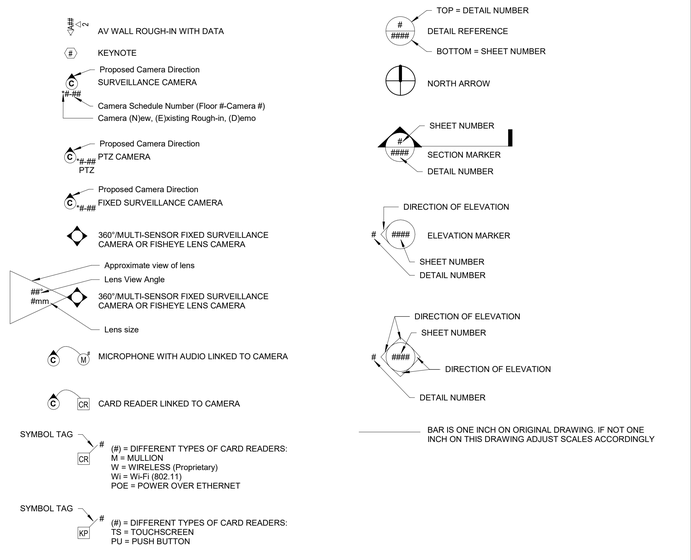
SHEET NUMBER	SHEET NAME
T000 - HGES	TECHNOLOGY - INDEX SHEET
T010 - HGES	TECHNOLOGY - SITE PLAN
T101 - HGES	TECHNOLOGY - GYM
T400 - HGES	TECHNOLOGY - ENLARGEMENTS

TECHNOLOGY - GENERAL NOTES

1. EACH KEYNOTE MAY NOT BE UTILIZED ON EVERY SHEET.
2. ALL CONDUIT MEASUREMENTS REFER TO STANDARD CONDUIT TRADE SIZES.
3. ALL CABLES SHALL BE CONCEALED.
4. EACH CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY SLEEVES, WHETHER OR NOT SPECIFICALLY NOTED ON PROJECT DRAWINGS. ALL SLEEVES SHALL BE 2" UNLESS NOTED OTHERWISE ON THE DRAWINGS. CABLE FILL PERCENTAGE SHALL COMPLY WITH NEC.
5. DEVICE LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL REVIEW CONDITIONS AND COORDINATE WITH OTHER TRADES AS NECESSARY FOR EXACT PLACEMENT.

TECHNOLOGY SYMBOLS LEGEND

NOT ALL SYMBOLS ARE USED



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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd.	2025.07.23 YYYY.MM.DD

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695 INDEPENDECE BLVD, MISSOURI CITY, TX 77489

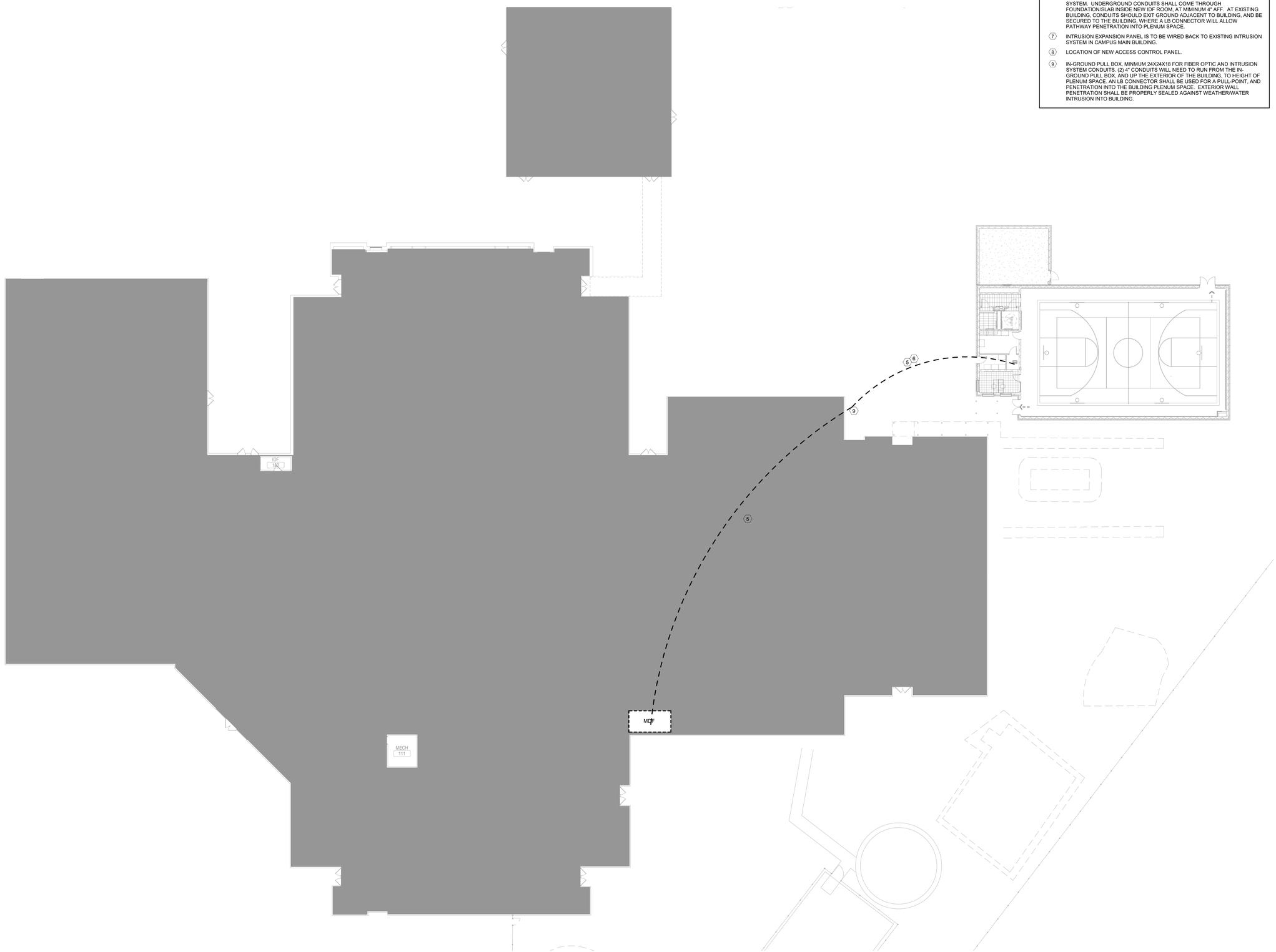
Title
TECHNOLOGY - INDEX SHEET

Project No.	Scale
214001246	As indicated
Revision	Drawing No.

T000 - HGES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 01 - Level 1 - Site Plan
SCALE: 1/16" = 1'-0"

ORIGINAL SHEET - ARCH E1

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10/13/2025 1:45:31 PM

TECHNOLOGY KEYNOTES

1. CONTRACTOR TO PROVIDE AND INSTALL PROTECTIVE WIRE CAGES FOR WIRELESS ANALOG CLOCKS.
2. NOT USED.
3. ELECTRICAL CONTRACTOR TO PROVIDE 3/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
4. ELECTRICAL CONTRACTOR TO PROVIDE 1" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
5. 12-STRAND MM FIBER FROM MDF TO NEW IDF RACK.
6. TWO (2) UNDERGROUND 4" SCEDULE 80 CONDUITS WITH 3-CELL MAXCELL DETECTABLE INNERDUCT FOR FIBER CONNECTIVITY, AND ONE (1) 1-1/2" UNDERGROUND SCHEDULE 80 CONDUIT WITH PULL STRING FOR INTRUSION SYSTEM. UNDERGROUND CONDUITS SHALL COME THROUGH FOUNDATION/SLAB INSIDE NEW IDF ROOM, AT MIMINUM 4" AFF. AT EXISTING BUILDING, CONDUITS SHOULD EXIT GROUND ADJACENT TO BUILDING, AND BE SECURED TO THE BUILDING, WHERE A LB CONNECTOR WILL ALLOW PATHWAY PENETRATION INTO PLENUM SPACE.
7. INTRUSION EXPANSION PANEL IS TO BE WIRED BACK TO EXISTING INTRUSION SYSTEM IN CAMPUS MAIN BUILDING.
8. LOCATION OF NEW ACCESS CONTROL PANEL.
9. IN-GROUND PULL BOX, MINMUM 24X24X18 FOR FIBER OPTIC AND INTRUSION SYSTEM CONDUITS. (2) 4" CONDUITS WILL NEED TO RUN FROM THE IN-GROUND PULL BOX, AND UP THE EXTERIOR OF THE BUILDING, TO HEIGHT OF PLENUM SPACE. AN LB CONNECTOR SHALL BE USED FOR A PULL-POINT, AND PENETRATION INTO THE BUILDING PLENUM SPACE. EXTERIOR WALL PENETRATION SHALL BE PROPERLY SEALED AGAINST WEATHER/WATER INTRUSION INTO BUILDING.

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Notes

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ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD

File Name: N/A	Author	Designer	Checker	2025.07.23
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Title
TECHNOLOGY - SITE PLAN

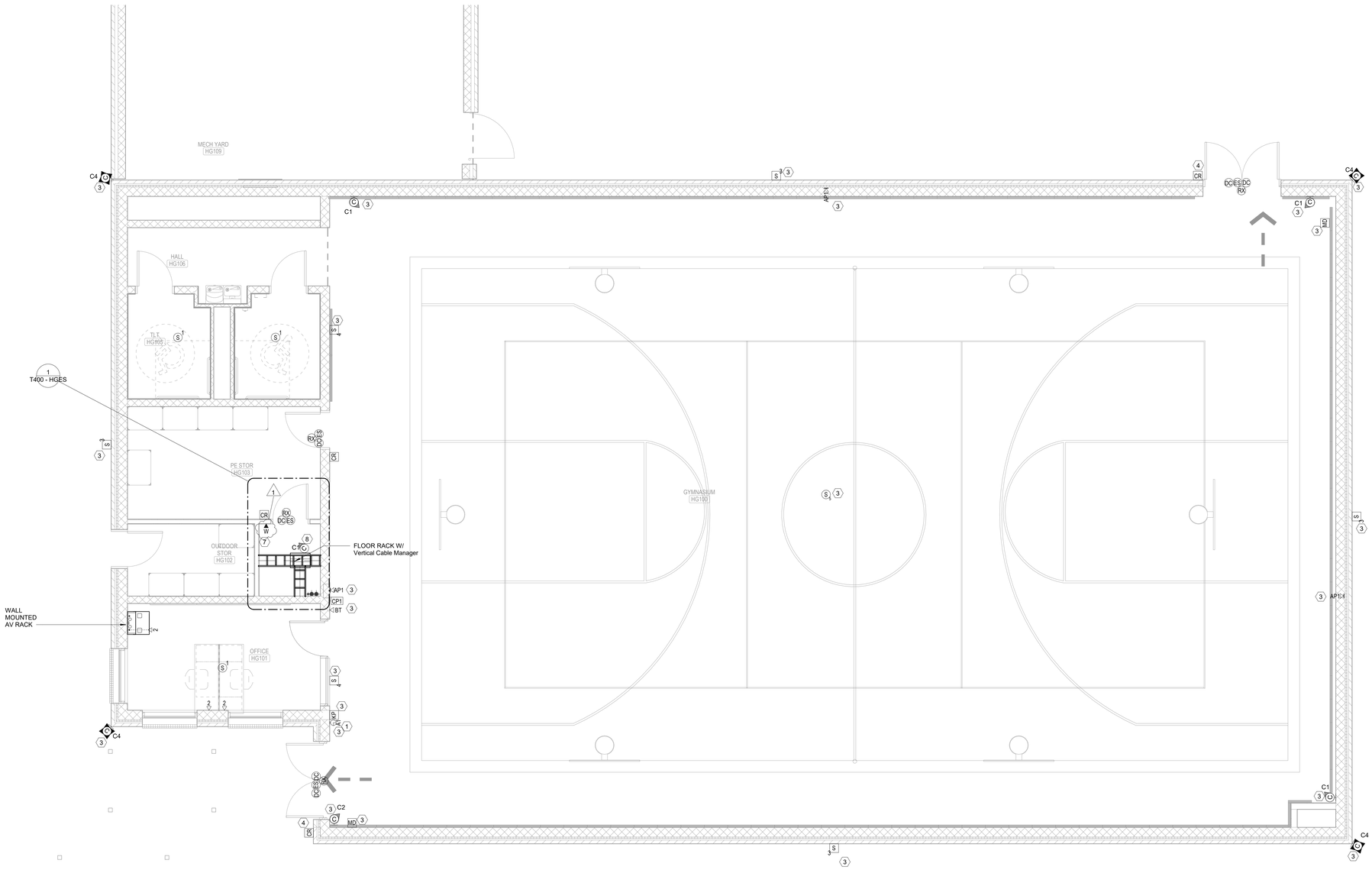
Project No.	Scale
214001246	As indicated
Revision	Drawing No.

T010 - HGES

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

TECHNOLOGY KEYNOTES

1. CONTRACTOR TO PROVIDE AND INSTALL PROTECTIVE WIRE CAGES FOR WIRELESS ANALOG CLOCKS.
2. NOT USED.
3. ELECTRICAL CONTRACTOR TO PROVIDE 3/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
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8. LOCATION OF NEW ACCESS CONTROL PANEL.
9. IN-GROUND PULL BOX, MINMUM 24X24X18 FOR FIBER OPTIC AND INTRUSION SYSTEM CONDUITS. (2) 4" CONDUITS WILL NEED TO RUN FROM THE IN-GROUND PULL BOX, AND UP THE EXTERIOR OF THE BUILDING, TO HEIGHT OF PLENUM SPACE. AN LB CONNECTOR SHALL BE USED FOR A PULL-POINT, AND PENETRATION INTO THE BUILDING PLENUM SPACE. EXTERIOR WALL PENETRATION SHALL BE PROPERLY SEALED AGAINST WEATHER/WATER INTRUSION INTO BUILDING.



1 01 - Level 1 - Gym
SCALE: 1/4" = 1'-0"

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Notes

2 ADDENDUM 2	BL	1	10/14/25
Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker	2025.07.23
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BOND 2024 FORT BEND INDEPENDENT SCHOOL DISTRICT

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HUNTERS GLEN ELEMENTARY SCHOOL

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Title
TECHNOLOGY - GYM

Project No.
214001246

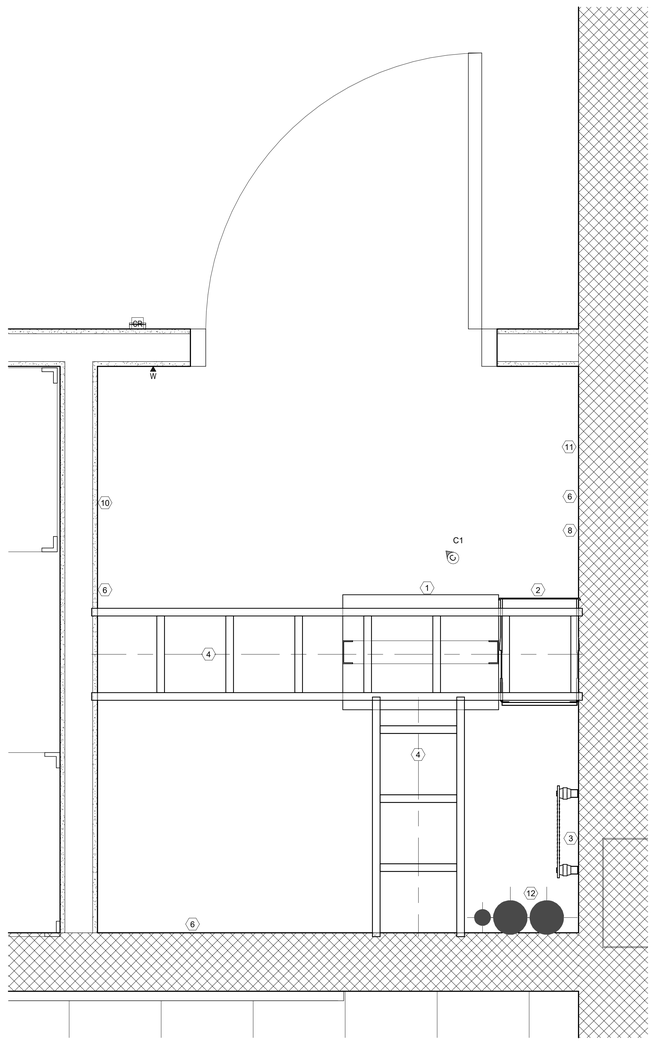
Scale
As indicated

Revision
2

Drawing No.
T101 - HGES

*Plot location in Project Information
10/13/2025 1:49:57 PM
ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 01 - Level 1 - Composite Floor Plan - Gym
IDF
SCALE: 1 1/2" = 1'-0"

ENLARGEMENT KEYNOTES

1. 2-POST RACK, SECURED TO FLOOR WITH EXPANSION ANCHORS, VERTICAL WIRE MANAGER ATTACHED TO WALL SIDE OF RACK SHALL BE 6" FROM WALL. (TYPICAL)
2. 10" VERTICAL WIRE MANAGER SECURED TO SIDE OF RACK (TYPICAL)
3. GROUND BUS BAR, MOUNTED 6' AFF, ELECTRON PLATED AND PREDRILLED TO ACCEPT STANDARD TWO-HOLE LUGS.
4. 18"x2" LADDER RACK SECURED TO TOP OF RACK WITH LADDER RACK MOUNTING PLATE AND BOLTED TO WALL, WITH WATER FALLS INTO VERTICAL WIRE MANAGERS (TYPICAL)
5. 12"x4" CABLE TRAY (BASKET STYLE) WITH 6" CLEARANCE FROM WALL (TYPICAL)
6. 3/4" FIRED RATED PLYWOOD SECURED TO WALL AT 22" AFF. IF THE PLYWOOD IS PAINTED, THE PAINT SHALL BE FIRE RETARDANT PAINT ON BOTH SIDES AND THE RATING STAMP ON THE PLYWOOD SHALL BE EXPOSED.
7. SPACE RESERVED FOR FLOOR SUPPORTED AIR CONDITIONER UNIT.
8. SPACE RESERVED FOR A PA SYSTEM EXPANSION.
9. FIRESTOP SLEEVES, STI EZPATH OR HILTI SPEED SLEEVES.
10. SPACE RESERVED FOR ACCESS CONTROL PANEL.
11. SPACE RESERVED FOR INTRUSION PANELS.
12. UNDERGROUND CONDUIT STUB-UPS FOR COMMUNICATIONS.

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Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker	2025.07.23
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Client/Project Logo
2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

HUNTERS GLEN ELEMENTARY SCHOOL

695 INDEPENDECE BLVD, MISSOURI CITY, TX 77489

Title
TECHNOLOGY - ENLARGEMENTS

Project No.
214001246

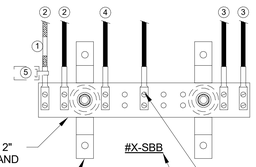
Scale
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Revision

Drawing No.
T400 - HGES

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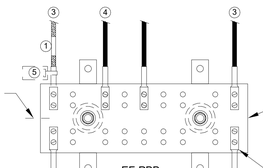


SBB GROUNDING & BONDING NOTES

1. TYPICAL OF ALL BONDING CONDUCTORS CABLE IDENTIFIER/ LABEL.
2. TBC TO TELECOMMUNICATIONS CABLE RUNWAYS(S), RACK(S), CABINET(S) AND APPLICABLE EQUIPMENT. DAISY CHAINING OF TBC AT RELAY RACKS IS NOT ACCEPTABLE. EACH RACK IS TO HAVE A TBC TO A COMPRESSION LUGTAP TO DEDICATED HOME RUN BACK TO THE SBB. SEE DETAILS.
3. TYPICAL TBB(S) THAT INTERCONNECTS ALL IDF SBB(S) WITH THE PBB.
4. BONDING CONDUCTOR TO EACH ARMORED FIBER JACKET. IDF SIDE ONLY.
5. TYPICAL OF ALL BONDING CONDUCTORS WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".

BONDING CONDUCTOR SIZING CHART

LENGTH (FEET)	SIZE (AWG)
LESS THAN (<) 13'	# 6
14' - 20'	# 4
21' - 26'	# 3
27' - 33'	# 2
34' - 41'	# 1
42' - 52'	# 1/0
53' - 66'	# 2/0
GREATER THAN (>) 66'	# 3/0



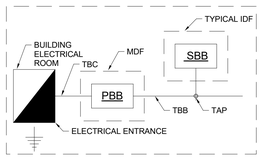
PBB GROUNDING & BONDING RISER NOTES

1. TYPICAL OF ALL BONDING CONDUCTORS CABLE IDENTIFIER/ LABEL.
2. TBC TO NEAREST BUILDING STEEL STRUCTURE. IF APPLICABLE UTILIZED EXOTHERMIC WELDING CONNECTION TO BUILDING STEEL.
3. TELECOMMUNICATIONS BONDING BACKBONE (TBB) FOR BACKBONE BONDING CONDUCTOR (BBC), IF APPLICABLE.
4. TYPICAL TBB(S) THAT INTERCONNECTS ALL SBB(S) WITH THE PBB.
5. TYPICAL OF ALL BONDING CONDUCTORS WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".
6. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (TBC) TO BUILDING GROUNDING ELECTRODE. TBC SHALL NOT BE SMALLER THEN THE TBB.

GROUNDING & BONDING GENERAL NOTES

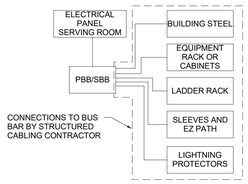
1. ELECTRICAL CONTRACTOR RESPONSIBILITY -PRIMARY BONDING BUSBAR (PBB), SECONDARY BONDING BUSBAR(S) (SBB), AND THE BONDING CONDUCTORS TO THE BUILDING GROUNDING ELECTRODE, BUILDING STRUCTURAL STEEL, AND BONDING OF ALL SBB(S) TO THE PBB SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
2. ALL GROUNDING OF OF EQUIPMENT, RACKS, CABINETS, AND DEVICES SHALL BE THE RESPONSIBILITY OF THE DIVISION 27 TECHNOLOGY CONTRACTOR.
3. FASTENING BONDING CONNECTOR TWO-HOLE LUGS TO ALL BUSBARS SHALL BE CLEANED AND APPLY A COPPER ANTI-OXIDANT TO THE CONTACT AREA OF BOTH THE CONNECTOR LUG AND THE BUSBAR.
4. BONDING CONDUCTORS AND BUSBARS SHALL BE LABELED. WITH IDENTIFICATION IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/TIA/EIA-606-C.
5. BONDING CONDUCTORS SHALL BE LABELED WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".
6. STRUCTURED CABLING CONTRACTOR SHALL PERFORM CONTINUITY TESTING MEASUREMENTS OF THE GROUNDING RESISTANCE TO NOT EXCEED 0.1 OHM BETWEEN:
   - A. THE TMGB AND THE NEAREST GROUNDING ELECTRODE.
   - B. THE TGB AND THE NEAREST GROUNDING ELECTRODE.
   - C. EACH TGB AND THE PATHWAY(S), RACK(S), CABINETS(S) AND APPLICABLE EQUIPMENT .

1 GROUNDING AND BONDING DETAIL
SCALE: NS

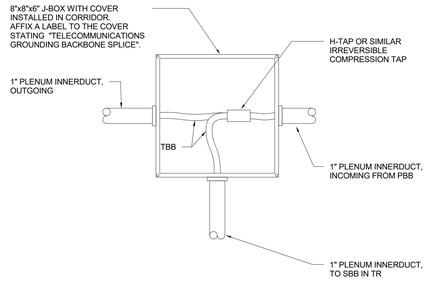


NOTES:
BBC = BACKBONE BONDING CONDUCTOR
BN = BONDING NETWORK
CBB = COMMON BONDING BUSBAR
CTBB = COMMON TELECOMMUNICATIONS BONDING BACKBONE
IDF = INDEPENDENT DISTRIBUTION FRAME
MDF = MAIN DISTRIBUTION FRAME
PBB = PRIMARY BONDING BUSBAR
RBB = RACK BONDING BUSBAR
RBC = RACK BONDING CONDUCTOR
SBB = SECONDARY BONDING BUSBAR
SBC = SECONDARY BONDING CONDUCTOR
TBB = TELECOMMUNICATIONS BONDING BACKBONE
TBC = TELECOMMUNICATIONS BONDING CONDUCTOR
TEBC = TELECOMMUNICATIONS EQUIPMENT BONDING CONDUCTOR

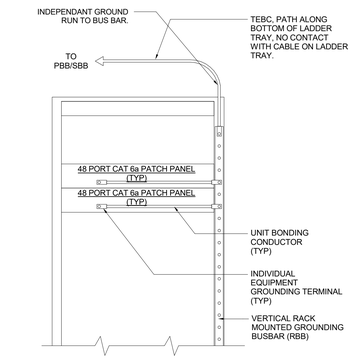
2 TYPICAL GROUNDING FLOW DIAGRAM
SCALE: NS



3 TELECOM ROOM BONDING DIAGRAM
SCALE: NS



4 TELECOM BONDING BACKBONE SPLICE DETAIL
SCALE: NS



5 RACK MOUNTED GROUNDING BAR DETAIL
SCALE: NS

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File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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HUNTERS GLEN ELEMENTARY SCHOOL

695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
TECHNOLOGY - DETAILS

Project No. 214001246
Scale
Revision
Drawing No.

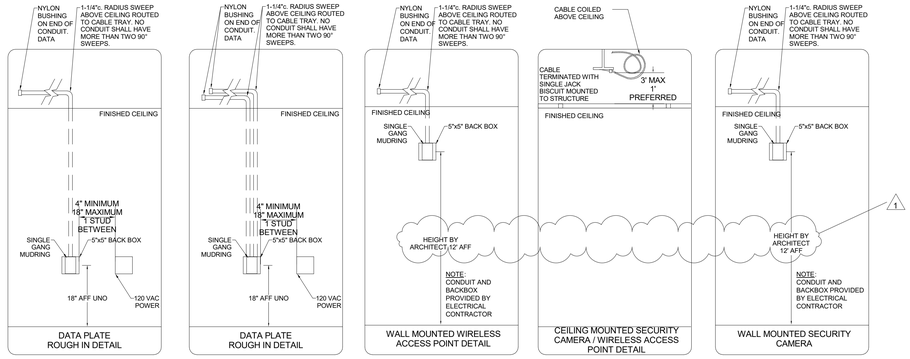
T501 - HGES

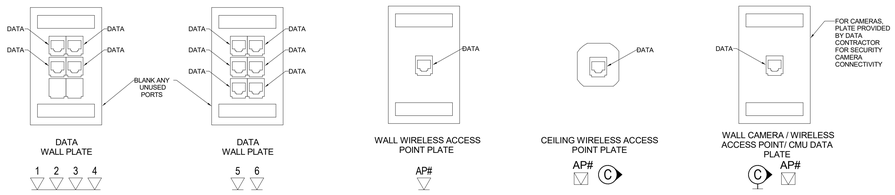
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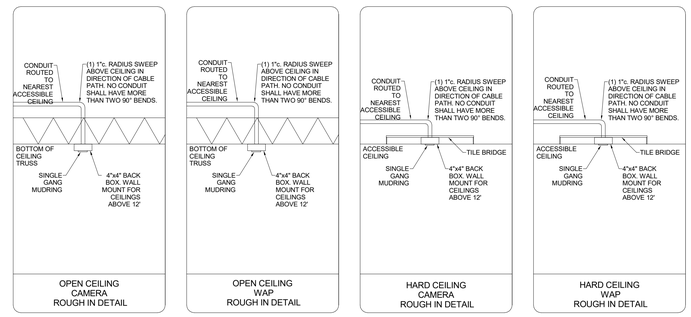
GENERAL NOTE

1. FACE PLATE DETAIL FOR OUTLET CONFIGURATION PURPOSES ONLY. CONTRACTOR TO SELECT TYPE OF FACE PLATE TO MATCH CONNECTIVITY HARDWARE, FLOOR BOX AND/OR MODULAR FURNITURE OPENING.

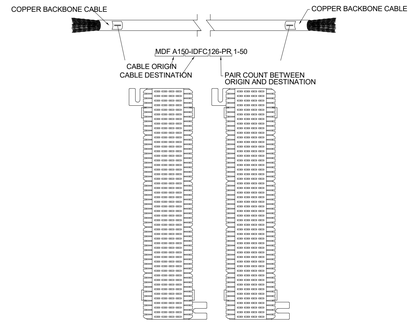




1 DATA ROUGH-IN DETAILS
SCALE: NS

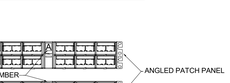


2 HARD AND OPEN CEILING DETAILS FOR CAMERAS AND DATA OUTLETS
SCALE: NTS



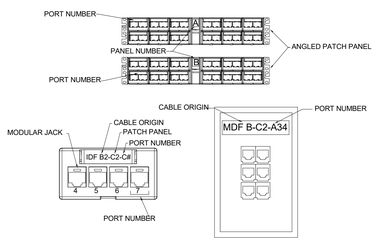
NOTE: 1) PA CONTRACTOR SHALL ENSURE THAT CABLE AND 66 BLOCK SHALL HAVE IDENTICAL LABEL AT BOTH ENDS

PA SYSTEM COPPER BACKBONE LABELING SCHEME



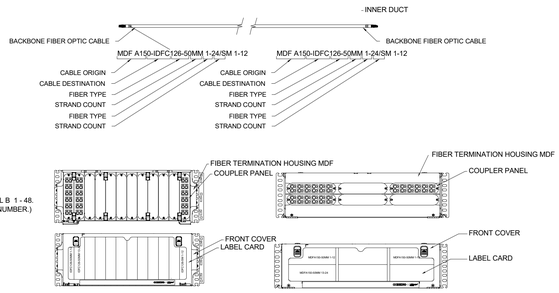
NOTE: 1) FOR DATA JACKS LOCATED ABOVE CEILING (WAP, CAMERA, ETC.)
2) 3/4" SELF-LAMINATING LABEL, WHITE BACKGROUND, BLACK TEXT
3) TEXT IN PLAIN FONT (NO ITALICS, BOLD OR UNDERLINE); TEXT CENTERED IN LABEL. TEXT HEIGHT NOT TO EXCEED 66% OF LABEL HEIGHT.

CEILING GRID LABELING SCHEME



NOTE: 1) CABLE SHALL HAVE IDENTICAL LABEL AT BOTH ENDS
2) EACH PATCH PANEL SHALL BE UNIQUELY LABELED ALPHABETICALLY IN EACH MDF OR IDF.
3) EACH PATCH PORT SHALL BE NUMBERED SEQUENTIALLY EX. PATCH PANEL A 1 - 48 , PATCH PANEL B 1 - 48.
4) PRIOR TO LABELING, CONSULT WITH OWNER FOR PROPER IDF NUMBERING. (NO NOT USE ROOM NUMBER.)

HORIZONTAL DATA CABLE LABELING SCHEME

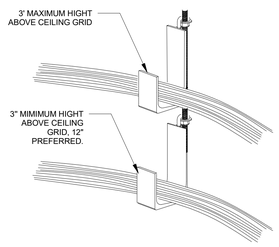


NOTE: 1) CABLE AND INNERDUCT SHALL HAVE IDENTICAL LABEL AT BOTH ENDS

FIBER BACKBONE LABELING SCHEME

5 LABELING & CABLING SCHEMES
SCALE: NTS

3 TYPICAL CABLING SLEEVE
SCALE: NTS



4 PANDUIT J-HOOK DETAIL
SCALE: NTS

6 CABLE PATHWAY CROSS SECTION
SCALE: NTS

7 DROPPED CEILING MOUNTING DETAIL
SCALE: NS

8 I-JOIST MOUNTING DETAIL
SCALE: NS

9 BAR JOIST MOUNTING DETAIL
SCALE: NS

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Notes

2	ADDENDUM 2	BL	1	10/14/25
Revision		By	Appd	YYYY.MM.DD
ADDENDUM 2		BRL	RSL	2025.10.14
Issued		By	Appd	YYYY.MM.DD
File Name: N/A		Author	Designer	Checker	2025.07.23
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695 INDEPENDECE BLVD, MISSOURI CITY, TX 77489

Title
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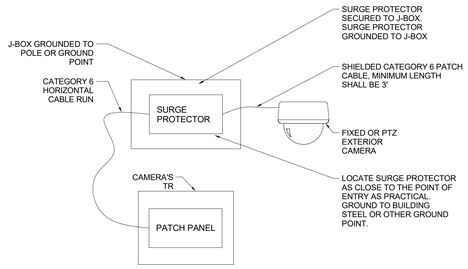
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Scale
Revision 2
Drawing No.
T502 - HGES

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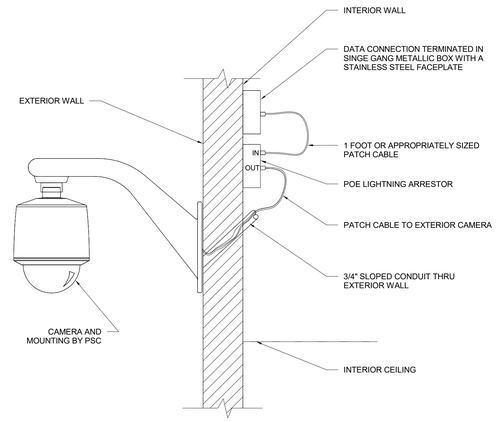
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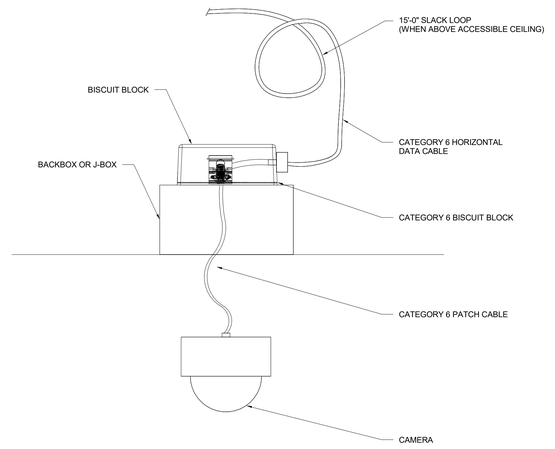
1. REFER TO SECURITY SCHEDULE AND WRITTEN SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE WEATHER PROOF/WATER RESISTANT ENCLOSURE FOR ALL EXTERIOR CAMERAS.
3. ALL CABLES FROM CAMERAS SHALL BE INSTALLED IN FLEXIBLE AND/OR RIGID CONDUIT.
4. ALL MOUNTING DETAILS ARE REFERENCE FOR ALL FIXED DOME, 180°, 360°, PTZ, AND "BULLET/BOX" CAMERAS.



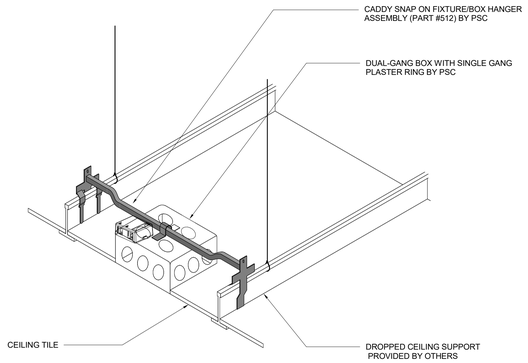
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SCALE: NS



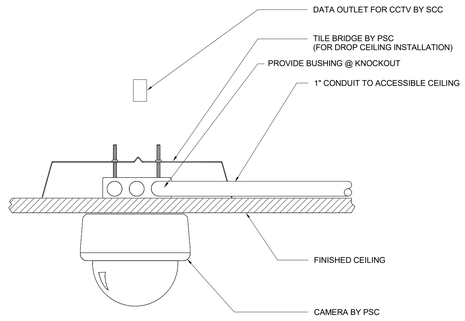
2 EXTERIOR WALL MOUNTED CAMERA DETAIL
SCALE: NTS



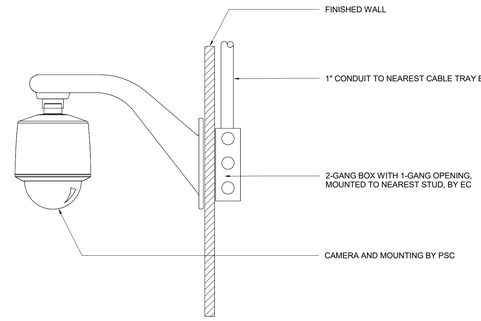
3 TYPICAL CAMERA INSTALLATION SECTION DETAIL
SCALE: NS



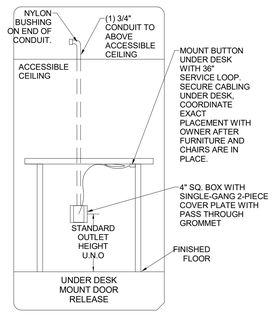
4 TILE BRIDGE DETAIL
SCALE: NS



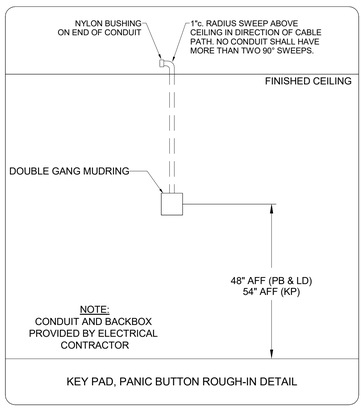
5 CEILING MOUNTED CAMERA DETAIL
SCALE: NS



6 WALL MOUNTED CAMERA DETAIL
SCALE: NS

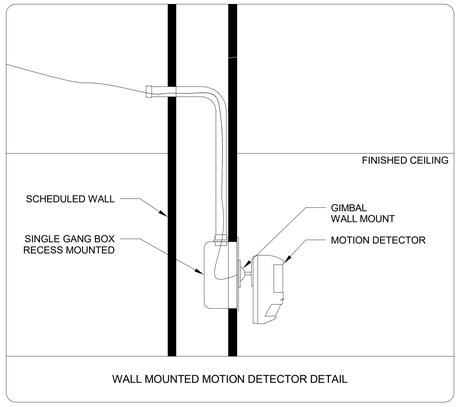


7 UNDER DESK MOUNT DOOR RELEASE BUTTON DETAIL
SCALE: NTS

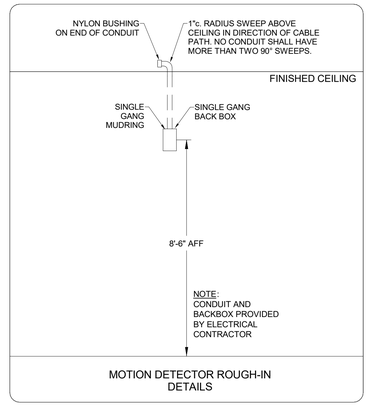


KP PB LD

1 ROUGH-IN DETAILS: KP, PB, LD
SCALE: NTS



2 WALL MOUNTED MD DETAIL
SCALE: NTS



MD

3 IDS WALL-MOUNT MD ROUGH-IN DETAIL
SCALE: NTS

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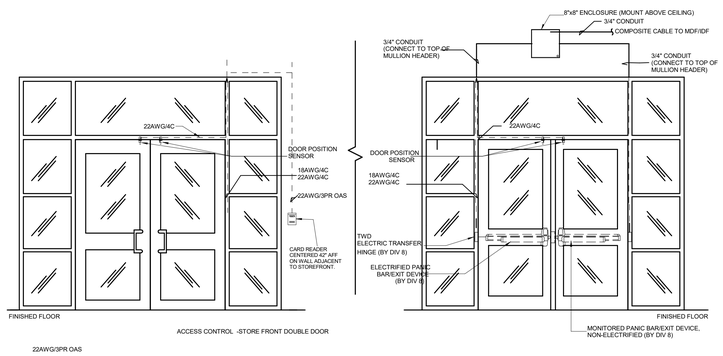
Title
TECHNOLOGY - SECURITY DETAILS

Project No. 214001246
Scale
Revision
Drawing No.

T600 - HGES

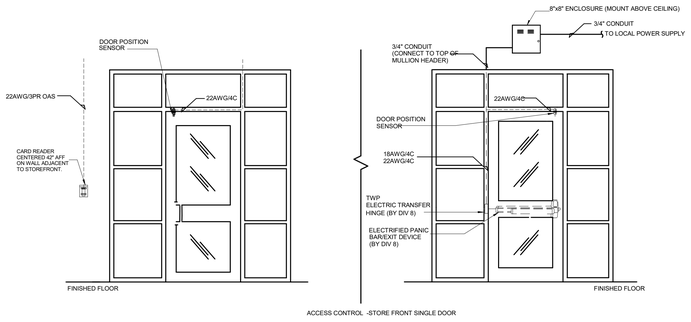
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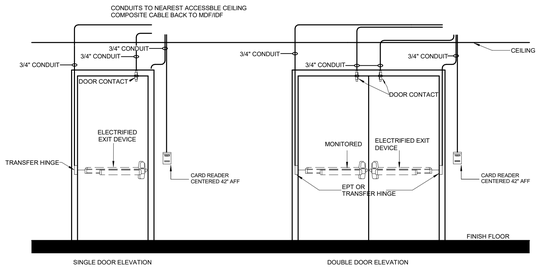
ACCESS CONTROL -STORE FRONT DOUBLE DOOR

1 ACCESS CONTROL - STORE FRONT DOUBLE DOOR
SCALE: NTS



ACCESS CONTROL -STORE FRONT SINGLE DOOR

2 ACCESS CONTROL - STORE FRONT SINGLE DOOR
SCALE: NTS



3 ACCESS CONTROL - STEEL/HOLLOW METAL DOOR.
SCALE: NTS

4 ACCESS CONTROL - PLAM / INTERIOR DOOR ELEVATION
SCALE: NTS

5 ACCESS CONTROL - WIRING DETAIL - EXIT DEVICE W/ BUILT-IN REX
SCALE: NTS

SHEET GENERAL NOTES:

1. CONDUIT ROUGH-IN IS A GUIDE FOR WHAT WILL BE REQUIRED FOR EACH DOOR. AS DOOR COMPONENTS CHANGE, EXACT CONDUIT LOCATION WILL ALSO NEED TO BE ADJUSTED.
2. CARD READERS SHOWN WITH AN ANNOTATION "M" NEXT TO THE CARD READER ARE TO BE MULLION MOUNTED AND NO CARD READER ROUGH-IN IS REQUIRED.
3. PROTECT EXISTING-TO-REMAIN ACCESS CONTROL DEVICES AND CABLE THROUGHOUT RENOVATION WORK. IF CABLE AND/OR DEVICES ARE DAMAGED, SECURITY CONTRACTOR TO REPLACE WITH NEW.

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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
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File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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Client/Project
FORT BEND ISD

HUNTERS GLEN ELEMENTARY SCHOOL

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Title
TECHNOLOGY - SECURITY DETAILS

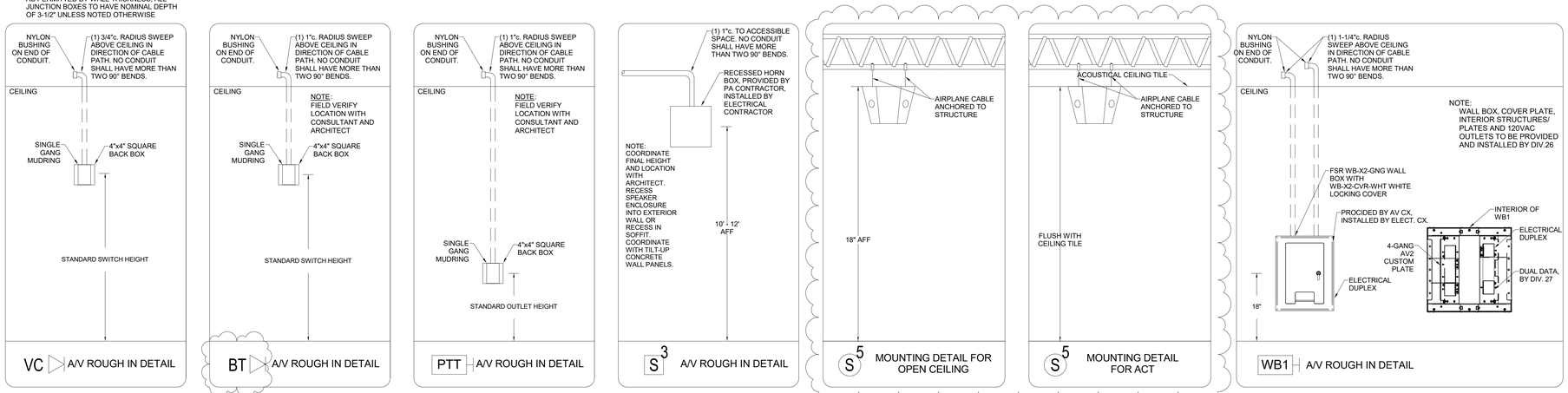
Project No. 214001246
Scale
Revision
Drawing No.

T601 - HGES

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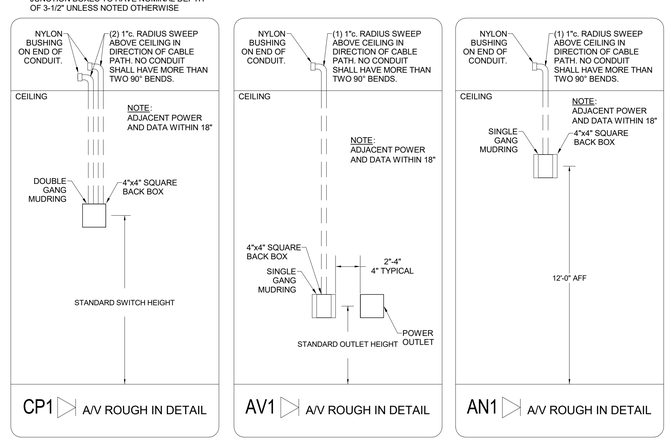
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AS PERMITTED BY WALL THICKNESS, ALL JUNCTION BOXES TO HAVE NOMINAL DEPTH OF 3-1/2" UNLESS NOTED OTHERWISE.

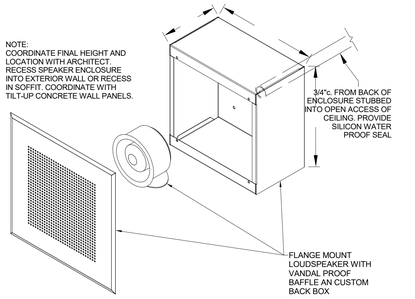


1 A/V ROUGH-IN DETAILS, PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE
SCALE: NTS

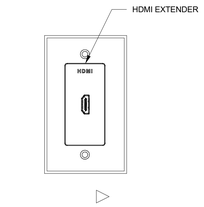
AS PERMITTED BY WALL THICKNESS, ALL JUNCTION BOXES TO HAVE NOMINAL DEPTH OF 3-1/2" UNLESS NOTED OTHERWISE.



2 A/V ROUGH-IN DETAILS, PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR
SCALE: NTS



3 OUTSIDE LOUDSPEAKER DETAIL
SCALE: NTS



4 AV1 DETAIL
SCALE: NTS

CAMERA TYPE	MANUFACTURER	MODEL NUMBER	GENERAL DESCRIPTION		
C1	PANASONIC (i-PRO)	(WV-S22500-V3L)	5MP INTERIOR VANDAL DOME - CORR., COMMON, SPED		
C2	PANASONIC (i-PRO)	(WV-S25500-V3LN)	5MP EXTERIOR VANDAL DOME		
C3	PANASONIC (i-PRO)	(WV-S4156A)	5MP 360 (FISHEYE) - STAIRWELLS		
C4	PANASONIC (i-PRO)	(WV-S8544L)	4x2MP EXTERIOR MULTI - BUILDING PERIMETER		
C5	PANASONIC (i-PRO)	(WV-S8574L)	4x4K (33MP) EXTERIOR MULTI - PARKING LOTS, STADIUM		
BY THE MANUFACTURER. DIRECT REPLACEMENT MODELS ARE IN ( ) FOLLOWING THE OLDER MODEL CAMERA.					

5 CAMERA SCHEDULE
SCALE: NTS

	PRODUCT			CONNECTED TO		DIVISION	
Number	Manufacturer	Model	Description	Paging	Program/Local	Provided By	Comments
S1	Lowell	LT2-810-72-BB	2x2 Lay-in tile Speaker	X		27 51 00	Provide 2x2 Grille with speaker (If specified in hard ceiling, replace S1 with S2).
S2	Lowell	810-72	8in Ceiling Speaker	X		27 51 00	Provide Grille and Back Box in Hard Ceiling Areas (If specified in lay-in ceiling, replace S2 with S1).
S3	Lowell	VRG-LUH15TX	Vandal and Weather Resistant 15W Horn	X		27 51 00	Provide with Back Box (Lowell CB84-SGVPO)
S4	Lowell	DSL-805-72	8" Surface Mount Speakers	X		27 51 00	
S5	Octasound	SP840A	Omnidirectional hanging speaker	X	X	27 41 00	Provide RDL ST-VP2 ducking module for integration w/ PA

6 SPEAKER SCHEDULE
SCALE: 12" = 1'-0"

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Notes

2	ADDENDUM 2	BL	1	10/14/25
Revision		By	Appd	YYYY.MM.DD
ADDENDUM 2		BRL	RSL	2025.10.14
Issued		By	Appd	YYYY.MM.DD
File Name: N/A		Author Dwn.	Designer Dsgn.	Checker Chkd.	2025.07.23 YYYY.MM.DD

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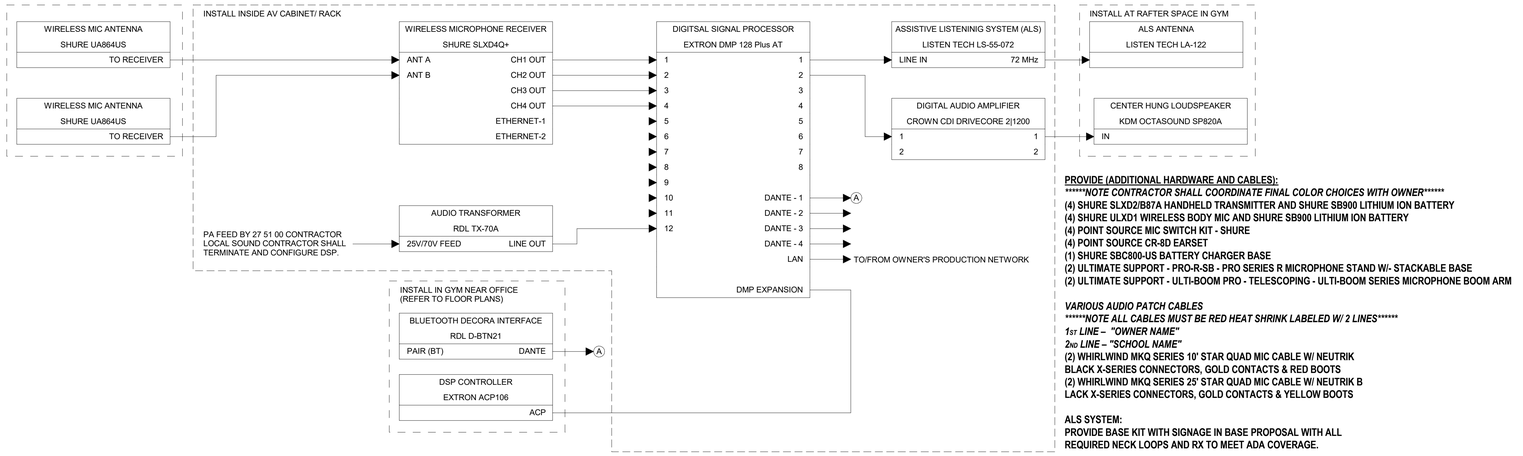
695 INDEPENDENCE BLVD, MISSOURI CITY, TX 77489

Title
TECHNOLOGY - AV DETAILS

Project No. 214001246
Scale 12" = 1'-0"
Revision 2
Drawing No. T700 - HGES

*Plot location in Project Information
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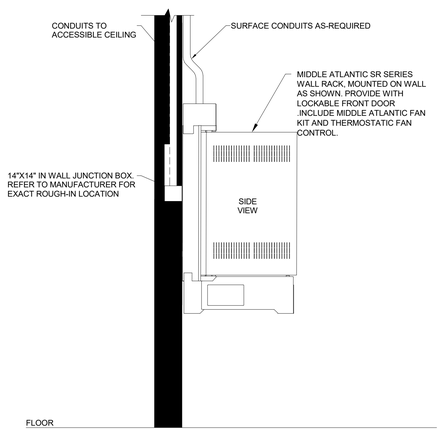


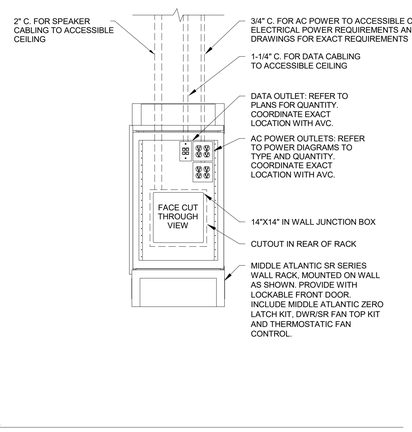
PROVIDE (ADDITIONAL HARDWARE AND CABLES):
*********NOTE CONTRACTOR SHALL COORDINATE FINAL COLOR CHOICES WITH OWNER*********
(4) SHURE SLXD2/B87A HANDHELD TRANSMITTER AND SHURE SB900 LITHIUM ION BATTERY
(4) SHURE ULXD1 WIRELESS BODY MIC AND SHURE SB900 LITHIUM ION BATTERY
(4) POINT SOURCE MIC SWITCH KIT - SHURE
(4) POINT SOURCE CR-8D EARSET
(1) SHURE SBC800-US BATTERY CHARGER BASE
(2) ULTIMATE SUPPORT - PRO-R-SB - PRO SERIES R MICROPHONE STAND W/- STACKABLE BASE
(2) ULTIMATE SUPPORT - ULTI-BOOM PRO - TELESCOPING - ULTI-BOOM SERIES MICROPHONE BOOM ARM

VARIOUS AUDIO PATCH CABLES
*********NOTE ALL CABLES MUST BE RED HEAT SHRINK LABELED W/ 2 LINES*********
1ST LINE – "OWNER NAME"
2ND LINE – "SCHOOL NAME"
(2) WHIRLWIND MKQ SERIES 10' STAR QUAD MIC CABLE W/ NEUTRIK BLACK X-SERIES CONNECTORS, GOLD CONTACTS & RED BOOTS
(2) WHIRLWIND MKQ SERIES 25' STAR QUAD MIC CABLE W/ NEUTRIK B LACK X-SERIES CONNECTORS, GOLD CONTACTS & YELLOW BOOTS

ALS SYSTEM:
PROVIDE BASE KIT WITH SIGNAGE IN BASE PROPOSAL WITH ALL REQUIRED NECK LOOPS AND RX TO MEET ADA COVERAGE.

1 ELEMENTARY GYM AV SYSTEM SCHEMATIC
SCALE: NTS



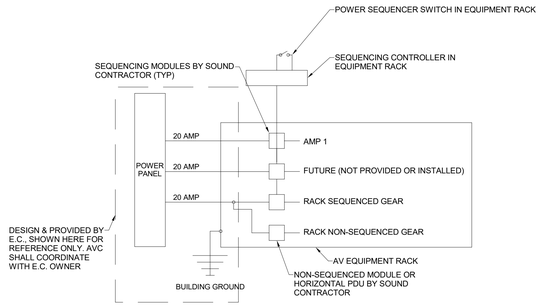


2 MIDDLE ATLANTIC SR SERIES SOUND RACK ROUGH-IN DETAIL
SCALE: NTS

RACK HEADER	
BLANK	ASSISTIVE LISTENING SYSTEM LISTEN TECH
BLANK MIDDLE ATLANTIC VTF1	
POWER SEQUENCER FURMAN CN-2400S W/ (2) CN-20MP	
BLANK MIDDLE ATLANTIC VTF1	
WIRELESS MIC RECEIVER SHURE SLXD4Q+	
BLANK MIDDLE ATLANTIC VTF1	
DIGITAL SIGNAL PROCESSOR (DSP) EXTRON DMP128 AT PLUS	
BLANK MIDDLE ATLANTIC VTF1	
AUDIO POWER AMPLIFIER CROWN CDI DRIVECORE 2|1200	
RACK STORAGE DRAWER MIDDLE ATLANTIC D2LK	

RACK SHALL BE MIDDLE ATLANTIC DWR SERIES WITH LOCKABLE FRONT DOOR. INCLUDE FAN KIT FK-22 AND THERMOSTATIC FAN CONTROL FC-4-1CA.

3 ES GYM AUDIO RACK ELEVATION
SCALE: NTS



4 ELECTRICAL POWER REQUIREMENTS FOR ES GYM AV RACK
SCALE: NTS

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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14

Issued

File Name: N/A	Author	Designer	Checker	2025.07.23
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Title
TECHNOLOGY - AV DETAILS

Project No.	Scale
214001246	
Revision	Drawing No.
	T701

•PCS location in Project Information•
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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

WALL TO DECK RATING LEGEND

▶▶▶▶▶▶▶	1-HR FIRE BARRIER WALL TO DECK (45 MIN DRS) UL No U465 AT STUD CONSTR NCMA-TEK 7-1A -FIRE RESISTANCE (2001) AT CMU CONSTR
◆◆◆◆◆◆	2-HR FIRE BARRIER WALL TO DECK (1.5 HR DRS) UL No U411 AT STUD CONSTR NCMA-TEK 7-1A -FIRE RESISTANCE (2001) AT CMU CONSTR UL No U905 AT CMU CONSTR
■■■■■■	3-HR FIRE BARRIER WALL TO DECK (2 HR DRS) UL No U419 AT STUD CONSTR NCMA-TEK 7-1A -FIRE RESISTANCE (2001) AT CMU CONSTR UL No U910 AT CMU CONSTR
●●●●●●	NON-RATED WALL TO DECK (REF DTL –/–.–) (NON-RATED OPENINGS)

NOTES:

1. ALL WALLS ARE NON-RATED WALLS TO BOTTOM OF DECK (UON).
2. ALL NON-LOADBEARING CMU WALLS SPAN VERTICALLY (UON).
3. ALL COLUMN ENCLOSURES SHALL BE THE SAME HEIGHT AS THE ADJACENT WALL (UON).
4. BRACE ALL WALLS TO STRUC ABOVE AS NOTED IN WALL BRACING NOTES AND WALL TERMINATION DETAILS ON SHEET A003.
5. REFER TO PARTITION TYPES, SHEET A009 & WALL CONSTRUCTION AND RATED ASSEMBLY UL NOS., SHEET A001, TYP.
6. FIRE RATING OF ANY "EXTERIOR" LOAD BEARING WALLS SHALL CONTINUE FOR A MIN OF 30" BELOW ROOF LINES AT STEPPED BUILDING LOCATIONS, SUCH SAME WALL BELOW SUCH POINT IS AN "INTERIOR" LOAD BEARING WALL AND FIRE RATED ACCORDING TO "INTERIOR" LOAD BEARING WALLS.
7. MARKING OF FIRE RATED & SMOKE STOP PARTITIONS: PERMANENTLY MARK ALL SMOKE BARRIERS, FIRE PARTITIONS, SHAFT ENCLOSURES, FIRE BARRIERS ABOVE CEILINGS AS FOLLOWS: "FIRE AND SMOKE BARRIER-PROTECT ALL OPENINGS". LETTERS SHALL BE MINIMUM 3" IN HEIGHT, 3/8" IN STROKE, AND PAINTED RED. IF RED IS A CONTRASTING COLOR TO THE GYPSUM BOARD, OTHERWISE USE A CONTRASTING COLOR PAINT. PROVIDE ONE TIME PER STRUCUTRAL BAY, BUT AT INTERVALS NOT MORE THAN 30' ON CENTER, OR FOR WALLS WHICH DO NOT EXTEND FOR A FULL BAY, AT LEAST ONCE. AT ENDS OF WALLS, PROVIDE MARKINGS WITHIN 15' OF THE END OF EACH WALL.

FIRE ASSEMBLY LEGEND

	FLOOR/CEILING UL ASSEMBLY No D902: 2-HR; STRUCTURAL FRAME RATED 2-HR
	EXPOSED CEILING - CEMENTITIOUS FIRE PROOFING: UL ASSEMBLY No P819: 1-HR
	STRUCTURE EXCEEDS 20 FT - FIREPROOFING NOT REQUIRED
	ROOF/CEILING UL ASSEMBLY No P819: 1-HR; STRUCTURAL FRAME RATED 2-HR
	INTUMESCENT PAINT ON ALL EXPOSED STRUCTURAL MEMBERS UL ASSEMBLY No X682, X661: 1-HR AT ROOF/CEILING AND 2-HR AT FLOOR/CEILING

NOTES:

1. PROTECT ALL CONDUIT, PIPES, DUCTS, AND MISC PENETRATIONS THROUGH RATED WALLS, FLOOR OR ROOF WITH FIRE SAFING INSULATION AND FIRE STOP SEALANT. REFER TO UL GUIDELINES FOR APPROPRIATE ASSEMBLIES.
2. PROVIDE DAMPERS AND LIGHT FIXTURE PROTECTION AS REQUIRED BY UL ASSEMBLIES.
3. PROVIDE SPRAY-ON FIRE PROTECTION FOR STRUCTURAL MEMBERS CROSSING FROM AN AREA DESIGNATED TO BE A FIRE RATED FLOOR/CEILING AND OR FIRE RATED ROOF/CEILING ASSEMBLY INTO AREAS WITH ANY OTHER FIRE ASSEMBLY OR NO FIRE ASSEMBLY FOR THEIR FULL LENGTH, TYP.
4. UL ASSEMBLIES INDICATED ESTABLISH A PERFORMANCE BASIS. OTHER ASSEMBLIES MAY BE CONSIDERED AT THE DISCRETION OF THE ARCHITECT IF EQUIVALENT PERFORMANCE IS PROVIDED. SUBSTITUTION PROPOSALS SHALL INCLUDE CHANGES REQUIRED TO ALL COMPONENTS OF THE ASSEMBLY.
5. ALL STEEL COLUMNS - SPRAY ON FIREPROOFING, UL ASSEMBLY X795, U.O.N (REF SHEET A021)

OCCUPANCY / EGRESS LEGEND:

INTERIOR AND EXTERIOR DOOR EGRESS (IBC SECTION 1005.1)

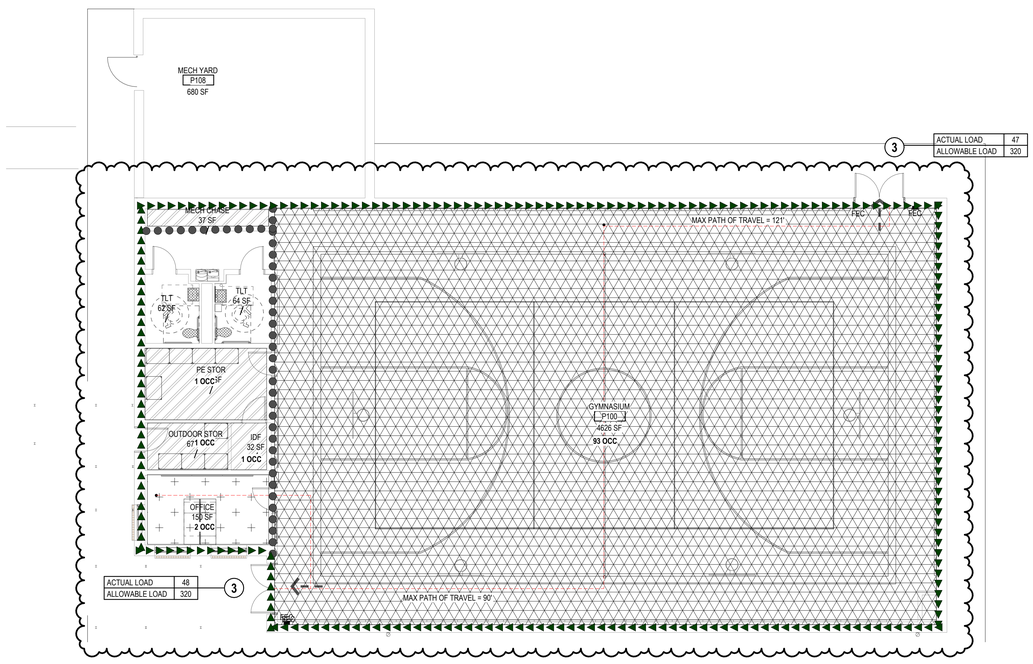
1. 3'-0" DOOR (32" CLR) AT .20"/OCCUPANT = 160 OCCUPANTS
2. 4'-0" DOOR (44" CLR) AT .20"/OCCUPANT = 220 OCCUPANTS
3. PAIR 3'-0" DOOR (64" CLR) AT .20"/OCCUPANT = 320 OCCUPANTS

OCCUPANCY / EGRESS LEGEND:

ROOM NAME
AREA
##
OCCUPANT LOAD

AREA CLASSIFICATION (SEC 302 / TABLE 1004.1.2)

- ACCESORY STORAGE AREAS, MEP ROOM (300 GROSS)
- ASSEMBLY UNCONCENTRATED (15 NET)
- BUSINESS (150 GROSS)
- EXERCISE ROOMS (50 GROSS)



A1 / G102 — **GYMNASIUM - LIFE SAFETY PLAN**

1/8" = 1'-0"

PES

PROJECT GENERAL INFORMATION:

PROJECT	PALMER ELEMENTARY SCHOOL ADDITION AND RENOVATIONS	
LOCATION	4208 CROW VALLEY DR, MISSOURI CITY, TX 77459	
BUILDING HEIGHT	ONE STORY	
JURISDICTION	MISSOURI CITY	
FLOOR AREA SUMMARY	EXISTING CLASSROOM BUILDING:	68,312 SF
	EXISTING EXTENDED LEARNING PROGRAM (ELP) AND GYMNASIUM BUILDING:	4,985 SF
	TOTAL EXISTING FLOOR AREA SUMMARY:	**73,297 SF**
	DETACHED NEW GYMNASIUM:	5,803 SF
	NEW FLOOR AREA SUMMARY:	**5,803 SF**
RENOVATION AREA SUMMARY	AREA OF RENOVATION (CLASSROOM BUILDING):	55,800 SF
	AREA OF RENOVATION EXISTING ELP & GYM :	3,483 SF

OVERALL SCOPE OF WORK SUMMARY:

MINOR RENOVATIONS ON EXISTING CLASSROOM BUILDING, MINOR RENOVATIONS ON EXISTING DETACHED EXTENDED LEARNING PROGRAM(ELP) AND GYMNASIUM BUILDING , CONSTRUCTION OF A DETACHED NEW GYMNASIUM BUILDING

1. SCOPE OF WORK SUMMARY (EXISTING CLASSROOM BUILDING):

INTERIOR - REPLACE EXISTING CARPETING AND BASE IN CLASSROOMS. RE-PAINT EXISTING CORRIDORS. RE-STAIN EXISTING STAGE STEPS IN CAFETETRIA

EXTERIOR - REPLACE FABRIC. AND RE-PAINT STRUCTURE OVER HARDTOP. RE-STRIPE HARDTOP SURFACE. REPLACE LOWER LEVEL PLAYGROUND. PROVIDE CANOPY OVER PLAYGROUND.

IRRIGATION AROUND BUILDING PERIMETER
RE-GRADING AREA AROUND PLAYGROUNDS
INSTALLING MISCELLANEOUS SIDEALK DRAINS

2. SCOPE OF WORK SUMMARY (EXISTING ELP & GYM BUILDING):

INTERIOR - REPLACE LIGHT FIXTURES W/ LED LIGHT FIXTURES
PROVIDE PIPE PROTECTION AT EXISTING SINKS IN BOYS AND GIRLS RESTROOMS. PROVIDE ACT LAY-IN CEILING

3. SCOPE OF WORK SUMMARY (NEW GYMNASIUM BUILDING):
PROVIDE NEW 5,803 SF TYPE II-B NON-SPRINKLERED GYM BUILDING

CODE REVIEW-EXISTING ELP/GYMNASIUM: IEBC 2021

EXISTING CONSTRUCTION TYPE	II-B,NON-SPRINKLERED
PRIMARY OCCUPANCY (SEC. 305)	EDUCATIONAL GROUP "E"
SCOPE OF WORK SUMMARY	**LEVEL 1 ALTERATIONS(§602.1):** • PROVIDE NEW LIGHTING • PROVIDE NEW ACT CEILING • PROVIDE PIPE PROTECTION AT GIRLS AND BOYS LAVATORIES
FIRE PROTECTION (703.1)	ALTERATIONS SHALL BE DONE IN A MANNER THAT MAINTAINS THE LEVEL OF FIRE PROTECTION PROVIDED." ONLY A 3,444 SF OF EXISTING CLASSROOM BUILDING IS SPRINKLERED.

CODE REVIEW- NEW GYMNASIUM BUILDING: IBC 2021

NEW CONSTRUCTION TYPE	II-B,NON-SPRINKLERED
PRIMARY OCCUPANCY (SEC. 305)	"A-3" ASSEMBLY SERVING EDUCATIONAL GROUP "E"
SCOPE OF WORK SUMMARY	NEW 5,803 SF GYMNASIUM FOR EXISTING STUDENT POPULATION
ALLOWABLE AREA AND HEIGHT LIMITATIONS(TAB 504.3, 504.4, 506.2)	9,500 SF /55 FT HIGH/2 STORIES
ACTUAL AREA AND HEIGHT	5,803 SF /26 FT HIGH/1 STORY
FIRE SEPARATION DISTANCE	24' 7 1/2", 10>X>30
FIRE-RESISTANCE RATING REQUIREMENTS (TAB 601)	0
PRIMARY STRUCTURAL FRAME	0
BEARING WALLS, NON-BEARING WALLS	0
FLOOR CONSTRUCTION	0
ROOF CONSTRUCTION	0
EXIT ACCESS TRAVEL DISTANCE (TAB.1017)	200'

EGRESS REQUIREMENTS: IBC 2021

OCCUPANCY LOADS: **(TABLE 1004.5)**

FUNCTION OF SPACE:	SQ. FT PER OCCUPANT:
ACCESSORY STORAGE AREAS, MECH. EQUIPMENT ROOMS	300 GROSS
ASSEMBLY W/OUT FIXED SEATS:	
CONCENTRATED (CHAIRS ONLY)	7 NET
STANDING SPACE	5 NET
UNCONCENTRATED (TABLES AND CHAIRS)	15 NET
BUSINESS AREAS	150 GROSS
EXERCISE ROOMS	50 GROSS

REQUIRED EGRESS WIDTH:

MINIMUM CORRIDOR WIDTH (SEC. 1005.3.2)	44" MIN OR .15" PER OCCUPANT
NUMBER OF EXITS REQUIRED (TABLE 1006.3.1 / TABLE 1006.3.2(2)	
1-49 OCCUPANTS	1
51-500 OCCUPANTS	2
MAXIMUM TRAVEL DISTANCE TO AN EXIT (TABLE 1017.2)	200'
MAXIMUM LENGTH OF DEAD END CORRIDORS (1020.4)	50' OR UNLIMITED LENGTH WHEN MIN. WIDTH < 2.5 TIMES THE WIDTH OF THE DEAD END CORRIDOR
COMMON PATH OF TRAVEL (TABLE 1006.2.1)	< 30 OCC SERVED = 75'-0" TO CHOICE OF 2 EXIT PATHS

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Notes

1 ADDENDUM #2				2025.10.16
Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
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	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title

GYMNASIUM LIFE SAFETY & CODE REVIEW PLAN

Project No. 214001246

Scale As indicated

Revision 1

Drawing No. **G102 - PES**

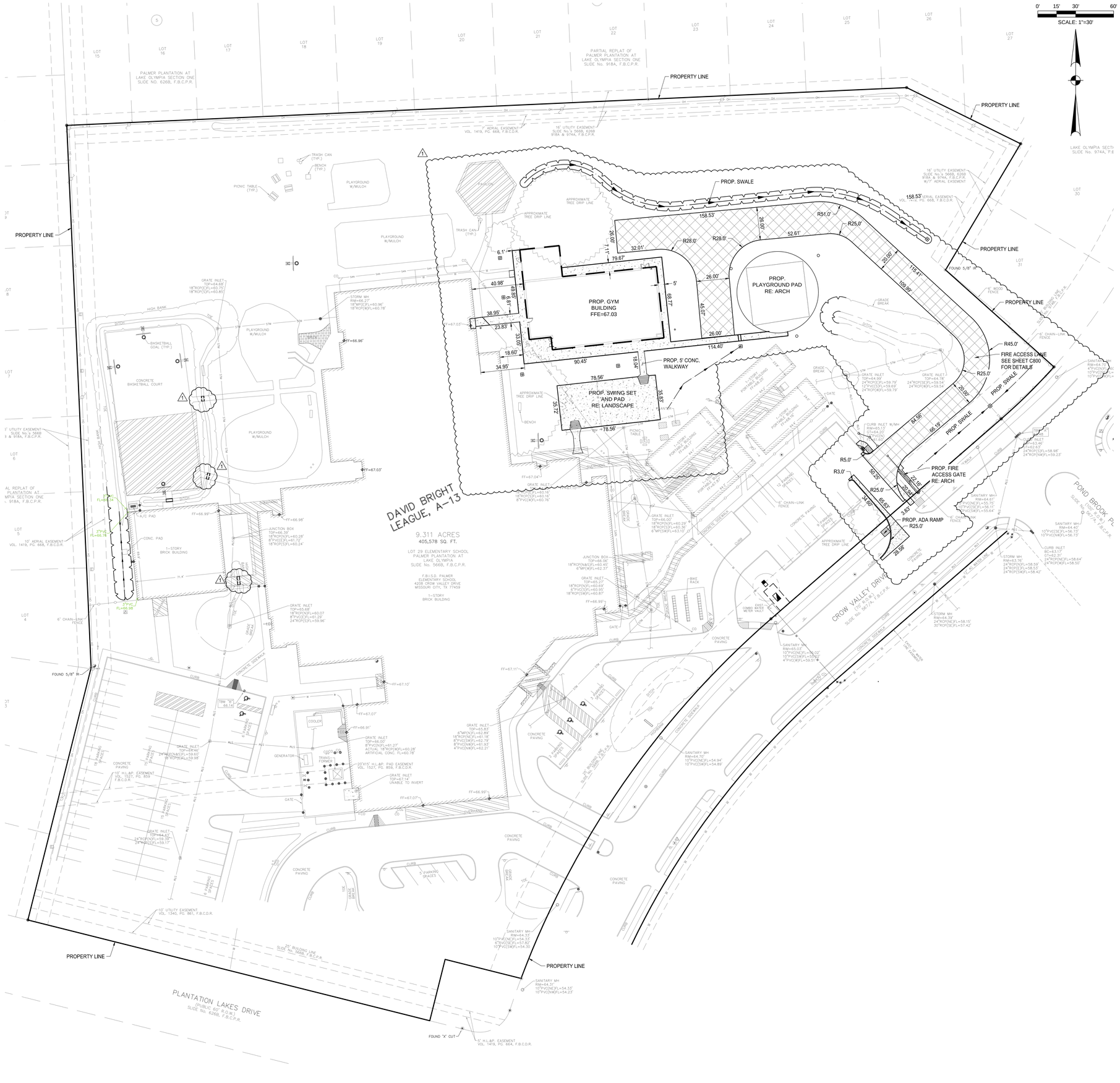
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ORIGINAL SHEET - ARCH E1

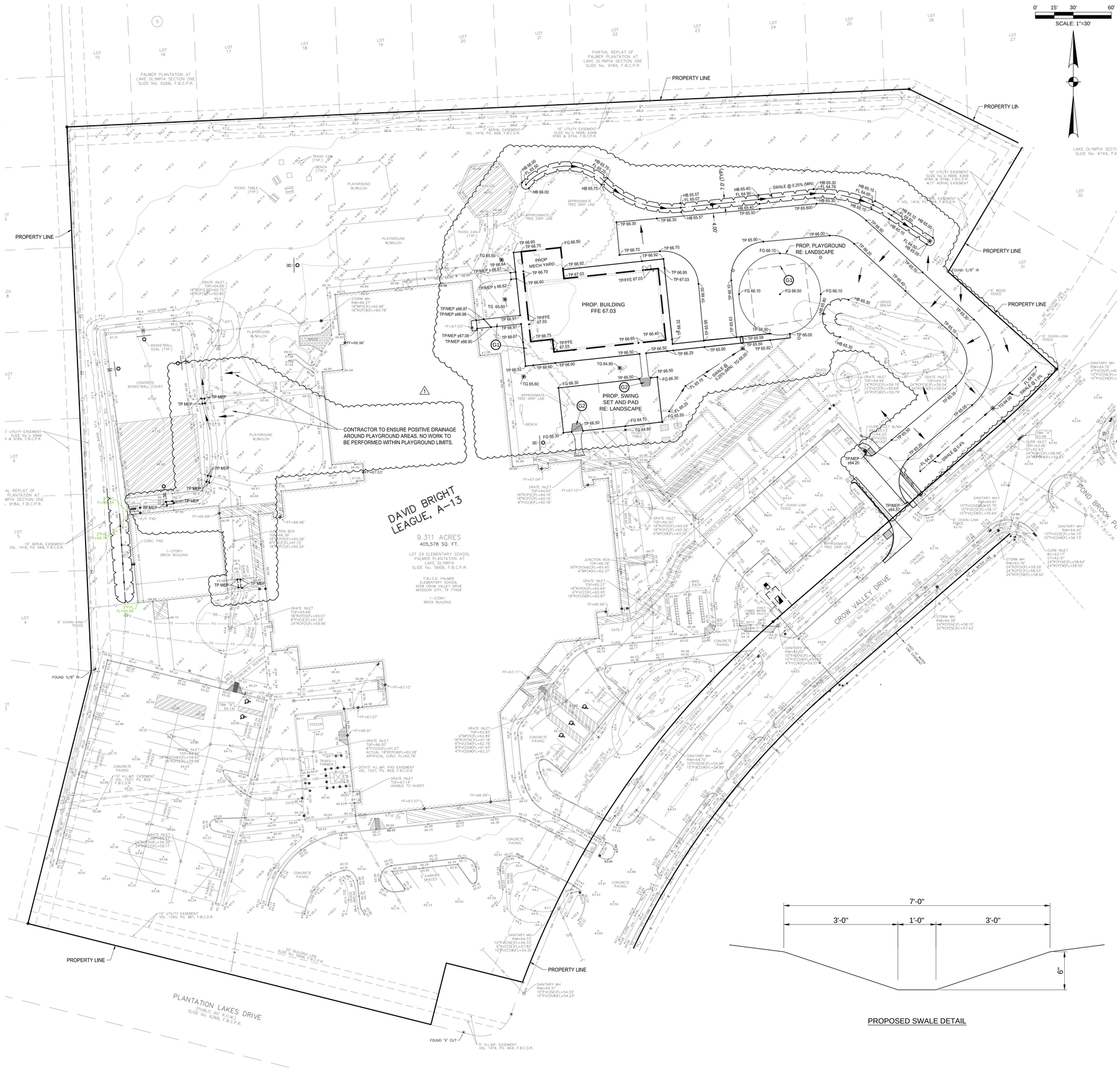
Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2


DAVID BRIGHT LEAGUE, A-13
9.311 ACRES
405,578 SQ. FT.
LOT 29 ELEMENTARY SCHOOL PALMER PLANTATION AT LAKE OLYMPIA SLIDE No. 5668, F.B.C.P.R.
F.B.I.S.D. PALMER ELEMENTARY SCHOOL 4208 CROW VALLEY DRIVE MISSOURI CITY, TX 77459
1-STORY BRICK BUILDING
PARTIAL REPLAT OF PALMER PLANTATION AT LAKE OLYMPIA SLIDE No. 918A, F.B.C.P.R.
PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE NO. 626B, F.B.C.P.R.
LAKE OLYMPIA SECTION ONE SLIDE No. 974A, F.B.C.P.R.
CROW VALLEY DRIVE (PUBLIC 60' R.O.W.) SLIDE No. 5668, F.B.C.P.R.
PLANTATION LAKES DRIVE (PUBLIC 80' R.O.W.) SLIDE No. 626B, F.B.C.P.R.
POND BROOK PLACE SLIDE No. 974A, F.B.C.P.R.
PLAYGROUND W/MULCH
PAVILION
BENCH
PICNIC TABLE (TYP.)
TRASH CAN (TYP.)
APPROXIMATE TREE DRIP LINE
BASKETBALL GOAL (TYP.)
CONCRETE BASKETBALL COURT
1-STORY PORTABLE BUILDING FF=68.18
CONCRETE PAVING
5 PARKING SPACES
BIKE RACK
GRADE BREAK
DITCH
HIGH BANK
TOE
GATE
A/C PAD
CONC. PAD
GENERATOR
TRANSFORMER
COOLER
CONCRETE SIDEWALK
6' CHAIN-LINK FENCE
6' WOOD FENCE
OVERHANG
FOUND 5/8" IR
FOUND "X" CUT
TBM "B" EL=66.14
SANITARY MH RIM=64.70' 4"PVC(N/P)L=60.67' 10"PVC(NE)L=56.05' 10"PVC(SW)FL=56.04'
SANITARY MH RIM=64.41' 10"PVC(SE)FL=56.73' 10"PVC(NW)FL=56.73'
SANITARY MH RIM=64.33' 10"PVC(NE)FL=54.33' 10"PVC(NW)FL=54.23'
SANITARY MH RIM=64.17' 10"PVC(NE)FL=54.04' 10"PVC(SW)FL=54.89'
SANITARY MH RIM=63.76' 10"PVC(SE)FL=58.15' 10"PVC(W)FL=57.42'
STORM MH RIM=63.76' 24"RCP(N)FL=58.59' 24"RCP(S)FL=58.53' 24"RCP(SW)FL=58.42'
STORM MH RIM=64.30' 30"RCP(W)FL=57.42'
CURB INLET TOP=63.40' G1=62.63' 24"RCP(SE)FL=58.98' 24"RCP(NW)FL=59.63'
CURB INLET BC=63.17' DT=62.31' 24"RCP(NE)FL=58.64' 24"RCP(W)FL=58.50'
GRATE INLET TOP=64.69' 18"RCP(E)FL=60.75' 18"RCP(S)FL=60.85'
GRATE INLET TOP=64.99' 24"RCP(E)FL=59.79' 12"PVC(S)FL=59.69' 24"RCP(W)FL=59.79'
GRATE INLET TOP=64.70' 24"RCP(E)FL=59.54' 24"RCP(W)FL=59.54'
GRATE INLET TOP=64.70' 24"RCP(E)FL=59.54' 24"RCP(W)FL=59.54'
GRATE INLET TOP=64.23' 24"RCP(N)FL=59.33' 24"RCP(S)FL=59.17'
GRATE INLET TOP=65.68' 6"MP(S)FL=63.16'
GRATE INLET TOP=65.83' 6"MP(N)FL=62.85' 18"RCP(NE)FL=61.18' 8"PVC(SW)FL=62.79' 8"PVC(NW)FL=61.93' 4"PVC(N)FL=62.21'
GRATE INLET TOP=65.27' 18"RCP(N)FL=60.69' 6"PVC(S)FL=60.95' 18"RCP(SW)FL=60.87'
GRATE INLET TOP=66.00' 8"PVC(N)FL=61.23' ACTUAL 18"RCP(W)FL=60.28' ARTIFICIAL CONC. FL=60.78'
GRATE INLET TOP=67.14' UNABLE TO INVERT
JUNCTION BOX TOP=66.59' 18"RCP(N)FL=60.28' 8"PVC(E)FL=61.72' 18"RCP(S)FL=60.24'
JUNCTION BOX TOP=66.06' 18"RCP(N&S)FL=60.45' 6"MP(W)FL=62.33'
JUNCTION BOX TOP=66.06' 18"RCP(N)FL=60.23' 8"PVC(S)FL=61.29' 24"RCP(S)FL=59.96'
JUNCTION BOX TOP=66.06' 18"RCP(N)FL=60.45' 18"RCP(S)FL=60.37'
STORM MH RIM=66.27' 18"MP(E)FL=60.96' 18"RCP(W)FL=60.78'
20'X15' H.L.&P. PAD EASEMENT VOL. 1527, PG. 859, F.B.C.D.R.
10' H.L.&P. EASEMENT VOL. 1527, PG. 859, F.B.C.D.R.
5' H.L.&P. EASEMENT VOL. 1419, PG. 664, F.B.C.D.R.
10' UTILITY EASEMENT VOL. 1340, PG. 861, F.B.C.D.R.
10' AERIAL EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
7' AERIAL EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
16' UTILITY EASEMENT SLIDE No.'s 5668, 626B 918A & 974A, F.B.C.P.R.
25' BUILDING LINE SLIDE NO. 5668, F.B.C.P.R.
UG COMM. LINE TOP=67.2' COVER=0'
UG COMM. LINE TOP=67.2' COVER=0'
UG COMM. LINE TOP=67.2' COVER=0'
UG ELEC. LINE TOP=68.6' COVER=0'
UG GAS LINE TOP=65.5' COVER=2'
UG GAS LINE TOP=65.9' COVER=3'
UG GAS LINE TOP=65.9' COVER=3'
UG GAS LINE TOP=65.9' COVER=3'
UG GAS LINE TOP=65.9' COVER=3'
UG GAS LINE TOP=65.9' COVER=3'
UG ELEC. LINE TOP=65.8' COVER=3'
UG ELEC. LINE TOP=65.8' COVER=3'
UG ELEC. LINE TOP=65.8

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2


PROPERTY LINE
PROP. SWALE
PROP. GYM BUILDING FFE=67.03
PROP. PLAYGROUND PAD RE: ARCH
PROP. 5' CONC. WALKWAY
PROP. SWING SET AND PAD RE: LANDSCAPE
PROP. FIRE ACCESS GATE RE: ARCH
PROP. ADA RAMP R25.0'
FIRE ACCESS LANE SEE SHEET C800 FOR DETAIL 8
DAVID BRIGHT LEAGUE, A-13
9.311 ACRES
405,578 SQ. FT.
LOT 29 ELEMENTARY SCHOOL PALMER PLANTATION AT LAKE OLYMPIA SLIDE No. 5668, F.B.C.P.R.
F.B.I.S.D. PALMER ELEMENTARY SCHOOL 4208 CROW VALLEY DRIVE MISSOURI CITY, TX 77459
1-STORY BRICK BUILDING
CROW VALLEY DRIVE
(PUBLIC 60' R.O.W.) SLIDE No. 5667/A, F.B.C.P.R.
PLANTATION LAKES DRIVE
(PUBLIC 60' R.O.W.) SLIDE No. 6268, F.B.C.P.R.
POND BROOK PL
SLIDE No. 6268, F.B.C.P.R.
PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE No. 6268, F.B.C.P.R.
PARTIAL REPLAT OF PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE No. 918A, F.B.C.P.R.
LAKE OLYMPIA SECTI SLIDE No. 974A, F.E
16' UTILITY EASEMENT SLIDE No.'s 5668, 6268 918A & 974A, F.B.C.P.R.
W/7' AERIAL EASEMENT
7' AERIAL EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
10' UTILITY EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
10' UTILITY EASEMENT VOL. 1340, PG. 861, F.B.C.D.R.
10' H.L.&P. EASEMENT VOL. 1527, PG. 859, F.B.C.D.R.
20'X15' H.L.&P. PAD EASEMENT VOL. 1527, PG. 859, F.B.C.D.R.
5' H.L.&P. EASEMENT VOL. 1419, PG. 664, F.B.C.D.R.
25' BUILDING LINE SLIDE No. 5668, F.B.C.P.R.
FOUND 5/8" IR
FOUND "X" CUT
TBM "B" 66.14
158.53'
R51.0'
R28.0'
R25.0'
52.61'
32.01'
79.67'
114.40'
115.41'
109.69'
90.45'
78.56'
34.95'
38.95'
40.98'
23.83'
18.60'
R45.0'
84.56'
60.19'
50.25'
52.15'
86.65'
54.60'
3.80'
29.58'
PICNIC TABLE (TYP.)
TRASH CAN (TYP.)
BENCH (TYP.)
BASKETBALL GOAL (TYP.)
CONCRETE BASKETBALL COURT
PLAYGROUND W/MULCH
CONC. PAD
JUNCTION BOX TOP=66.09' 18"RCP(W)FL=60.23' 8"PVC(S)FL=61.23' 15"RCP(S)FL=60.24'
GRATE INLET TOP=65.68' 18"RCP(N)FL=60.07' 8"PVC(E)FL=61.28' 24"RCP(S)FL=59.96'
STORM MH RIM=66.27' 18"MP(E)FL=60.96' 18"RCP(W)FL=60.78'
GRATE INLET TOP=64.68' 18"RCP(E)FL=60.75' 18"RCP(S)FL=60.85'
GRATE INLET TOP=64.44' 24"RCP(N)FL=59.32' 24"RCP(W)FL=59.17'
GRATE INLET TOP=64.63' 24"RCP(N&S)FL=59.60' 36"RCP(E)FL=59.94'
GRATE INLET TOP=66.00' 8"PVC(W)FL=61.23' ACTUAL 18"RCP(W)FL=60.28' ARTIFICIAL CONC. FL=60.78'
GRATE INLET TOP=67.14' UNABLE TO INVERT
GRATE INLET TOP=65.83' 6"MP(N)FL=62.19' 8"PVC(S)W)FL=62.19' 8"PVC(N)W)FL=61.93' 4"PVC(W)FL=62.21'
GRATE INLET TOP=64.99' 24"RCP(E)FL=59.73' 12"PVC(S)FL=59.69' 24"RCP(W)FL=59.79'
GRATE INLET TOP=64.74' 24"RCP(S)FL=59.54' 24"RCP(W)FL=59.54'
CURB INLET W/M.H. TOP=64.70' 24"RCP(E)FL=59.23' 12"PVC(N)FL=59.23' 24"RCP(W)FL=59.23'
GRATE INLET TOP=63.46' 24"RCP(S)FL=58.98' 24"RCP(W)FL=59.23'
SANITARY MH RIM=64.70' 4"PVC(N)FL=59.75' 10"PVC(S)FL=56.75' 10"PVC(W)FL=56.75'
SANITARY MH RIM=64.41' 4"PVC(NE)FL=55.75' 10"PVC(SE)FL=56.15' 10"PVC(SW)FL=55.64'
SANITARY MH RIM=64.40' 10"PVC(SE)FL=56.73' 10"PVC(NW)FL=56.73'
CURB INLET BC=63.17' DT=62.37' 24"RCP(NE)FL=58.64' 24"RCP(W)FL=58.50'
STORM MH RIM=63.76' 24"RCP(N)FL=58.59' 24"RCP(E)FL=58.53' 24"RCP(S&W)FL=58.42'
STORM MH RIM=64.39' 24"RCP(NE)FL=58.15' 30"RCP(SE)FL=57.42'
SANITARY MH RIM=65.03' 10"PVC(NE)FL=56.02' 10"PVC(S&W)FL=56.02' 4"PVC(W)FL=59.51'
SANITARY MH RIM=64.70' 10"PVC(N)FL=54.94' 10"PVC(SW)FL=54.89'
SANITARY MH RIM=64.33' 10"PVC(NE)FL=54.33' 8"PVC(SE)FL=57.62' 10"PVC(SW)FL=54.23'
SANITARY MH RIM=64.33' 10"PVC(NE)FL=54.33' 10"PVC(W)FL=54.23'
JUNCTION BOX TOP=66.06' 18"RCP(N&S)FL=60.45' 6"MP(W)FL=62.37'
GRATE INLET TOP=65.27' 18"RCP(N)FL=60.69' 6"PVC(S)FL=60.95' 18"RCP(S&W)FL=60.87'
GRATE INLET TOP=66.00' 18"RCP(N)FL=60.23' 6"MP(E)FL=60.36' 6"MP(S&W)FL=63.10'
GRATE INLET TOP=65.68' 18"RCP(N)FL=60.07' 8"PVC(E)FL=61.28' 24"RCP(S)FL=59.96'
JUNCTION BOX TOP=66.09' 18"RCP(N)FL=60.23' 8"PVC(E)FL=61.23' 15"RCP(S)FL=60.24

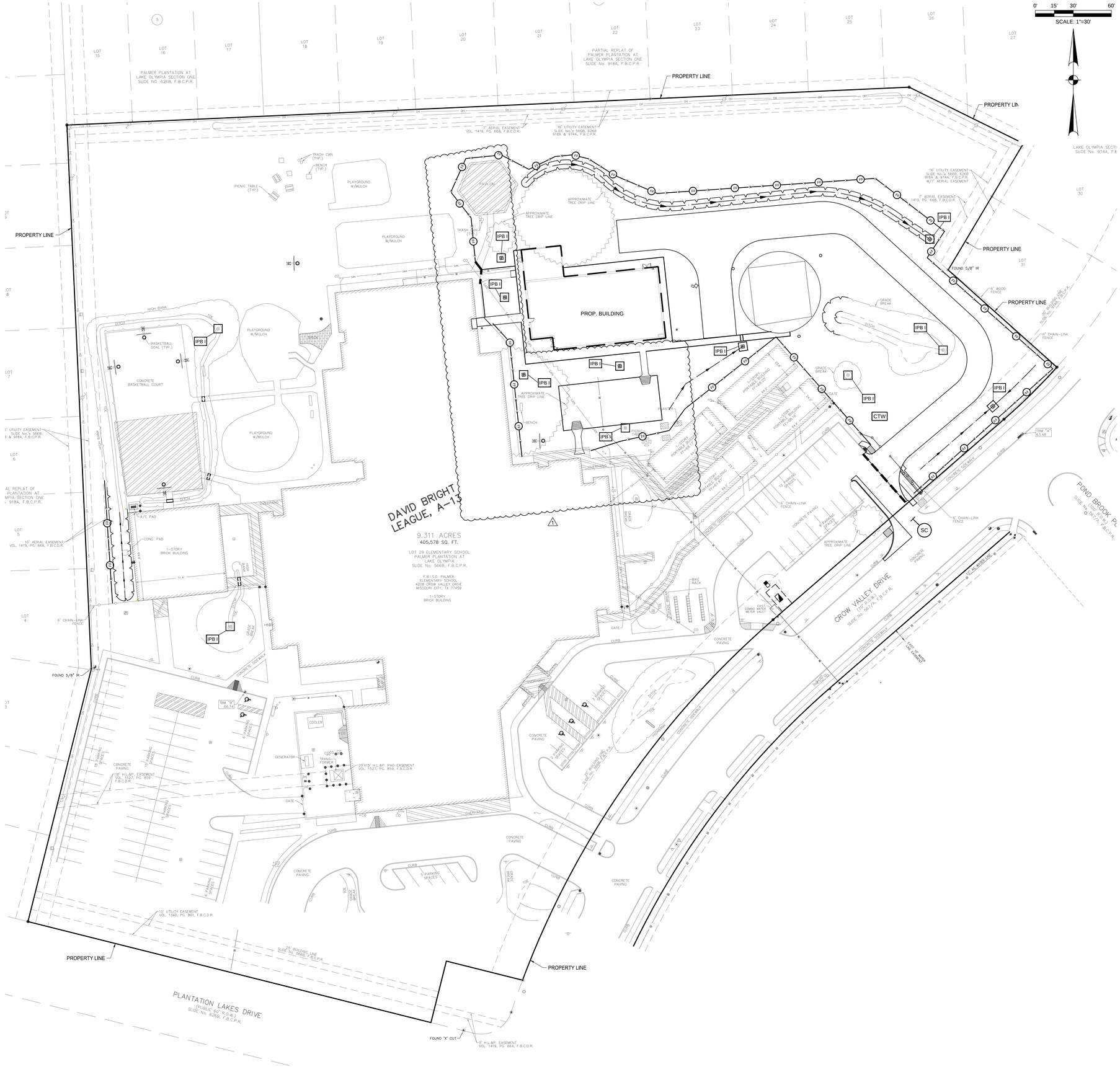
Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2


0' 15' 30' 60'
SCALE: 1"=30'
PROPERTY LINE
PROP. BUILDING FFE 67.03
PROP. PLAYGROUND RE: LANDSCAPE
PROP. SWING SET AND PAD RE: LANDSCAPE
PROP MECH YARD
CONTRACTOR TO ENSURE POSITIVE DRAINAGE AROUND PLAYGROUND AREAS. NO WORK TO BE PERFORMED WITHIN PLAYGROUND LIMITS.
DAVID BRIGHT LEAGUE, A-13
9.311 ACRES
405,578 SQ. FT.
LOT 29 ELEMENTARY SCHOOL PALMER PLANTATION AT LAKE OLYMPIA SLIDE No. 5668, F.B.C.P.R.
F.B.I.S.D. PALMER ELEMENTARY SCHOOL 4208 CROW VALLEY DRIVE MISSOURI CITY, TX 77459
1-STORY BRICK BUILDING
PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE NO. 6268, F.B.C.P.R.
PARTIAL REPLAT OF PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE No. 918A, F.B.C.P.R.
LAKE OLYMPIA SECTI SLIDE No. 974A, F.E
16' UTILITY EASEMENT SLIDE No.'s 5668, 6268 918A & 974A, F.B.C.P.R.
16' AERIAL EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
10' AERIAL EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
5' UTILITY EASEMENT SLIDE No.'s 5668 3 & 918A, F.B.C.P.R.
10' UTILITY EASEMENT VOL. 1340, PG. 861, F.B.C.D.R.
10' H.L.&P. EASEMENT VOL. 1527, PG. 859 F.B.C.D.R.
20'X15' H.L.&P. PAD EASEMENT VOL. 1527, PG. 859, F.B.C.D.R.
5' H.L.&P. EASEMENT VOL. 1419, PG. 664, F.B.C.D.R.
25' BUILDING LINE SLIDE No. 5668, F.B.C.P.R.
POND BROOK P SLIDE No. 974A, F.B.C.P.R.
CROW VALLEY DRIVE (PUBLIC 80' R.O.W.) SLIDE No. 5668, F.B.C.P.R.
PLANTATION LAKES DRIVE (PUBLIC 80' R.O.W.) SLIDE No. 6268, F.B.C.P.R.
FOUND 5/8" IR
FOUND "X" CUT
TBM "A" EL=63.48
TBM "B" EL=66.18
SWALE @ 0.25% (MIN)
SWALE @ 0.64%
SWALE @ 1.00%
7.0' (TYP)
4.00'
PROPERTY LIN
6' WOOD FENCE
6' CHAIN-LINK FENCE
BENCH (TYP.)
TRASH CAN (TYP.)
PICNIC TABLE (TYP.)
PLAYGROUND W/MULCH
BASKETBALL GOAL (TYP.)
CONCRETE BASKETBALL COURT
CONCRETE PAVING
CONC. PAD
1-STORY BRICK BUILDING
GENERATOR
GATE
COOLER
TRANSFORMER
GRADE BREAK
APPROXIMATE TREE DRIP LINE
GRATE INLET TOP=64.68' 18"RCP(E)=60.75' 18"RCP(S)=60.85'
GRATE INLET TOP=64.42' 24"RCP(N&S)FL=59.60' 36"RCP(E&W)=59.99'
GRATE INLET TOP=64.23' 24"RCP(N)FL=59.33' 24"RCP(S)FL=59.17'
GRATE INLET TOP=65.68' 18"RCP(N)FL=60.07' 8"PVC(N)FL=61.29' 24"RCP(S)FL=59.96'
GRATE INLET TOP=66.00' 8"PVC(N)FL=61.23' ACTUAL 18"RCP(W)FL=60.28' ARTIFICIAL CONC. FL=60.78'
GRATE INLET TOP=67.14' UNABLE TO INVERT
GRATE INLET TOP=65.27' 18"RCP(N)FL=60.69' 6"PVC(S)FL=60.95' 18"RCP(SW)FL=60.87'
GRATE INLET TOP=66.00' 18"RCP(N&S)FL=60.45' 6"MP(W)FL=62.33'
GRATE INLET TOP=66.06' 6"MP(N)FL=63.06' 6"MP(SW)FL=63.16'
GRATE INLET TOP=66.60' 18"RCP(E)FL=60.16' 18"RCP(S)FL=60.16' 8"PVC(W)FL=60.76'
GRATE INLET TOP=66.00' 18"RCP(E)FL=60.16' 18"RCP(S)FL=60.26' 8"PVC(S)FL=61.72' 18"RCP(W)FL=60.24'
GRATE INLET TOP=65.83' 6"MP(N)FL=62.89' 18"RCP(NE)FL=61.18' 8"PVC(SW)FL=62.79' 8"PVC(W)FL=61.93' 4"PVC(NW)FL=62.21'
STORM MH RIM=65.27' 18"MP(E)FL=60.96' 18"RCP(W)FL=60.78'
STORM MH RIM=63.76' 24"RCP(N/SW)FL=58.59' 24"RCP(E)FL=58.53' 24"RCP(W)FL=58.42'
STORM MH RIM=64.39' 30"RCP(N/SW)FL=57.42'
SANITARY MH RIM=64.70' 4"PVC(N/NW/E)FL=60.70' 10"PVC(S)FL=54.90'
SANITARY MH RIM=64.33' 10"PVC(N&E)FL=54.33' 6"PVC(SE)FL=57.62' 10"PVC(SW)FL=54.23'
SANITARY MH RIM=64.70' 10"PVC(N)FL=56.73' 10"PVC(NW)FL=56.73'
SANITARY MH RIM=64.40' 10"PVC(SE)FL=56.73' 10"PVC(NW)FL=56.73'
SANITARY MH RIM=65.03' 10"PVC(NE/W)FL=56.00' 10"PVC(S)FL=56.00' 4"PVC(W)FL=59.03'
SANITARY MH RIM=64.70' 10"PVC(NE)FL=54.94' 10"PVC(SW)FL=54.89'
SANITARY MH RIM=64.61' 10"PVC(N&E)FL=55.75' 10"PVC(SE)FL=56.15' 10"PVC(S/W)FL=55.64'
CURB INLET BC=63.17' DT=62.31' 24"RCP(N/E)FL=58.64' 24"RCP(W)FL=58.50'
JUNCTION BOX TOP=64.59' 18"RCP(N)FL=60.23' 18"RCP(S)FL=60.23' 15"RCP(W)FL=60.24'
JUNCTION BOX TOP=66.06' 18"RCP(N&S)FL=60.45'
TP MEP
TP/MEP ±64.20
TP/MEP ±64.57
TP/MEP ± 66.62
TP/MEP ±66.87
TP/MEP ±66.98
TP/MEP ±67.08
TP/MEP ±66.90
TP/FFE 67.03
TG 65.60
TG 64.90
TG 64.60
TG 66.30
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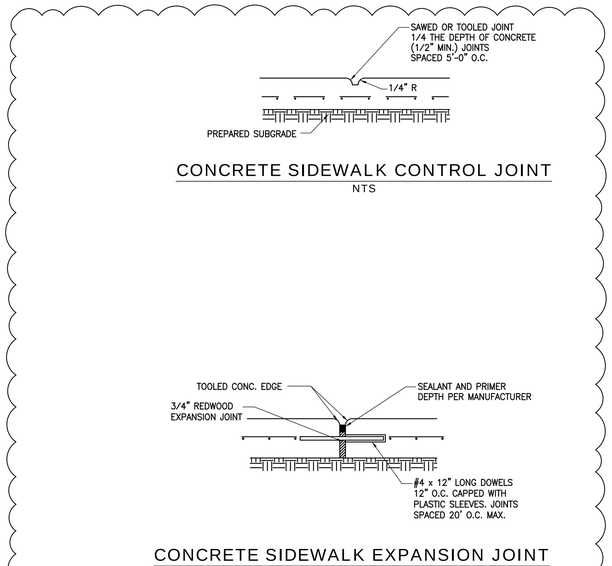
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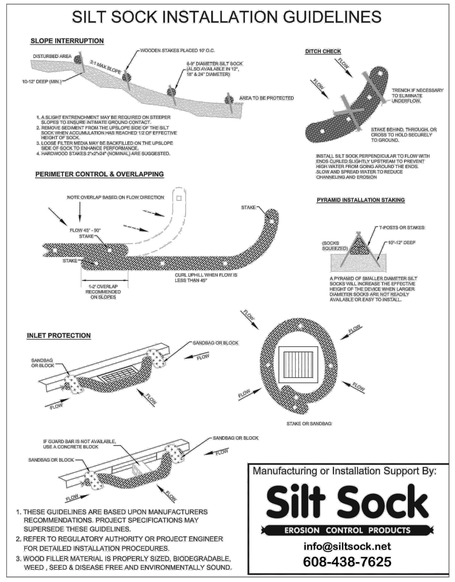

0' 15' 30' 60'
SCALE: 1"=30'
PROPERTY LINE
PROP. BUILDING (GYM) FF = 67.03
PROP. SIDEWALK DRAIN
PROP. DITCH EXPANSION
PROP. DITCH CL
PROP. 160 LF 10" HDPE @ 0.50%
PROP. 2" DOM. WTR.
PROP. 12" HDPE (N) FL 60.26
DAVID BRIGHT LEAGUE, A-13
9.311 ACRES
405,578 SQ. FT.
LOT 29 ELEMENTARY SCHOOL PALMER PLANTATION AT LAKE OLYMPIA SLIDE No. 5668, F.B.C.P.R.
F.B.I.S.D. PALMER ELEMENTARY SCHOOL 4208 CROW VALLEY DRIVE MISSOURI CITY, TX 77459
1-STORY BRICK BUILDING
PROP. 6" FIRE WATER LINE
PROP. 4" SANITARY CONNECTION FL 61.86 (4" N)
PROP. 8" STORM CONNECTION FL 62.36 (8" E)
PROP. 2" DOM. WATER CONNECTION
PROP. AREA INLET TG 65.50 FL 61.39
PROP. AREA INLET TG 65.60 FL 60.27
PROP. AREA INLET TG 65.60 FL 60.81
PROP. AREA INLET TG 64.90 FL 60.48
PROP. 35' - 4" PVC SAN. @
PROP. 30' - 4" PVC SAN. @
PROP. 31 LF - 8" HDPE STM. @ 0.75%
PROP. 63 LF 12" HDPE STM. @ 0.44%
PROP. 36 LF 8" HDPE STM. @ 0.75%
PROP. 76 LF 12" HDPE STM. @ 0.44%
PROP. SWALE @ 0.5%
PROP. 72' - 6" HDPE STM. SWR. @ 1.0%
PROP. 90' - 6" HDPE STM. SWR. @ 1.0%
PROP. 88' 12" HDPE STM. SWR. @ 0.44%
PROP. 26' - 6" HDPE STM. SWR. @ 1.0%
PROP. 46' - 12" HDPE STM. SWR. @ 0.44%
PROP. 16' - 6" HDPE STM. SWR. @ 1.0%
PROP. 47' - 12" HDPE STM. SWR. @ 0.44%
PROP. 98' - 10" HDPE STM. SWR. @ 0.56%
TG 64.50 FL 59.93 (12")
TG 65.00 FL 59.20 (12" NE) FL 60.20(8"NW) FL 60.20(10" SW)
TG 64.00
FL 64.30
SWALE @ 0.4%
FL 64.50
SWALE @ 1.0%
PROP. 2" DOM. WTR.
PROP. 1" DOM. WTR.
PROP. 6" DOM. WTR.
PROP. 4" DOM. WTR.

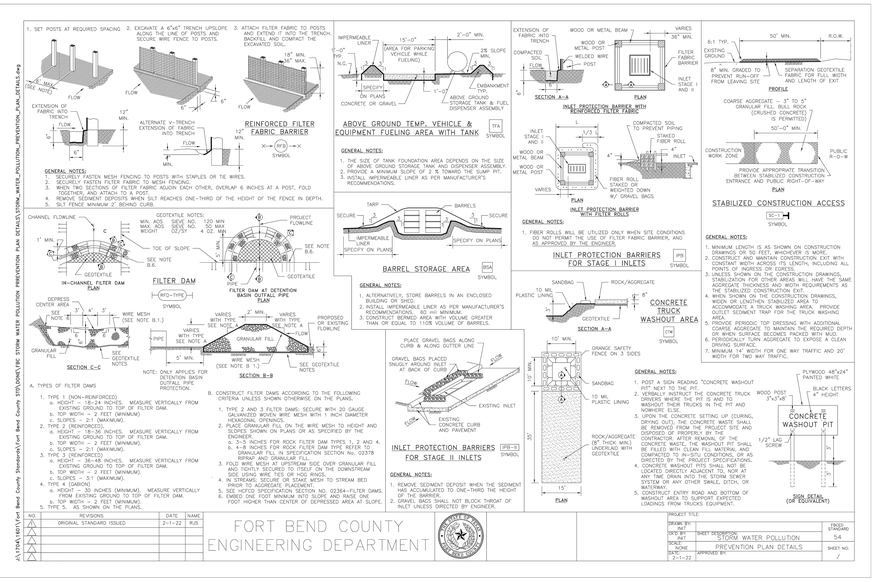
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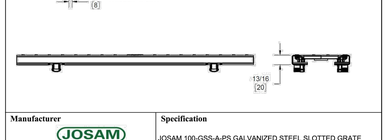

SCALE: 1"=30'
0' 15' 30' 60'
PROPERTY LINE
PROP. BUILDING
DAVID BRIGHT LEAGUE, A-13
9.311 ACRES
405,578 SQ. FT.
LOT 29 ELEMENTARY SCHOOL PALMER PLANTATION AT LAKE OLYMPIA SLIDE No. 5668, F.B.C.P.R.
F.B.I.S.D. PALMER ELEMENTARY SCHOOL 4208 CROW VALLEY DRIVE MISSOURI CITY, TX 77459
1-STORY BRICK BUILDING
PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE No. 6268, F.B.C.P.R.
PARTIAL REPLAT OF PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE No. 918A, F.B.C.P.R.
LAKE OLYMPIA SECTI SLIDE No. 974A, F.B
7' AERIAL EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
16' UTILITY EASEMENT SLIDE No.'s 5668, 6268 918A & 974A, F.B.C.P.R.
16' UTILITY EASEMENT SLIDE No.'s 5668, 6268 918A & 974A, F.B.C.P.R. W/7' AERIAL EASEMENT
5' UTILITY EASEMENT SLIDE No.'s 5668 3 & 918A, F.B.C.P.R.
10' AERIAL EASEMENT VOL. 1419, PG. 668, F.B.C.D.R.
10' H.L.&P. EASEMENT VOL. 1527, PG. 859 F.B.C.D.R.
20'X15' H.L.&P. PAD EASEMENT VOL. 1527, PG. 859, F.B.C.D.R.
10' UTILITY EASEMENT VOL. 1340, PG. 861, F.B.C.D.R.
25' BUILDING LINE SLIDE No. 5668, F.B.C.P.R.
5' H.L.&P. EASEMENT VOL. 1419, PG. 664, F.B.C.D.R.
6' WOOD FENCE
6' CHAIN-LINK FENCE
CROW VALLEY DRIVE (70' R.O.W.) SLIDE No. 5877, F.B.C.P.R.
PLANTATION LAKES DRIVE (PUBLIC 80' R.O.W.) SLIDE No. 6268, F.B.C.P.R.
POND BROOK DR SLIDE No. 974A, F.B.C.P.R.
FOUND 5/8" IR
FOUND "X" CUT
TBM "B" 66.14
TBM "A" 63.48
PLAYGROUND W/MULCH
PAVILION
BASKETBALL GOAL (TYP.)
CONCRETE BASKETBALL COURT
PICNIC TABLE (TYP.)
TRASH CAN (TYP.)
BENCH (TYP.)
HIGH BANK
DITCH
APPROXIMATE TREE DRIP LINE
GRADE BREAK
CONCRETE PAVING
CONCRETE SIDEWALK
CURB
GATE
A/C PAD
CONC. PAD
1-STORY BRICK BUILDING
1-STORY PORTABLE BUILDING FFE=66.18
1-STORY PORTABLE BUILDING FFE=66.03
1-STORY PORTABLE BUILDING FFE=66.48
1-STORY PORTABLE BUILDING FFE=66.33
1-STORY PORTABLE BUILDING FFE=66.63
1-STORY PORTABLE BUILDING FFE=66.78
1-STORY PORTABLE BUILDING FFE=66.93
1-STORY PORTABLE BUILDING FFE=67.08
1-STORY PORTABLE BUILDING FFE=67.23
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1-STORY PORTABLE BUILDING FFE=67.53
1-STORY PORTABLE BUILDING FFE=67.68
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1-STORY PORTABLE BUILDING FFE=67.98
1-STORY PORTABLE BUILDING

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PAVING NOTES:

1. SEE GEOTECHNICAL INVESTIGATION REPORT NUMBER G103-25B (FINAL REVISION 1) FOR FORT BEND INDEPENDENT SCHOOL DISTRICT, BP022 - GYM RENOVATIONS AND ADDITIONS, PALMER ELEMENTARY SCHOOL BY AVILES ENGINEERING CORPORATION DATED AUGUST 2025.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS AND A MINIMUM FLEXURAL STRENGTH OF 500 PSI AT 7 DAYS AND 600 PSI AT 28 DAYS.
3. PROVIDE 6" MINIMUM STABILIZED SUBGRADE WITH A MINIMUM OF 7 PERCENT HYDRATED LIME BY DRY SOIL WEIGHT AS PER GEOTECHNICAL REQUIREMENTS. LABRATORY TESTING SHOULD BE PERFORMED TO DETERMINE THE OPTIMUM LIME CONTENT. SUBGRADE SHALL EXTEND A MINIMUM OF 2 FEET BEYOND THE PAVED AREA.
4. FIRE LANE PAVING SHALL BE 7" THICK WITH #4 AT 18" ON CENTER EACH WAY.

CONCRETE PAVEMENT AND CONCRETE CURB REPAIRS

1. NOTIFY U.C.C. AT (713) 223-4567 OR TOLL-FREE AT 1-800-669-8344, 72 HOURS PRIOR TO SCHEDULED START DATE. NOTIFY APPROPRIATE MUD 72 HOURS PRIOR TO SCHEDULED START DATE. NOTIFY THE CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT AT (281) 261-4200 72 HOURS PRIOR TO SCHEDULED START DATE.
2. SET UP WORK ZONE, INCLUDING FLASHING BEACONS IN ACCORDANCE WITH TEXAS MUTCD, LATEST EDITION.
3. MARK SAW CUT LINES AROUND THE PAVEMENT FAILURE. LINES SHALL BE PERPENDICULAR TO EACH OTHER AND BE LOCATED A MINIMUM OF ONE (1) FOOT OUTSIDE OF THE PAVEMENT FAILURE.
4. SAW CUT FULL DEPTH. BREAK AND REMOVE DAMAGED CONCRETE.
5. EXCAVATE SUB-GRADE TO A MINIMUM DEPTH OF SEVEN (7) INCHES BELOW PROPOSED BOTTOM OF PAVEMENT.
6. CLEAN OUT ALL LOOSE DEBRIS AND COMPACT BEFORE INSTALLATION OF CEMENT STABILIZED SAND. INSTALL AND COMPACT 2 SK. PER CUBIC YARD OF CEMENT STABILIZED SAND TO BRING TO GRADE. MINIMUM PAVEMENT THICKNESS SHALL BE SEVEN (7) INCHES.
7. CUT A FOUR INCH BY SIX INCH (8" X 6") WIDE TRENCH UNDER ALL EXISTING PAVEMENT EDGES TO PROVIDE A LIP UNDER EXISTING PAVEMENT EDGES.
8. MINIMUM 3/4-INCH REDWOOD (WITH ZIP-STRIP 1 INCH) OR ASPHALT IMPREGNATED FIBERBOARD SHALL BE PLACED AGAINST ANY EXISTING CONCRETE EDGES. REDWOOD OR FIBERBOARD SHALL BE FULL DEPTH OF EXISTING CONCRETE.
9. HOLES SHALL BE DRILLED THROUGH THE REDWOOD OR FIBERBOARD A MINIMUM OF EIGHT (8) INCHES INTO THE CONCRETE AND ON 24-INCH CENTERS. NUMBER 4 DOWELS SHALL BE EPOXIED (USING APPROVED EPOXY) INTO THE HOLES LEAVING A MINIMUM OF 10 INCHES EXPOSED.
10. REPLACE ALL HEADERS AND KEYWAYS AS REQUIRED. HEADERS SHALL BE MINIMUM 3/4-INCH REDWOOD (ZIP-STRIP 1 INCH) WITH #4 DOWELS ON 24" CENTERS WITH SLEEVES.
11. PLACE #4 REBAR, AS NEEDED, TO ACHIEVE 24" C.C.E.W. AND TIE TO DOWELS.
12. PLACE CONCRETE (MAX. 4" SLUMP), 3500 PSI, 5-1/2 SK. INTO THE REPAIR AREA AND VIBRATE WITH AN ELECTRIC VIBRATOR. INSTALL CURB STANDUPS, IF APPLICABLE.
13. TOOL ALL EDGES AND APPLY A MEDIUM BROOM FINISH.
14. APPLY APPROVED CURING COMPOUND WHEN ADEQUATELY SET.
15. CURB REPAIR ON NEW CONCRETE SHALL REQUIRE #3 STIRRUPS ON 24-INCH CENTERS, TIED TO A LONGITUDINAL #4 BAR. PROVIDE REDWOOD CURB CARS AS REQUIRED, AND STANDARD 3000 PSI, 5 SK, CURB MIX. SPRAY WITH CURING COMPOUND WHEN COMPLETE.
16. CURB REPAIR ON EXISTING CONCRETE MAY REQUIRE THE DOWELING OF #4 REBAR, ON 12-INCH CENTERS, EPOXIED A MINIMUM OF 4 INCHES DEEP. A CONTINUOUS #4 LONGITUDINAL BAR SHALL BE TIED TO EACH DOWEL. STANDARD 3000 PSI, 5 SK. CURB MIX SHALL BE USED. SPRAY WITH CURING COMPOUND WHEN COMPLETE.
17. SEAL ALL JOINTS USING ELASTOMETRIC HOT POURED SEALANT AS REQUIRED.
18. RESTORE ALL SURROUNDING AREAS TO "AS GOOD OR BETTER" CONDITION AT CONCLUSION OF PROJECT.

NO.	BY	REVISION

REPAIR OF CONCRETE CURB AND CONCRETE PAVEMENT

1-877-903-7246
TRENCHDRAIN SUPPLY
www.trenchdrainsupply.com
Number
100-GSS-A-PS
Series
CPS100
A Class Galvanized Slotted Grate
Pro Plus 100
NOTE
FRE

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

MODEL	SIZE	BACKFLOW DIMENSIONS A	B	C	D	E	ENCLOSURE DIMENSIONS EL	EW	EH	PAD DIMENSIONS PL	PW
RPE-075	4"	103⅛"	75⅛"	43⅛"	35⅛"	28"	27"	13"	35"	42"	28"
RPE-100	1"	130"	75⅛"	43⅛"	35⅛"	28"	27"	13"	35"	42"	28"
RPE-125	1¼"	143⅛"	75⅛"	43⅛"	35⅛"	28"	30"	13"	35"	54"	28"
RPE-150	1½"	165⅛"	105⅛"	53⅛"	43⅛"	28"	30"	13"	35"	54"	28"
RPE-200	2"	191"	105⅛"	53⅛"	53⅛"	28"	30"	13"	35"	54"	28"

ALL DIMENSIONS ARE IN INCHES
ADD AN "S" SUFFIX FOR STRAINER OPTION
ADD AN "H" SUFFIX FOR HEATER OPTION

EXTERIOR FIBERGLASS SKIN
INTERNAL INSULATION
LOCKABLE ACCESS DOOR AT TOP
SECURE TO CONCRETE BASE w/ 3 3/8" GALV. STEEL ANCHOR BOLTS
PRECAST CONCRETE BASE

MOUNTING DETAIL

PRECAST CONCRETE PAD w/ LIFTING EYES
ELECTRIC HEATER (OPTIONAL)
OPTIONAL PRE-ENGINEERED ENCLOSURE AVAILABLE FROM PARKUSA WWW.PARKUSA.COM 888-611-PARK MODEL: RPE-1
REDUCED PRESSURE BACKFLOW PREVENTER
BALL VALVE (TYP-2)
DRAIN (TYP-2)
TOP VIEW
HINGED ACCESS LID w/ HASP & STAPLE
GALV STEEL SUPPORTS BOLTED TO PAD (TYP-2)
120V RECEPTACLE (BY OTHERS)
PRECAST CONCRETE SLAB w/ LIFTING EYES
RE: MTG DETAIL
CLOSED POSITION
OPEN POSITION
PIPING & FITTINGS BY OTHERS (TYP)
FRONT VIEW

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Specifications
CONCRETE: Class I/II concrete with design strength of 4500 PSI at 28 days.
REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

Typical Applications
RP devices are used to protect against high hazard (toxic) fluids in water services to industrial plants, hospital facilities, mortuaries, and chemical plants. They are also used in irrigation systems, boiler feed, water lines and other installations requiring maximum protection.

Engineering Data
The backflow assembly shall be factory assembled on pad & hydrastatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:

FM, AWWA, UL, NSF, IAPMO, ASSE

PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

888.611.PARK
www.parkusa.com
PARK RPE DESIGN FOR WATER
REDUCED PRESSURE BACKFLOW PREVENTER w/ INSULATED ENCLOSURE MODEL RPE – 3/4" THRU 2"

PM	DRN	ENG	DWG. NO.	REV.
DATE: 2018			RPE–1	A

3'-6"
2" BRASS BALL VALVE
2" BRASS TEE w/ BRASS PLUG
2" BRASS TEE w/ BRASS PLUG
COMPOUND GAUGE
2" STRAINER
2" BRASS BALL VALVE
2" BRASS TEE
2" BRASS BALL VALVE
1"BY PASS w/ BALL VALVES
PIPE STUB-OUT COPPER, (TYP-2)
SKID RESISTANT ALUM. COVER w/ HINGED MANWAY, (300 PSF)
24"x32" MANWAY

PLAN VIEW

24"
4'-0"
BRASS THREADED FITTINGS, (TYP)
CONCRETE OR STEEL GALV. SUPPORTS, (TYP-2)
GRADE
PIPE STUB-OUT (TYP-2)
6" GRAVEL BED OPTIONAL (BY OTHERS)
4"
12"x12"x3" DEEP SUMP w/ GRATE
6'-0"

ELEVATION

Specifications
CONCRETE: Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Gross empty weight of approximately 5,000 pounds.
REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.
ALUM. COVER: 1/4" aluminum skid-resistant floor plate welded to angle frame & hinged manway.

Engineering Data
Field excavation and preparation shall be completed prior to delivery of assembly. Use dimensional data as shown. Pipe, valves and fittings of the assembly are approved by one or more of the following associations:

AWWA, UL, NSF, IAPMO

PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

888.611.PARK
www.parkusa.com
PARK RPE DESIGN FOR WATER
2" WATER METER ASSEMBLY

PM	DRN	ENG	DWG. NO.	REV.
DATE: 08/2017			DMC–2	A

NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY ENGINEERING DEPARTMENT

PROJECT TITLE:
DRAWN BY: RJS
DATE: 2-1-22
SHEET DESCRIPTION: TYPE "A" INLET DETAILS FOR MAXIMUM 30" O.D. PIPE
SCALE: 1"=1'-0"
APPROVED BY:
FIXED STANDARD: 22
SHEET NO.: /

A:\TSRA\180\Fort Bend County Standards\Civil Details\STORM\TYPE A INLET DETAILS\TYPE_A_INLET_DETAILS.dwg

30" O.D. MAXIMUM
(4) 1" ANCHOR BOLT HOLES
PLAN VIEW

3/4" x 6" DOWEL AT EACH SIDE
PRECAST SPACER(S) AS NEEDED
CONCRETE RIM (3,000 PSI)
CEMENT STABILIZED SAND BACKFILL FOR INLET LEAD
USE NON-SHRINK GROUT FOR JOINT CONNECTIONS
USE NON-SHRINK GROUT FOR WATER-TIGHT PIPE CONNECTIONS AT ABOUT OPENINGS (2" MIN. ALL AROUND)
30" O.D. MAXIMUM
LIMITS OF CEMENT STABILIZED SAND BACKFILL FOR INLET
INVERT CHANNEL SHAPED W/ 2,500 PSI SAND-CEMENT MORTAR (MIN. 1" PER 12" SLOPE)
SECTION A–A

SEE NOTE 8
SECTION B–B

GENERAL NOTES:
1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
2. CONCRETE FOR INLET, MINIMUM 4,000 PSI IN 28 DAYS.
3. PRECAST STRUCTURE TO MEET ASTM C913.
4. FRAME AND GRATE SHALL BE EAST JORDAN IRON WORKS 7500, 7-4880-1 (OPEN AREA 473 SQ. IN.) OR APPROVED EQUAL.
5. IF THE ENGINEER OF RECORD SPECIFIES A CAST–IN–PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS; HOWEVER, IF THE CONTRACTOR CHOOSES TO USE A PRECAST INLET IN LIEU OF CAST–IN–PLACE, CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
6. SHOP DRAWINGS SHALL BE REQUIRED FOR PRECAST CONSTRUCTION OF INLET.
7. KNOCK–OUTS ARE NOT PERMISSIBLE FOR PRECAST CONSTRUCTION OF INLET.
8. CEMENT STABILIZED SAND SHALL EXTEND TO THE BOTTOM OF PAVEMENT OR SLOPE PAVING, OR 12 INCHES BELOW THE SURFACE IF INLET IS LOCATED IN AN UNPAVED AREA.

2'-5 3/4"
1" 1 3/16" 3 5/8" 1" 1 7/16"
GRATE SECTION A–A

2'-7 1/4"
2'-6"
2'-5 3/4"
GRATE PLAN VIEW

2'-4 3/16"
3'-2"
FRAME SECTION A–A

A:\TSRA\180\Fort Bend County Standards\Civil Details\STORM\TYPE A INLET DETAILS.dwg
ORIGINAL SHEET - ARCH E1

R.O.W. INSTALLATION
EASEMENT INSTALLATION

WATER SERVICE CONNECTION (DOUBLE SERVICE) AND WATER SERVICE TAPPING ASSEMBLY DETAIL
N.T.S.

BEND & TEE
THRUST BLOCK DETAIL
N.T.S.

POLYETHYLENE WRAP FOR IRON PIPE

PIPE SIZE	BEND 45° BEND 22.5° BEND	TEES	PLUGS
4"	A B	A B	A B	A B
6"	A B	A B	A B	A B
8"	A B	A B	A B	A B
10"	A B	A B	A B	A B
12"	A B	A B	A B	A B
16"	A B	A B	A B	A B
20"	A B	A B	A B	A B
24"	A B	A B	A B	A B

BENDS, TEES & PLUGS FOR PIPE OF VARIOUS SIZES

TYPICAL GATE & FLUSHING VALVE INSTALLATION
N.T.S.

VALVE BOX INSTALLATION DETAIL
N.T.S.

AIR RELEASE VALVE DETAIL
N.T.S.

2" BLOW OFF VALVE ASSEMBLY
N.T.S.

TAPPING SLEEVE & VALVE DETAIL
N.T.S.

CONSTRUCTION NOTES
1. WATER LINE 4" DR-14 AND LESS SHALL BE AWWA C-900 2014 CLASS 150 200 PVC OR C-900 DR-18 CLASS 150 PVC. WATER LINE 6" DR-14 OR 8" SHALL BE AWWA C-900 DR 18 CLASS 150 PVC OR C-905 DR-14 AND GREATER SHALL BE AWWA C-905 DR 18 CLASS 150 PVC.
2. ALL FLUSHING VALVES AND GATE VALVES TO BE AMERICAN WATER WORKS ASSOC. (AWWA) STANDARD COUNTERCLOCKWISE OPENING WITH NON-RISING STEM DESIGN.
3. THE MINIMUM ALLOWABLE SIZE OF A TAPPING SLEEVE AND VALVE SHALL BE 6" FOR 8" WATER LINES AND 8" FOR 12" WATER LINES.
4. ALL DUCTILE IRON PIPE SHALL BE MINIMUM CLASS 350 WITH CLASS 350 X 50=12 IN AND CLASS 200 14 IN AND GREATER. NO ALL PIPE WILL BE ALLOWED AND ALL DUCTILE IRON FITTINGS SHALL BE MUFFIN LINED MECHANICAL JOINTS.
5. ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

WATER LINE CONSTRUCTION DETAILS

missouri CITY TEXAS

APPROVED BY:
CITY ENGINEER: DATE:

CONSTRUCTION PLANS FOR:

JOB No.:
SCALE: AS NOTED
DATE: NOVEMBER 2019
SHEET: 10 OF 30
MC-11-19

SANITARY SEWER MANHOLE
N.T.S.

STANDARD DROP DETAIL
(SEE C.S.S. NOTES)

PIPING CONNECTIONS DETAIL

NOTES:
1. CONTRACTOR SHALL CONTACT CITY OF MISSOURI CITY DEPARTMENT OF PUBLIC WORKS AT (281) 403-8570 IF WET SAND OR OTHER UNSTABLE SOIL CONDITIONS, HIGH WATER TABLE AND/OR UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED.
2. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION PLANS AND THE CITY'S STANDARD DETAILS AND SPECIFICATIONS, THE CITY OF MISSOURI CITY SPECIFICATIONS STANDARDS SHALL GOVERN.
3. SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED A MINIMUM OF FOUR FOOT FROM BACK OF CURB ON CURB AND GUTTER ROADWAYS AND THREE FEET FROM EDGE OF PAVEMENT ON ROADWAYS WITHOUT CURB AND GUTTER.
4. MANHOLES FROM OUTSIDE DIAMETER OF MANHOLE, SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED BENEATH STREET PAVING EXCEPT WHERE SPECIFICALLY DESIGNED BY CITY ENGINEER AND TO BE DESIGNATED ON APPROVED CONSTRUCTION DRAWINGS.
5. SANITARY SEWER MANHOLE COVERS SHALL BE A MINIMUM OF 32 INCHES IN DIAMETER. ALL SUCH MANHOLE COVERS SHALL HAVE THE CITY OF MISSOURI CITY EMBLEM AND THE WORDS "MISSOURI CITY" AND "SANITARY SEWER" CAST IN THEM. MANHOLE COVERS SHALL BE AS SHOWN IN THE CITY'S STANDARD CONSTRUCTION DETAILS SHEETS. ALL SANITARY SEWER MANHOLES SHALL INCORPORATE INFLOW PROTECTORS.
6. MANHOLE RIM ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY. CONTRACTORS SHALL ADJUST RIM ELEVATIONS TO 0.5 FEET ABOVE FINISHED GROUND IN AREAS OF POSITIVE DRAINAGE AND TO PREVENT SURFACE WATER FROM ENTERING MANHOLES AFTER FINAL GRADING. ADJUSTMENTS TO MANHOLE RIM ELEVATIONS SHALL BE ACCOMPLISHED BY THE USE OF THROAT RINGS ONLY (MAX. OF TWELVE INCHES OF RINGS). ADJUSTMENTS TO MANHOLE RIM ELEVATIONS SHALL BE ACCOMPLISHED BY THE USE OF THROAT RINGS ONLY (MAX. OF TWELVE INCHES OF RINGS). ADJUSTMENTS TO MANHOLE RIM ELEVATIONS SHALL BE ACCOMPLISHED BY THE USE OF THROAT RINGS ONLY (MAX. OF TWELVE INCHES OF RINGS). ADJUSTMENTS TO MANHOLE RIM ELEVATIONS SHALL BE ACCOMPLISHED BY THE USE OF THROAT RINGS ONLY (MAX. OF TWELVE INCHES OF RINGS).
7. DROP CONNECTIONS ARE REQUIRED WHEN INVERT ELEVATION OF SEWER LINE TO BE CONNECTED EXCEEDS 24 INCHES DISTANCE ABOVE INVERT ELEVATION OF MANHOLE. DROP CONNECTIONS SHALL BE CONSTRUCTED OUTSIDE OF MANHOLE WHENEVER MATERIALS OF SEWER AND SHALL BE CONSTRUCTED INTERIOR TO MANHOLE. PIPE CONNECTIONS TO MANHOLES SHALL BE CONSTRUCTED AS BE WATERTIGHT AND FLEXIBLE AS POSSIBLE. FLEXIBILITY SHALL BE PROVIDED BETWEEN MANHOLE WALL AND PIPE CONNECTED TO WALL OF MANHOLE UNDERWALL, REGARDLESS OF PIPE DIAMETERS.
8. CONNECTIONS TO EXISTING MANHOLES SHALL BE ACCOMPLISHED BY CORE DRILLING OF PRECAST CONCRETE MANHOLES NOT HAVING PRECORED HOLES OF CORRECT DIAMETER AND LOCATION. SHALL BE PERFORMED BY CORE DRILL EQUIPMENT DESIGNED FOR THIS PURPOSE. CORE DRILLING SHALL BE PERFORMED IN SUCH A MANNER AS TO PREVENT DAMAGE TO EXISTING MANHOLE. CORE DRILLING SHALL ACCOMPLISH AT THE INVERT ELEVATION. IN NO INSTANCE WILL STONES, MORTAR, OR PNEUMATIC CHISELS AND/OR HAMMER DRILLS BE UTILIZED TO BREAK HOLES IN EXISTING MANHOLES. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO SUCH LIFT STATIONS. PIPE SHALL BE PLACED IN THE CORED HOLE AND SECURED WITH USE OF NON–SEAL, GROUTED SMOOTH AND THE INTERIOR LINING SHALL BE REPAIRED.
9. BEDDING AND BACKFILL OF SANITARY SEWER PIPING AND MANHOLES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH CITY OF MISSOURI CITY INFRASTRUCTURE STANDARDS. A 1.5 SACK PER TON CEMENT STABILIZED SAND SHALL BE REQUIRED FOR ALL CONCRETE SAND BEDDING AND SUCH BEDDING SHALL BE INSTALLED IN LIFTS OF EIGHT INCHES (8") MAXIMUM.
10. SEWERAGE INCLUDES JOINTS ARE NOT AN ACCEPTABLE JOINING METHOD FOR SANITARY SEWERS CONSTRUCTED OF PVC PIPING MATERIALS AND LOCATED WITHIN EASEMENTS OR STREET RIGHTS–OF–WAY. ONLY MECHANICAL JOINTS OR BELL AND SPIGOT SEWER JOINTS ARE MANDATORY. BELL (FEMALE) ENDS OF PIPE SHALL BE INSTALLED ON UPSTREAM SIDE WITH SPIGOT (MALE) ENDS ORIENTED DOWNSTREAM.
11. SANITARY SEWER SERVICES LEADS SHALL BE EXTENDED TO RIGHTS–OF–WAY AND/OR EASEMENT LINES AS APPLICABLE AND CAPPED/PLUGGED FOR FUTURE CONNECTIONS. LOCATIONS OF CAPPED/PLUGGED STUBS SHALL BE TIED UNDER PERPENDICULAR WATER PIPING AT DIMENSIONS WHERE POSSIBLE.
11. EACH SANITARY SEWER SERVICE LEAD STUB, PLUGGED WYE BRANCH OUTLET AND STACK SHALL BE MARKED WITH A 4" PVC AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB OR WYE AND AT AN ELEVATION TWO FEET ABOVE FINISHED GRADE. EACH MARKER SHALL BE PAINTED RED AND EXTEND TWO FEET ABOVE FINISHED GRADE. EACH MARKER SHALL BE PAINTED RED AND LABELED "SANITARY SEWER STUB", "SANITARY SEWER WYE" OR SANITARY SEWER STACK" AS APPROPRIATE WITH STUB, WYE, BRANCH OUTLET OR STACK SIZE NOTED.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. DURING THE COURSE OF ANY AND ALL CLEANING, DRUMMING, FILL GRADING, EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL ENSURE THAT MANHOLES ARE MAINTAINED AND KEPT FREE OF DEBRIS TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONSTRUCTION ARE NOT IMPEDED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED WITH SILT FENCE OR OTHER APPROVED METHODS.
13. ALL SANITARY SEWER PIPING AND MANHOLES SHALL BE INSPECTED BY CITY CONSTRUCTION INSPECTOR FOR CONFORMANCE WITH CITY INFRASTRUCTURE STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY NOTIFY THE CITY OF ALL CONSTRUCTION ACTIVITIES AND TO CONFORM TO CITY OF MISSOURI CITY PUBLIC WORKS DEPARTMENT INSPECTION POLICY.
14. PLUGGED IN PLACE MANHOLES REQUIRE THE SPECIFIC APPROVAL OF THE CITY OF MISSOURI CITY ENGINEER.
15. C.S.S. 1" ABOVE PIPE AND 6" BELOW PIPE MINIMUM.
16. SEE GENERAL NOTES AND C.S.S. NOTES.

SANITARY SEWER SERVICE CONNECTION
N.T.S.

CONSTRUCTION PLANS FOR:

JOB No.:
SCALE: AS NOTED
DATE: NOVEMBER 2019
SHEET: 11 OF 30
MC-10-19

3" THICK ADJUSTMENT RINGS AS REQUIRED. 3" MIN. 15" MAX.
CONE ECCENTRIC
RUBBER GASKETS
RISER SECTIONS
RUBBER GASKETS–RAMNECK
BASE SECTION, CORES AS REQUIRED
MINIMUM 1/10 FT DROP BETWEEN PIPE INVERTS
1/2" TOP SOIL STRIP SAND BEDDING OR NON–COMPACTED CEM. STAB SAND
PRECAST MANHOLE
N.T.S.

NOTES
1. LIFTING INSERTS AS REQUIRED.
2. ALL JOINTS SHALL BE SEALED WITH RUBBER GASKETS (RAMNECK).
3. STRUCTURE TO BE PLACED ON 12" STABILIZED BASE.
4. C.S.S. SHALL BE BROUGHT UP TO BOTTOM OF TOP 12" MINIMUM.
5. PRE–CAST MANHOLE SHALL BE IN COMPLIANCE APPROVED PRODUCT LIST.
6. INTERIOR LINING SHALL BE IN COMPLIANCE WITH APPROVED PRODUCT LIST.
7. INVERTS SHALL COMPLY WITH C.O.M.C. STANDARD CONSTRUCTION DETAILS & SPECIFICATIONS.
8. INFLOW PROTECTORS REQUIRED ON ALL SANITARY MANHOLES.
9. REFER TO SANITARY MANHOLE LIDS, C.S.S. NOTES, MODIFIED BEDDING DETAILS AND NOTES.
10. PRIOR TO INTERIOR LINING, GROUT ALL JOINTS TO ENSURE WATERTIGHT.
11. VACUUM TESTING OF MANHOLE SHALL BE AFTER GROUTING AND PRIOR TO INTERIOR LINING.

NOTES
A.) NO STACKS ON MANS OVER 10' DEEP or W/ MAT SAND CONDITIONS.
B.) ALL STACK CONNECTIONS SHALL BE IN–LINE FITTINGS.
STACK DETAIL
N.T.S.

TRENCH SIDE VIEW
TRENCH END VIEW

4" WYE BRANCH SHALL REMAIN OR BE PLUGGED FOR FUTURE SERVICE
4" PVC PIPE STUB & CAP
4" X 4" X 4" DUBBLE WYE
4"x45° BEND
WYE BRANCH
SEE STACK DETAIL
4" PVC PIPE (SCH 40 OR APPROVED EQUAL) AS SHOWN ON CONST. PLANS
PLAN VIEW
NATURAL GRND
STANDARD BACKFILL
TRENCH
0.5%
0.5%
SEWER MAIN
ELEVATION VIEW
4" PVC PIPE (SCH 40 OR APPROVED EQUAL) AS SHOWN ON CONST. PLANS AND LABELED

SANITARY SEWER SERVICE CONNECTION

NO.	REVISIONS	DATE	NAME
1	ADDENDUM #2	MN, CG	JH
	Revision	By	Appd

2025.10.14
YYYY.MM.DD

100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	KB	MN	KB 2025.01.09
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

SANITARY SEWER CONSTRUCTION DETAILS

missouri CITY TEXAS

APPROVED BY:
CITY ENGINEER: DATE:

CONSTRUCTION PLANS FOR:

JOB No.:
SCALE: AS NOTED
DATE: NOVEMBER 2019
SHEET: 12 OF 30
MC-12-19

BEDDING DETAIL FOR CONCRETE USED UNDER ROADWAY PAVEMENT
CLASS "A–A"
N.T.S.

BEDDING DETAIL FOR REINFORCED CONCRETE PIPE STORM SEWER
36" DIAMETER & SMALLER

BEDDING DETAIL FOR REINFORCED CONCRETE PIPE STORM SEWER
42" TO 108" DIAMETER

SEAL SLAB BEDDING DETAIL FOR REINFORCED CONCRETE PIPE STORM SEWER
42" TO 108" DIAMETER
WHERE SATISFACTORY SOIL CONDITIONS EXIST

MODIFIED "A"
N.T.S.

MODIFIED "A–A"
N.T.S.

BEDDING DETAIL FOR STORM SEWER–CORRUGATED METAL PIPE
N.T.S.

CONSTRUCTION NOTES
1. CONTRACTOR SHALL CONTACT MISSOURI CITY DEPARTMENT OF PUBLIC WORKS (INSPECTIONS) IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAXIMUM GROUND WATER 1' (1') BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24–HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. R.C.P. AND BOX CULVERTS SHALL BE INSTALLED WITH APPROVED GASKETS ONLY.
6. MANHOLES SHALL BE PROVIDED WHERE MODIFIED "A" OR MODIFIED "A–A" BEDDING IS USED. STACKS ARE NOT ALLOWED.
7. REFER TO MANHOLE DETAILS, AND DUCTILE RING AND END TREATMENT DETAILS, C.S.S., GENERAL NOTES, AND STORM NOTES.
8. SPECIFIC BEDDING MATERIALS SUBMITTED AND APPROVED BY THE CITY ENGINEER FOR MANHOLE ACCESS TO BOX CULVERTS AS REQUIRED.
9. ALL BACKFILL WITHIN THE R.O.W. SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

TYPICAL END SLAB DIMENSIONS (OR AS DIRECTED BY ENGINEER)	
SIZE	(F) SAG
42"	5'-0"
48"	5'-3"
54"	5'-6"
60"	5'-9"
66"	6'-0"
72"	6'-3"
78"	6'-6"
84"	6'-9"
90"	7'-0"
96"	10'-6"
102"	12'-0"
108"	12'-0"

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
42"	5'-0"	4
48"	5'-3"	4
54"	5'-6"	5
60"	5'-9"	7
66"	6'-0"	7
72"	6'-3"	8
78"	6'-6"	8
84"	6'-9"	9
90"	7'-0"	9
96"	10'-6"	8
102"	12'-0"	10
108"	12'-0"	10

STORM SEWER BEDDING AND BACKFILL DETAILS

missouri CITY TEXAS

APPROVED BY:
CITY ENGINEER: DATE:

CONSTRUCTION PLANS FOR:

JOB No.:
SCALE: AS NOTED
DATE: NOVEMBER 2019
SHEET: 17 OF 30
MC-16-19

BEDDING DETAIL FOR REINFORCED CONCRETE BOX CULVERT UNDER ROADWAY PAVEMENT

BEDDING DETAIL FOR REINFORCED CONCRETE BOX PLACED IN EASEMENT

NOTES
1. 1 1/2–SACK CEMENT PER CUBIC YARD STABILIZED SAND PLACED BEFORE PIPE IS PLACED (3" MINIMUM FOR 42" TO 60", 12" MINIMUM FOR 66" TO 108").
2. JOINT WRAP IS NOT REQUIRED IF R.G. JOINTS ARE SELECTED.

BEDDING DETAIL FOR REINFORCED CONCRETE BOX CULVERT W/MODIFIED BEDDING

BEDDING DETAIL FOR REINFORCED CONCRETE BOX CULVERT W/MODIFIED BEDDING UNDER ROADWAY PAVEMENT

NOTES
1. JOINT WRAP IS NOT REQUIRED IF R.G. JOINTS ARE SELECTED.

NO.	REVISIONS	DATE	NAME
1	ADDENDUM #2	MN, CG	JH
	Revision	By	Appd

2025.10.14
YYYY.MM.DD

100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	KB	MN	KB 2025.01.09
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

STORM SEWER, SANITARY SEWER FORCE MAIN BEDDING DETAILS

missouri CITY TEXAS

APPROVED BY:
CITY ENGINEER: DATE:

CONSTRUCTION PLANS FOR:

JOB No.:
SCALE: AS NOTED
DATE: NOVEMBER 2019
SHEET: 18 OF 30
MC-15-19

P.V.C. PIPE BEDDING & BACKFILL
N.T.S.

P.V.C. PIPE BEDDING & BACKFILL PAVING DETAIL CLASS "A–A"
N.T.S.

SEE C.S.S. AND BANK SAND NOTES

SANITARY FORCE MAIN & WATER LINE BEDDING AND BACKFILL

DEAD ENDS
HORIZONTAL BENDS
TEES
VERTICAL DOWN BENDS
VERTICAL UP BEND

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE

NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS 90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEES RUN	BRANCH	VERTICAL OFFSETS 22.5° BEND	11.25° BEND	PLUGS AND CAPS
4	96	41	20	10	96	96	41	20	96
6	138	59	28	14	138	138	59	28	138
8	182	78	37	18	182	182	78	37	182
10	226	97	46	23	226	226	97	46	226
12	270	116	55	27	270	270	116	55	270
16	358	154	73	36	358	358	154	73	358
20	448	192	91	45	448	448	192	91	448
24	536	230	109	54	536	536	230	109	536

RESTRAINED LENGTHS, LR, FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

NOMINAL PIPE SIZE INCHES	HORIZONTAL BENDS 90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEES RUN	BRANCH	VERTICAL OFFSETS 22.5° BEND	11.25° BEND	PLUGS AND CAPS
4	96	41	20	10	96	96	41	20	96
6	138	59	28	14	138	138	59	28	138
8	182	78	37	18	182	182	78	37	182
10	226	97	46	23	226	226	97	46	226
12	270	116	55	27	270	270	116	55	270
16	358	154	73	36	358	358	154	73	358
20	448	192	91	45	448	448	192	91	448
24	536	230	109	54	536	536	230	109	536

NOTES:
1. ALL BENDS AND TEES ARE RESTRAINED WITH MEGALUG OR EQUAL.
2. ALL PLUGS AND CAPS ARE RESTRAINED WITH THE GREEN MEGALUG OR EQUAL.
3. THE MINIMUM LENGTH REQUIRED FOR THE GREEN MEGALUG IS 20 INCHES.
4. RESTRAINED LENGTHS ARE BY MEGALUG WHEN SUPPORTED BY ENGINEERING CALCULATIONS.
5. THE ABOVE LENGTHS ARE FOR USE WITH POLYURETHANE WRAP TABLE.

JOINT RESTRAINT FOR DUCTILE IRON PIPE AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES

SELECT BACKFILL PLACED IN MAX. 8" LIFTS
1 1/2 SACK PER TON C.S.S. SELECT BACKFILL TO SIDE STD. PROCTOR DENSITY TO WITHIN 2 FT. OF PAVEMENT.
TREVIRA S1114 OR APPROVED EQUAL WRAP
1 1/2 PIPE DIA.
LIMESTONE OR RECYCLED CONCRETE TO BE PLACED IN SEC TRENCH.
USE FOR SEWERS IN EASEMENTS & SIDE LOTS NOT UNDER EXISTING OR FUTURE ROADS, STREETS, OR DRIVEWAYS.
CLASS "A"
N.T.S.

SAWCUT FULL DEPTH FOR INSTALLATION
SAWCUT 1 FT BEYOND EDGE OF UTILITY TRENCH. DOWELS INTO EXISTING PAVEMENT AND INSTALL REBAR AND CONCRETE
LIME STABILIZED SUBGRADE
1 1/2 SACK PER TON C.S.S. SELECT BACKFILL TO SIDE STD. PROCTOR DENSITY TO WITHIN 2 FT. OF PAVEMENT.
USE FOR SEWERS UNDER EXISTING OR FUTURE ROADS STREETS OR DRIVEWAYS.
MODIFIED "A–A"
N.T.S.

REFER TO:
1. GENERAL NOTES
2. C.S.S. NOTES

SANITARY SEWER BEDDING AND BACKFILL

CONSTRUCTION NOTES
1. CONTRACTOR SHALL CONTACT MISSOURI CITY DEPARTMENT OF PUBLIC WORKS (INSPECTIONS) IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAXIMUM GROUND WATER 1' (1') BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24–HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. ALL MATERIALS SHALL BE FROM THE APPROVED PRODUCTS LIST UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
6. SANITARY SEWER BEDDING FOR WET SAND CONDITIONS SHALL BE AS FOR MODIFIED "A" OR "A–A".
7. ALL SAND BEDDING FOR WATER LINES SHALL BE CLEAN, MECHANICALLY COMPACTED SWAY SAND.
8. REFER TO ADDITIONAL DETAILS, SANITARY, C.S.S., GENERAL, WATER CROSSING, WATER DISTRIBUTION DETAILS AND NOTES.

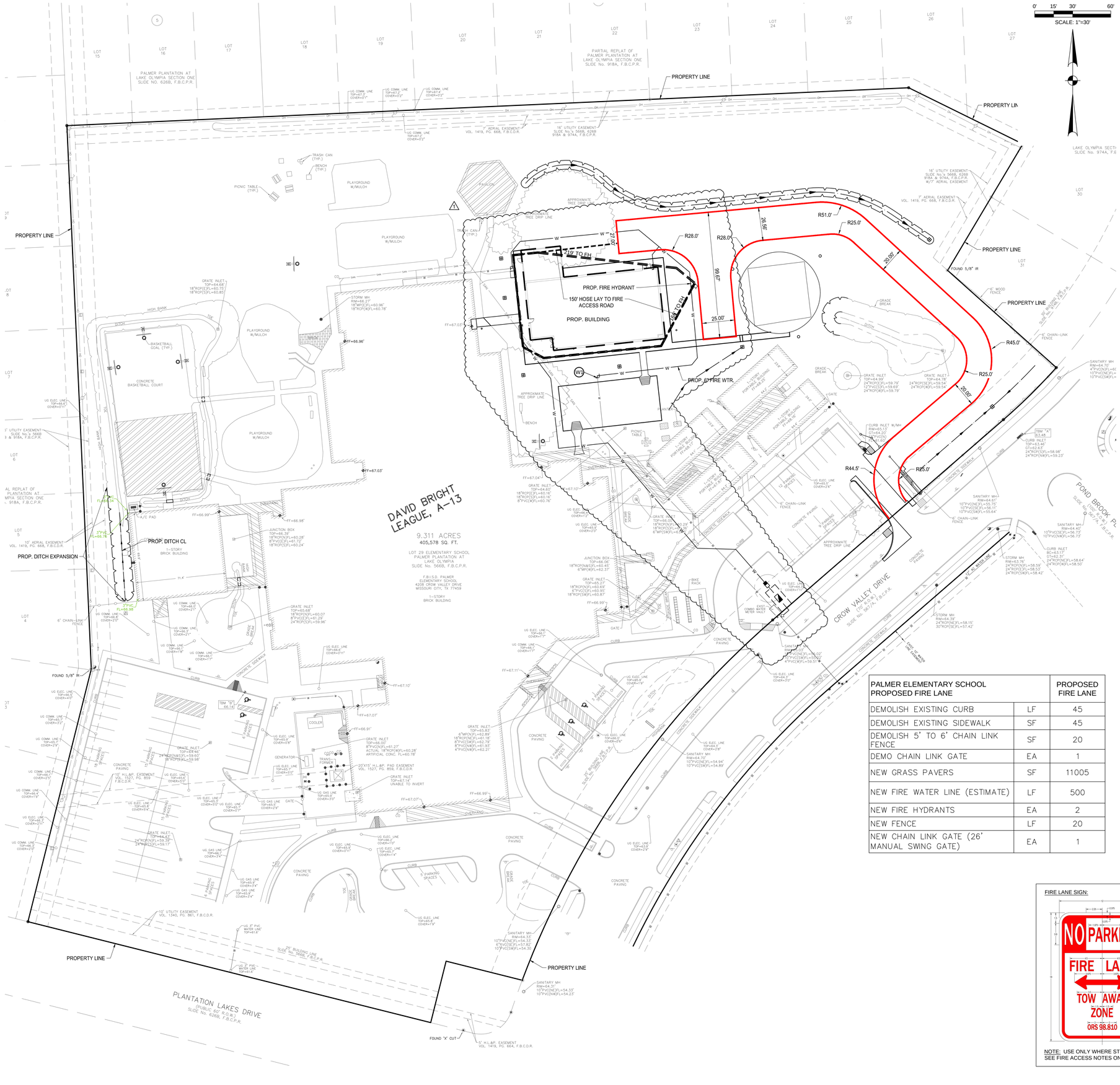
PROTECTIVE SLAB DETAIL
ZERO LOAD TRANSFER CONCRETE SLAB

NO.	REVISIONS	DATE	NAME
1	ADDENDUM #2	MN, CG	JH
	Revision	By	Appd

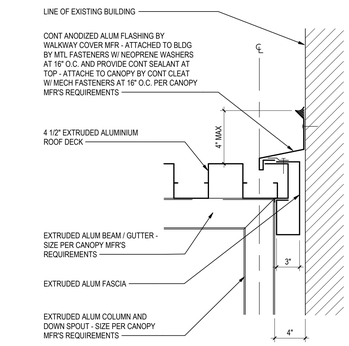
2025.10.14
YYYY.MM.DD

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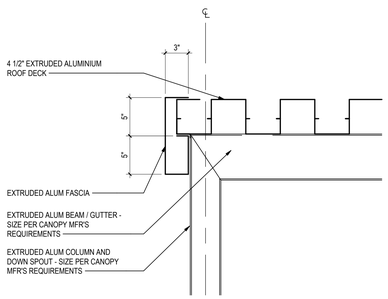
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SCALE: 1"=30'
PROPERTY LINE
PROP. FIRE HYDRANT
150' HOSE LAY TO FIRE ACCESS ROAD
PROP. BUILDING
PROP. 6" FIRE WTR
219' TO FH
199' TO FH
R51.0'
R25.0'
R28.0'
R45.0'
R44.5'
20.00'
25.00'
99.80'
26.56'
DAVID BRIGHT LEAGUE, A-13
9.311 ACRES
405,578 SQ. FT.
LOT 29 ELEMENTARY SCHOOL PALMER PLANTATION AT LAKE OLYMPIA SLIDE No. 566B, F.B.C.P.R.
F.B.I.S.D. PALMER ELEMENTARY SCHOOL 4208 CROW VALLEY DRIVE MISSOURI CITY, TX 77459
1-STORY BRICK BUILDING
PROP. DITCH CL
PROP. DITCH EXPANSION
CROW VALLEY DRIVE
(PUBLIC 80' R.O.W.) SLIDE No. 566B, F.B.C.P.R.
PLANTATION LAKES DRIVE
(PUBLIC 80' R.O.W.) SLIDE No. 626B, F.B.C.P.R.
POND BROOK PL
SLIDE No. 974A, F.B.C.P.R.
PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE NO. 626B, F.B.C.P.R.
PARTIAL REPLAT OF PALMER PLANTATION AT LAKE OLYMPIA SECTION ONE SLIDE No. 918A, F.B.C.P.R.
LAKE OLYMPIA SECTI SLIDE No. 974A, F.E
FOUND 5/8" IR
TBM "B" 66.14
TBM "A" 67.04
FF=66.96'
FF=67.03'
FF=66.99'
FF=67.10'
FF=67.07'
FF=66.91'
FF=66.39'
FF=67.04'
FF=66.99'
FF=67.11'
FF=67.07'
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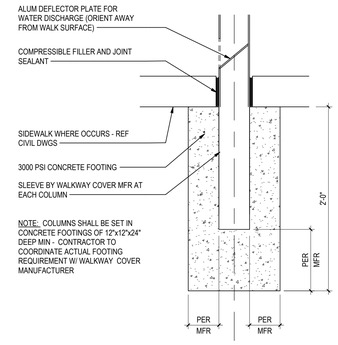
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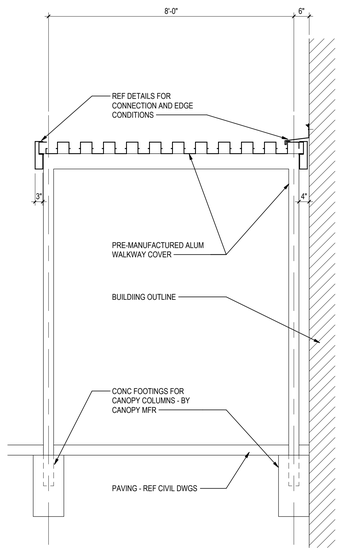
D1 AS001 — **WALKWAY COVER DETAILS**
1 1/2" = 1'-0"
PES



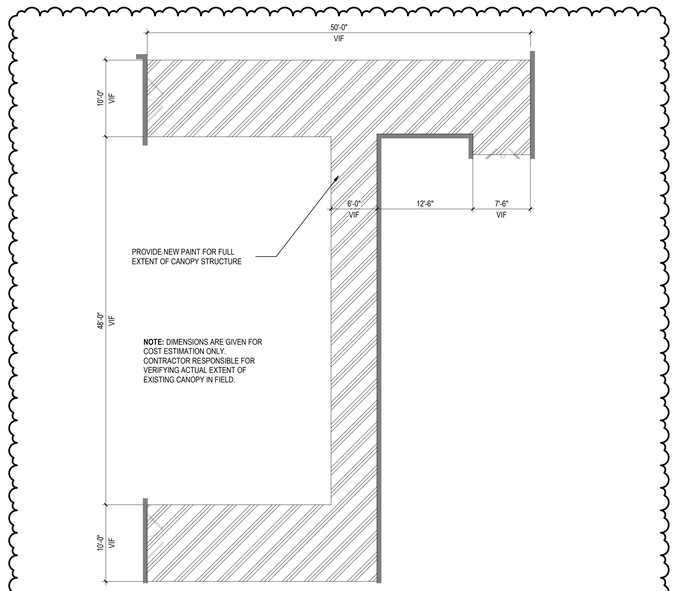
B1 AS001 — **WALKWAY COVER DETAILS**
1 1/2" = 1'-0"
PES



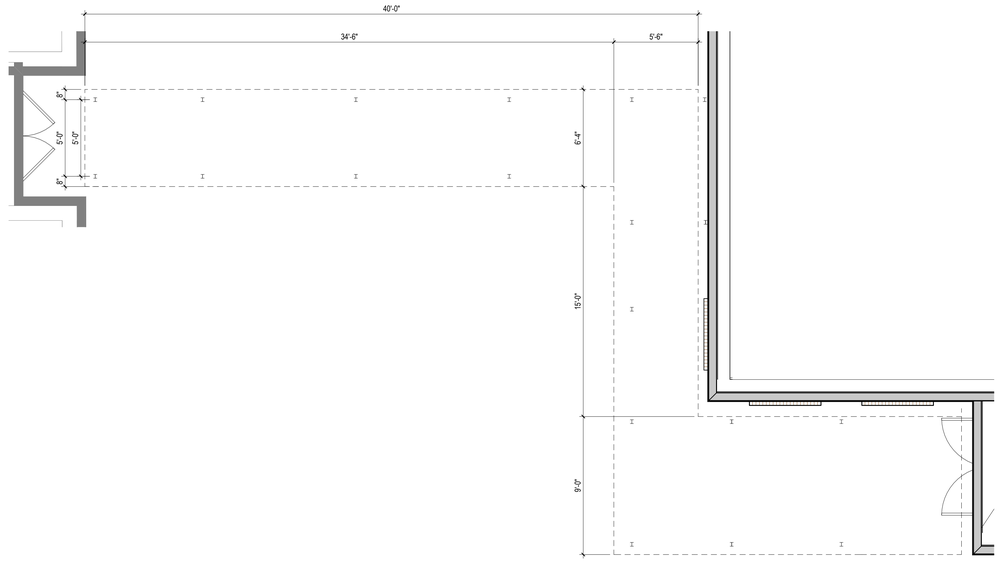
A1 AS001 — **WALKWAY COVER DETAILS**
1 1/2" = 1'-0"
PES



A2 AS001 — **WALKWAY COVER DETAILS**
1/2" = 1'-0"
PES



C3 AS001 — **ENLARGED EXISTING WALKWAY COVER**
1/8" = 1'-0"
PES



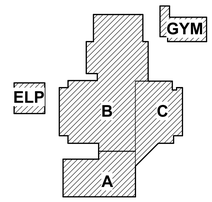
A3 AS001 — **ENLARGED WALKWAY COVER PLAN**
1/4" = 1'-0"
PES

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KEY PLAN

PROJECT NORTH

1 ADDENDUM #2			2025.10.16
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 02/09/09 YYYY.MM.DD

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

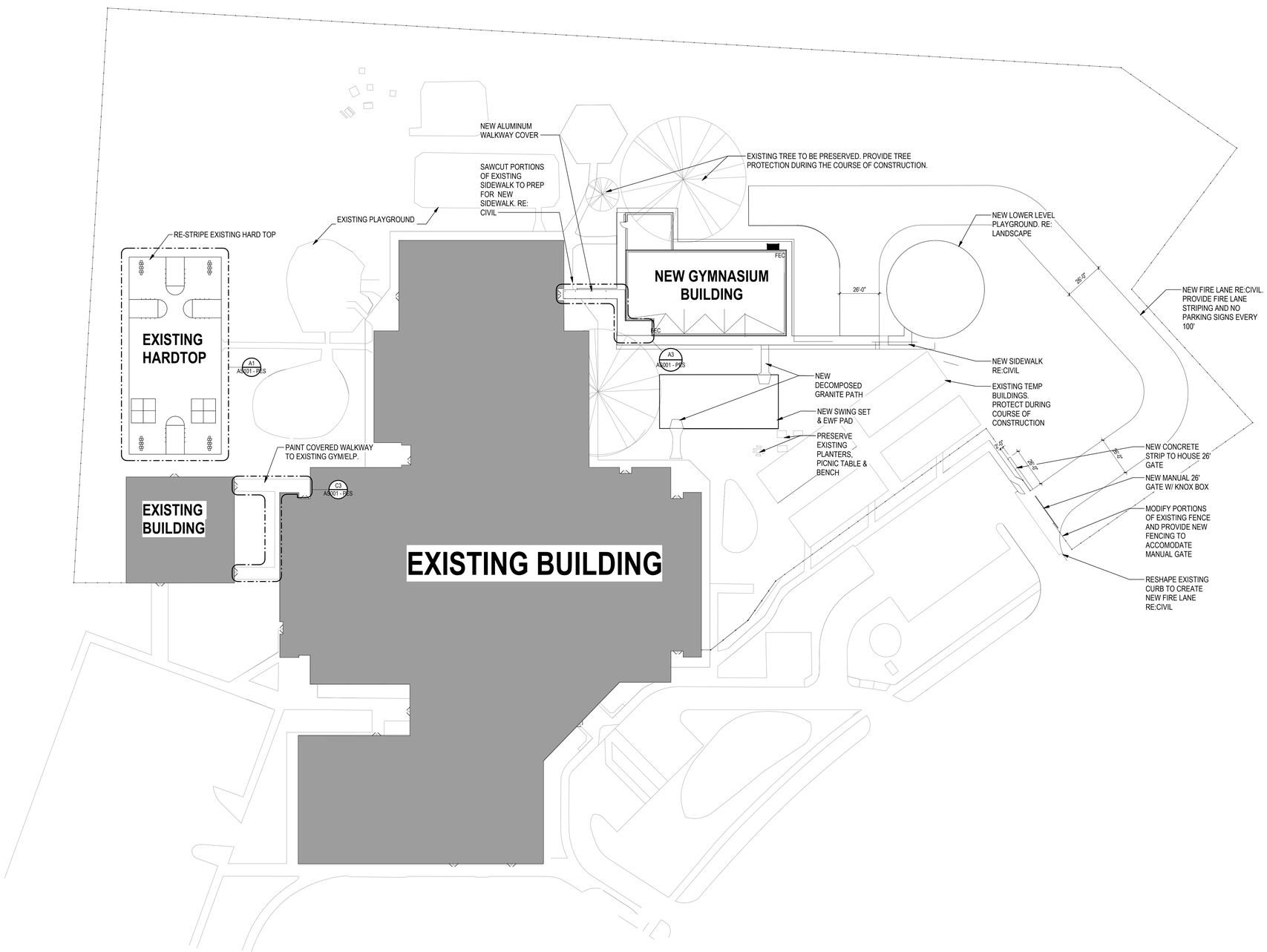
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WALKWAY COVER DETAILS

Project No. 214001246	Scale As indicated
Revision 1	Drawing No.

AS001 - PES

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A1 AS100 PES

ARCHITECTURAL SITE PLAN

1" = 30'-0"

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Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	Author	Designer	Checker	12/07/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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REGISTERED ARCHITECT DANIELLE HUNT 28298 STATE OF TEXAS

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Client/Project

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title

ARCHITECTURAL SITE PLAN

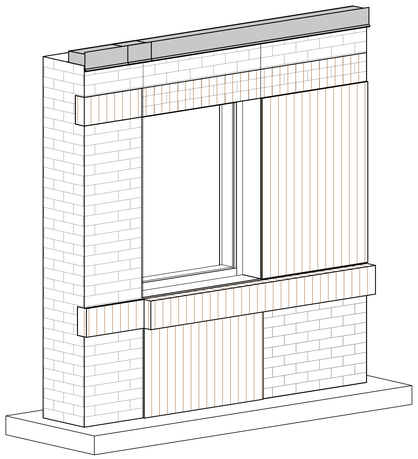
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Revision	Drawing No.

AS100 - PES

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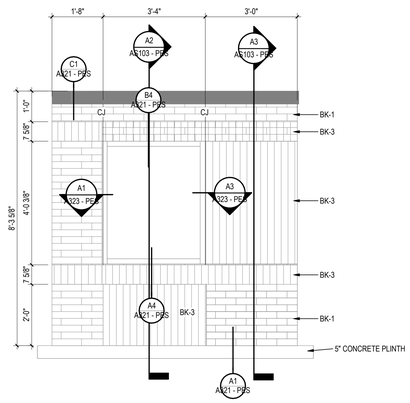
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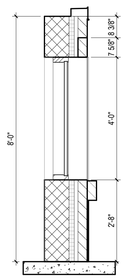
D1 AXONOMETRIC - MOCK-UP WALL

AS103
PES



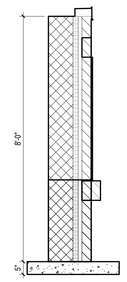
A1 MOCK UP ELEVATION

AS103
1/2" = 1'-0"
PES



A2 WALL SECTION

AS103
1/2" = 1'-0"
PES



A3 WALL SECTION

AS103
1/2" = 1'-0"
PES

EXTERIOR MOCK-UP NOTES

1. COORDINATE LOCATION AND ORIENTATION OF MOCKUP WITH OWNER AND ARCHITECT PRIOR PLACING SLAB

2. PROVIDE COLD-FORMED METAL FRAMING AND MISCELLANEOUS STEEL AS REQUIRED TO CONSTRUCT MOCK-UP. REFERENCE STRUCTURAL DRAWINGS FOR DESIGN LOADS FOR EXTERIOR WALLS. CONTRACTOR SHALL BE RESPONSIBLE FOR ENGINEERING OF THE TERMPORARY STRUCVTURE.

3. BACK-UP WALL SHALL BE MIN. 10" CMU W/ 1/2" GLASS MATT GYPSUM SHEATHING, AIR BARRIER AND 2" RIGID INSULATION

4. MOCK-UP CONSTRUCTION SHALL BE PROGRESSIVE IN NATURE. EACH LAYER SHALL BE REVIEWED BY OWNER AND ARCHITECT PRIOR TO PROCEEDING TO THE FOLLOWING LAYER.

5. MOCK-UP SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS AND PROFILES IN THE A320'S, A330'S AND A340'S SERIES DRAWINGS USING THE ACTUAL SPECIFIED MATERIAL IN THE PROPER FINISHES. ALL MATERIAL TAG DESIGNATIONS REFER TO A201 & A801 FOR MATERIAL AND FINISH SCHEDULE. ALL GLAZING TO BE TYPE GL1, REFER TO A501.

6. CONSTRUCTION OF THE BUILDING ENVELOPE SHALL NOT COMMENCE UNTIL MOCK-UP IS COMPLETE, ALL DEFICIENCIES ARE CORRECTED AND OWNER AND ARCHTIECT HAVE SIGNED OFF.

7. MOCK-UP SHALL NOT BE DEMOLISHED UNTIL COMPLETION OF THE BUILDING ENVELOPE

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Notes

1	ADDENDUM #2			2025.10.16
Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
Issued		By	Appd	YYYY.MM.DD
File Name: N/A		Author	Designer	Checker 12/07/24
		Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
MOCK-UP WALL

Project No.
214001246

Scale
As indicated

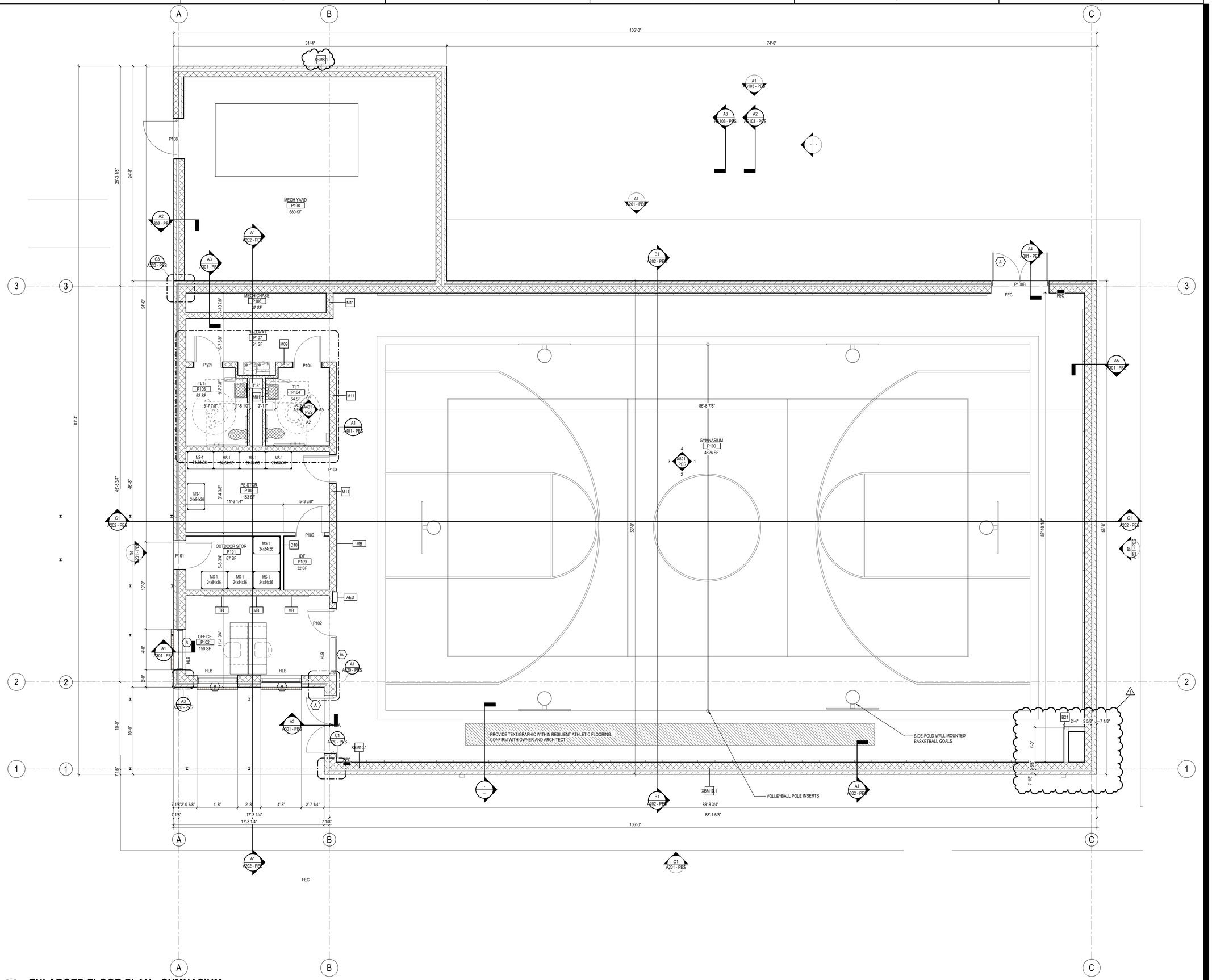
Revision
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Drawing No.
AS103 - PES

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A1 A103 — **ENLARGED FLOOR PLAN - GYMNASIUM**
1/4" = 1'-0"
PES

<Plot location in Project Information>
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ORIGINAL SHEET - ARCH E1

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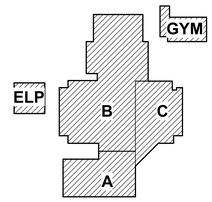
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KEY PLAN

PROJECT NORTH

1 ADDENDUM #1			2025.10.10
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker 12/07/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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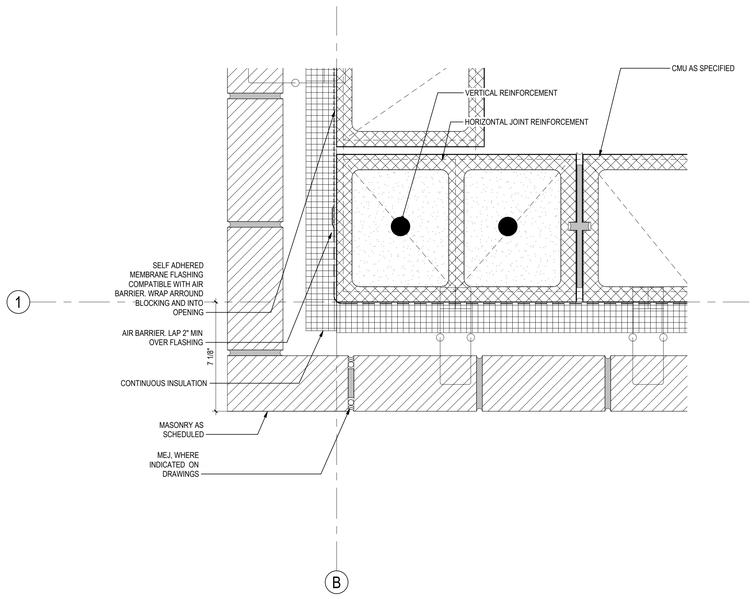
FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
FLOOR PLAN - GYMNASIUM

Project No. 214001246	Scale 1/4" = 1'-0"
Revision 1	Drawing No. A103 - PES

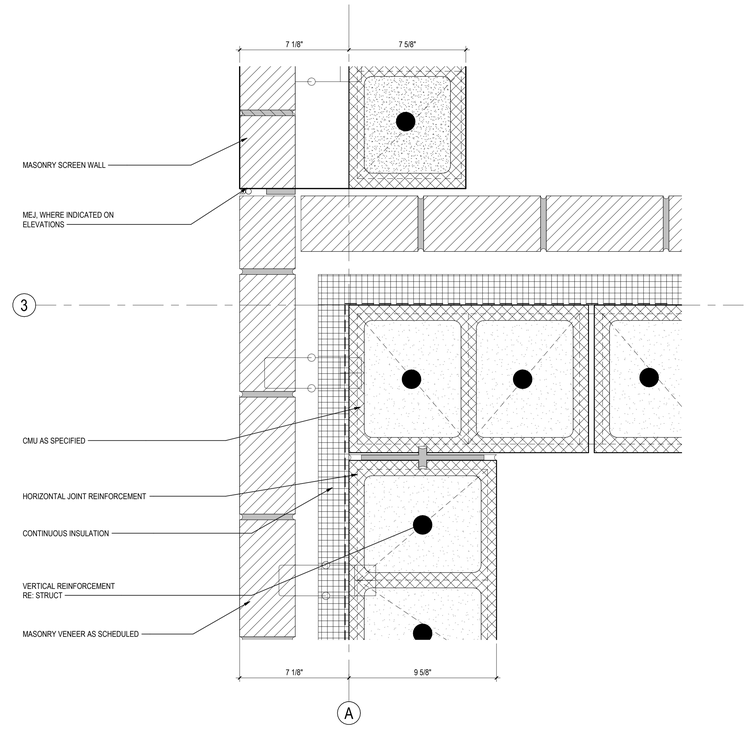
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C1 PLAN DETAIL

A320 — 3" = 1'-0"

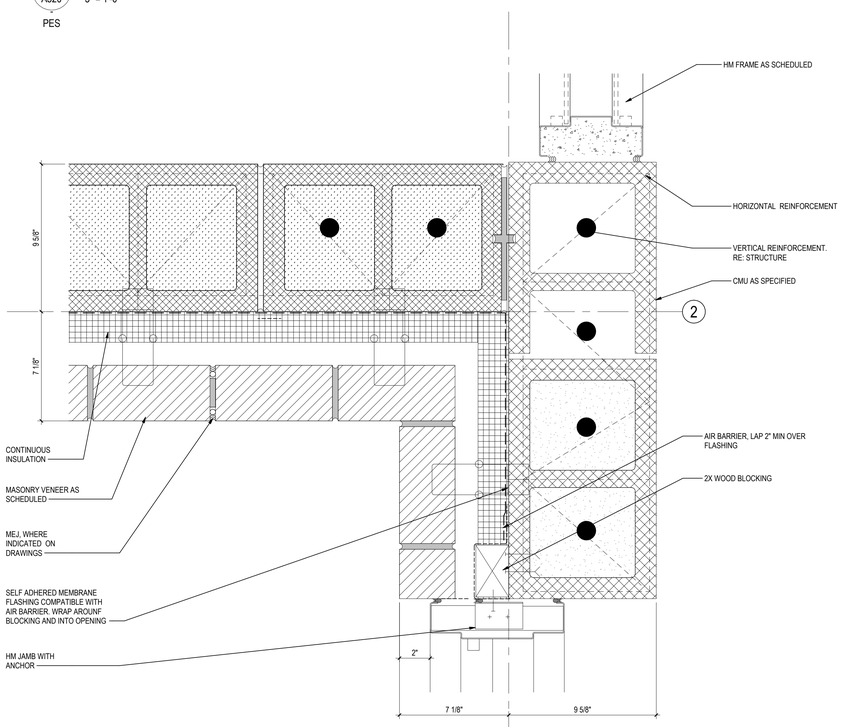
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C3 PLAN DETAIL

A320 — 3" = 1'-0"

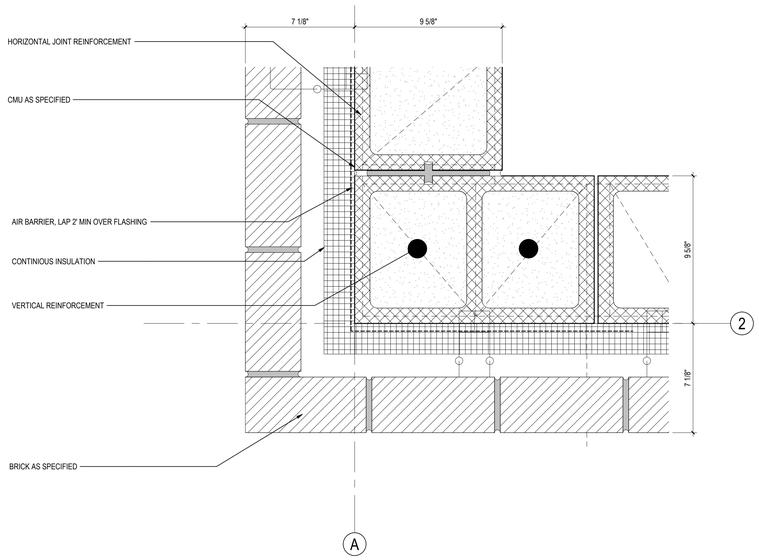
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A1 PLAN DETAIL

A320 — 3" = 1'-0"

PES



A3 PLAN DETAIL

A320 — 3" = 1'-0"

PES

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Revision		By	Appd	YYYY.MM.DD
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Issued		By	Appd	YYYY.MM.DD
File Name: N/A		Author	Designer	Checker 12/07/24
		Own.	Dsgn.	Chkd. YYYY.MM.DD

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Client/Project

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title

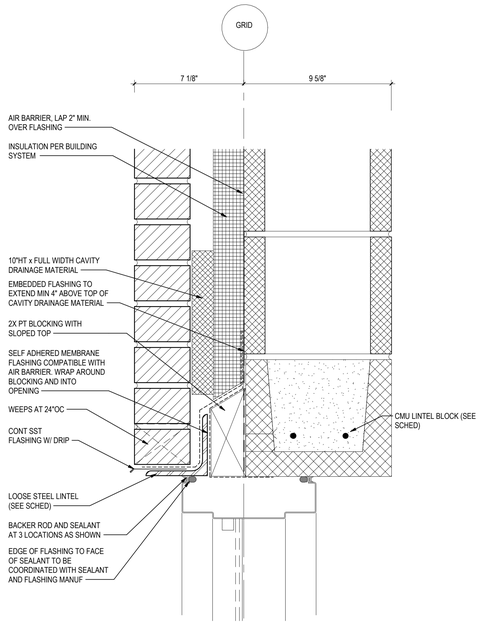
PLAN DETAILS

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Revision	Drawing No.
1	A320 - PES

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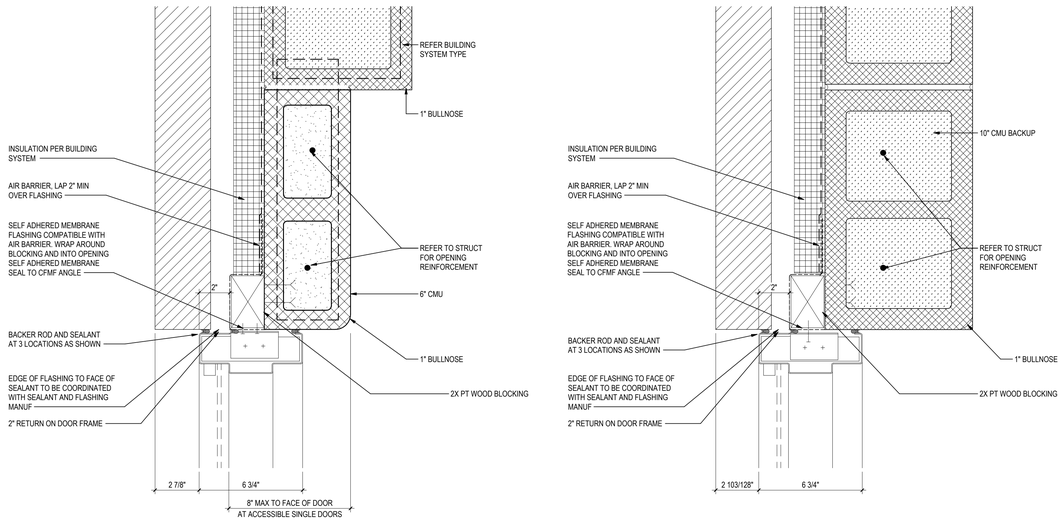
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C1 A322 **HEAD DETAIL**

3" = 1'-0"

PES



A1 A322 **JAMB DETAILS**

3" = 1'-0"

PES

<Plot location in Project Information>
12/05/2025 1:07:22 PM

ORIGINAL SHEET - ARCH E1

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Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker 12/07/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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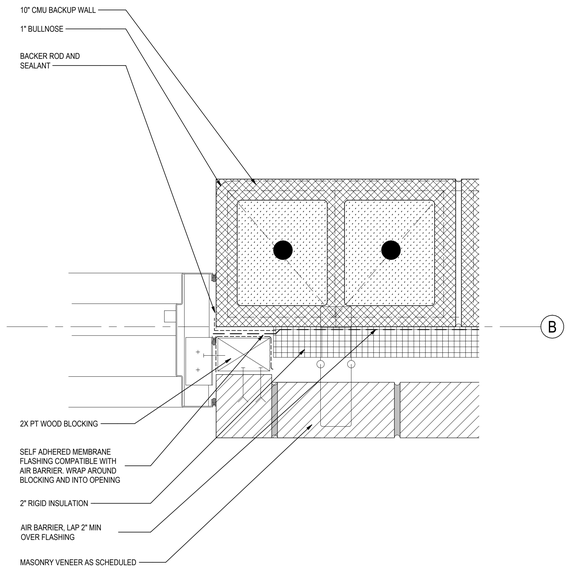
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title

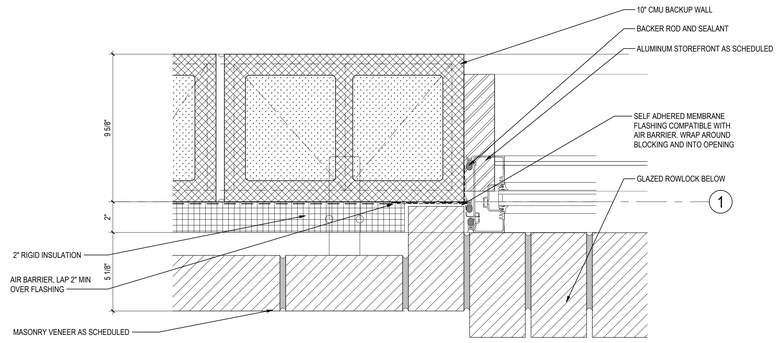
EXTERIOR WALL SECTION DETAILS

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Revision	Drawing No.
1	A322 - PES

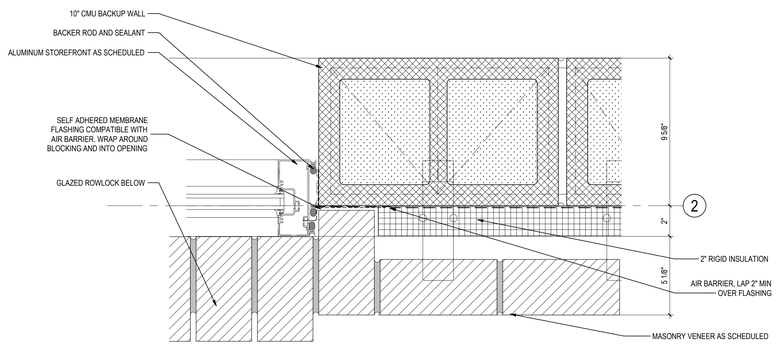
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B1 / A323 — **PLAN DETAIL**
3" = 1'-0"
PES



A1 / A323 — **PLAN DETAIL**
3" = 1'-0"
PES



A3 / A323 — **PLAN DETAIL**
3" = 1'-0"
PES

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Consultant

Notes

1	ADDENDUM #2			2025.10.16
Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
Issued		By	Appd	YYYY.MM.DD
File Name: N/A		Author	Designer	Checker	12/07/24
		Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

REGISTERED ARCHITECT · DANIELLE DUNN · 28298 · STATE OF TEXAS

Client/Project Logo

BOND 2024 · FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
EXTERIOR PLAN DETAILS

Project No.
214001246

Scale
3" = 1'-0"

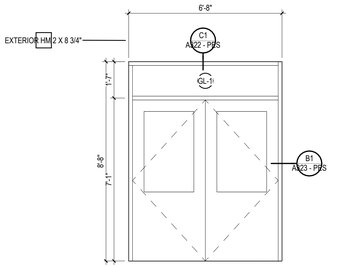
Revision
1

Drawing No.
A323 - PES

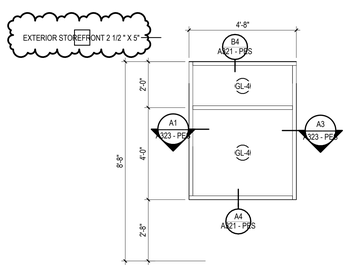
*Plot location in Project Information
10/21/2025 10:29:22 PM

ORIGINAL SHEET - ARCH E1

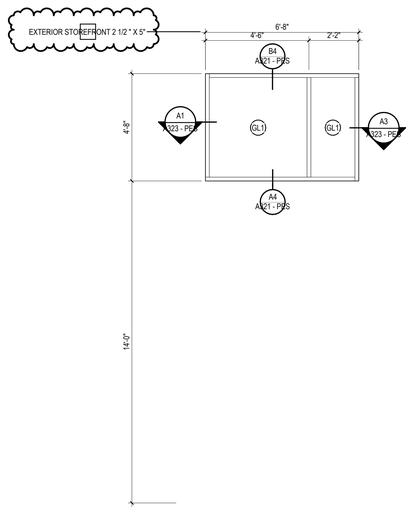
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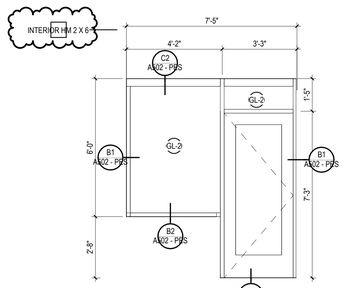
D1 FRAME TYPE A
A501 — 3/8" = 1'-0"
PES



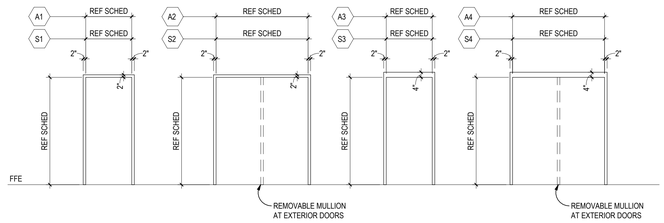
D2 FRAME TYPE B
A501 — 3/8" = 1'-0"
PES



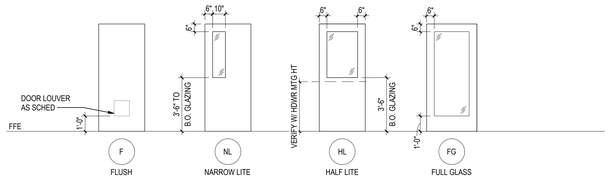
D3 FRAME TYPE C
A501 — 3/8" = 1'-0"
PES



D4 FRAME TYPE iA
A501 — 3/8" = 1'-0"
PES

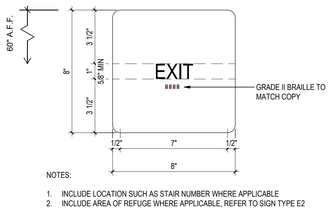


C1 DOOR FRAME TYPES
A501 — 1/4" = 1'-0"
PES



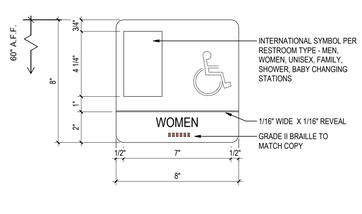
NOTES:
1. PROVIDE INSULATED LAMINATED GLAZING UNITS IN ALL EXTERIOR DOORS, UNO
2. PROVIDE ¼" CLEAR TEMPERED SAFETY GLASS IN ALL INTERIOR DOORS, UNO
3. AT DOORS MARKED AS ACOUSTICAL DOORS, PROVIDE SOUND SEALS FOR AN EQUIVALENT STC 47 DOOR

B1 A041_DOOR TYPES
A501 — 1/4" = 1'-0"
PES

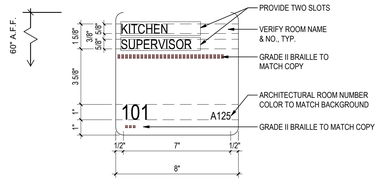


NOTES:
1. INCLUDE LOCATION SUCH AS STAIR NUMBER WHERE APPLICABLE
2. INCLUDE AREA OF REFUGE WHERE APPLICABLE, REFER TO SIGN TYPE E2

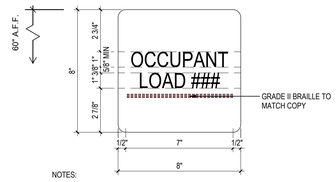
C3 INTERIOR ROOM EXIT SIGN
A501 — 3" = 1'-0"
PES



C4 RESTROOM SIGN
A501 — 3" = 1'-0"
PES



B3 TYPICAL ROOM SIGN
A501 — 3" = 1'-0"
PES



NOTES:
1. PROVIDE SIGN AT EACH EXIT POINT.
2. COORDINATE ON SITE TO COMPLY WITH THE REQUIREMENTS

B4 OCCUPANT LOAD SIGN
A501 — 3" = 1'-0"
PES

GLAZING LEGEND

GL-1 - 1 5/16" INSULATED LAMINATED GLAZING

GL-2 - 9/16" LAMINATED GLAZING

GL-3 - 1/4" CLEAR TEMPERED GLAZING

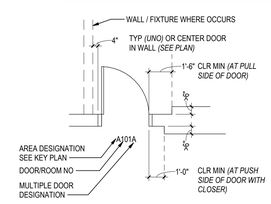
GL-4 5/8" FIRE RATED LAMINATED INSULATED GLAZING UNIT

GL-5 1-3/4" 45 MIN INSULATED LAMINATED GLAZING

GENERAL NOTES - DOORS AND WINDOWS:

1. REFER TO SHEET A501 FOR DOOR SCHEDULE.
2. REFER TO SHEET A006 AND A005 FOR LINTEL SCHEDULES AND DOOR AND WINDOW JAMB STUD FRAMING SCHEDULE.
3. ALL INTERIOR DOORS TO BE 1 ¾" THICK *(UNO)*. EXTERIOR STOREFRONT DOORS SHALL BE 2" THICK, THERMALLY BROKEN. EXTERIOR HOLLOW METAL DOORS TO BE 1 ¾" THICK, INSULATED WITH THERMALLY BROKEN FRAMES
4. ALL STL FRAMES TO HAVE A 2" FACE DIMENSION UNO, W/ ½" STOP. ¾" STOP REQUIRED FOR FIRE RATED FRAMES.
5. STEEL FRAME DEPTHS INDICATED IN THE DETAILS ARE NOMINAL. PROVIDE STANDARD WIDTH FRAME WITH THROAT OPENING APPROPRIATE TO PARTITION TYPE.
6. COORDINATE WITH MECH DOCUMENTS FOR DOOR UNDERCUTS AND DOOR LOUVERS, IF ANY.
7. ALL LITES IN DOORS TO HAVE INSULATED LAMINATED GLAZING *(UNO)*.
8. FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING FRAMES.
9. PROVIDE WD BLKG IN GYP BD WALLS BEHIND DOORS SCHEDULED TO HAVE WALL MOUNTED DOOR STOPS. *(REFER HARDWARE SCHEDULE SUBMITTAL)*.
10. REFER DTLS A1/A006 FOR TYP WINDOW AND DOOR CONTROL JOINTS IN MASONRY WALLS. REFER DTLS A2/A006 FOR TYP WINDOW AND DOOR CONTROL JOINTS IN STEEL STUD FRAMED WALLS.
11. FLOOR MATERIAL CHANGES BETWEEN ROOMS TO OCCUR UNDER DOOR.
12. PROVIDE WATER RESISTANT TREATED WOOD BLOCKING AT WINDOW SURROUND MEMBERS AS REQUIRED FOR PROPER ATTACHMENT WHERE ALUMINUM WINDOWS ARE TO BE INSTALLED.
13. AT ALL EXISTING STL FRAMES WHERE DOOR SWING IS TO BE CHANGED, PATCH, REPAIR AND GRIND SMOOTH EXISTING STL DOOR FRAME. PRIME AND USE ONLY IF FRAME IS TO BE RETAINED. PAINT ACCORDING TO FINISH SCHEDULE SHEET A801.
14. DOOR HARDWARE *(CLOSERS, LEVERS, PANIC HARDWARE, ETC.)* SHALL NOT CONFLICT WITH THE GLASS OR TRIM FOR THE LITE.

DOOR MARK KEY



DOOR SCHEDULE REMARKS:

1. PROVIDE REMOVABLE MULLION.
2. REFER TO ELECTRICAL DOCUMENTS FOR POWER FOR CARD KEY ACCESS. AT DOUBLE DOORS PROVIDE ELECTRIC STRIKE AT REMOVABLE MULLION.
3. PROVIDE DRIP AT HEAD OF DOOR
4. MANUAL OPERATED, TYPICAL.
5. MOTOR OPERATED, TYPICAL. REFER TO MEP DOC.
6. PREMANUFACTURED DOOR AND FRAME ASSEMBLY. PROVIDE PLAM FACING COLOR AS SCHEDULED ON SHEET A601. REFER TO ELECTRICAL DOCUMENTS FOR HOLD-OPEN DEVICES.
7. PROVIDE 2" WIDE ADA COMPLIANT MARBLE THRESHOLD WITH CHAMFERED EDGES AT ENTRY DOOR.
8. FIELD VERIFY ROUGH OPENING PRIOR TO DOOR FABRICATION.

DOOR SCHEDULE-BY NUMBER

NO.	ROOM NAME	ROOM NO.	DOOR WIDTH	DOOR HEIGHT	DOOR THICK	DOOR TYPE	DOOR MAT'L	DOOR FIN	DOOR GLAZ	FRAME Frame Type	FRAME MAT'L	FRAME FIN	FRAME DETAILS HEAD	FRAME DETAILS JAMB	FRAME DETAILS SILL	FIRE LABEL	HDWR SET	DOOR COMMENTS
Level 1																		
P100A			6'-4"	7'-0"	1 3/4"	HL	STL	PNT		RE; FRAME ELEV	STL	PNT				45 MIN	C714MR	1,2,3
P100B			6'-4"	7'-0"	1 3/4"	HL	STL	PNT		RE; FRAME ELEV	STL	PNT				45 MIN	C714MR	1,2,3
P101	OUTDOOR STOR	P101	3'-0"	7'-2"	1 3/4"	F	STL	PNT		S1	STL	PNT				45 MIN	205IN	3
P102	OFFICE	P102	3'-0"	7'-2"	1 3/4"	FL	STL	PLAM		RE: ELEV	STL	PNT	C2/A502-PES	B1/A502-PES	A1/A502-PES		103	
P103	GYMNASIUM	P100	3'-0"	7'-2"	1 3/4"	F	STL	PLAM		S1	STL	PNT	C1/A502-PES	B1/A502-PES	A1/A502-PES		C201	2
P104	HALLWAY	P107	3'-0"	7'-2"	1 3/4"	F	STL	PLAM		S1	STL	PNT	C1/A502-PES	B1/A502-PES	A1/A502-PES		341	7
P105	HALLWAY	P107	3'-0"	7'-2"	1 3/4"	F	STL	PLAM		S1	STL	PNT	C1/A502-PES	B1/A502-PES	A1-A502-PES		341	7
P108			4'-0"	8'-0"			STL	CHAINLINK				CHAINLINK	A1/AS102-PES	A1/AS102-PES	A1/AS102-PES		J-2PL	GATE
P109	PE STOR	P103	3'-0"	7'-2"	1 3/4"	F	STL	PLAM		S1	STL	PNT	C1/A502-PES	B1/A502-PES	A1/A502-PES		C201	2
P113			26'-0"	8'-0"			STL	CHAINLINK				CHAINLINK	B1/AS102-PES	B1/AS102-PES	B1/AS102		J-2PL	GATE

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Notes

2 ADDENDUM #2			2025.10.16
1 ADDENDUM #1			2025.10.10
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker 12/07/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit/Seal

REGISTERED ARCHITECT DANIELLE DUNN 28296 STATE OF TEXAS

Client/Project Logo

2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
DOOR SCHEDULE, INFO, AND FRAME TYPES

Project No. 214001246
Scale As indicated
Revision 2
Drawing No. A501 - PES

eTick location in Project Information
12/20/2023 10:24:24 PM
ORIGINAL SHEET - ARCH E1

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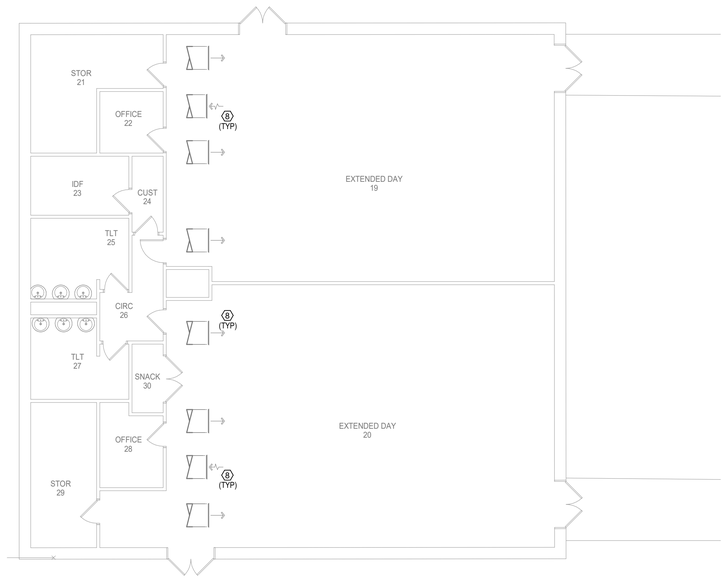
RENOVATIONS	
⊕	POINT OF CONNECTION FROM NEW TO EXISTING
▭	ITEM TO REMAIN
▭	ITEM TO BE REMOVED

GENERAL NOTES:

1. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT BEING REMOVED FROM THIS PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CHILLERS, AIR HANDLING UNITS, FANS, CONDENSING UNITS, BMCS CONTROL PANELS, TEMPERATURE SENSORS, AND CONTROL VALVES.
2. THESE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC, AND DO NOT NECESSARILY REFLECT ACTUAL DIMENSIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD-VERIFY ALL DIMENSIONS AND COORDINATE PLACEMENT OF ALL EQUIPMENT AND ROUTING OF ALL PIPING AND/OR DUCT SYSTEMS.
3. ALL MECHANICAL SYSTEMS SHOWN ON THIS PLAN ARE FROM EXISTING DRAWINGS AND PRELIMINARY FIELD WORK. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL LOCATIONS AND SIZES OF MECHANICAL SYSTEMS PRIOR TO THE START OF WORK.

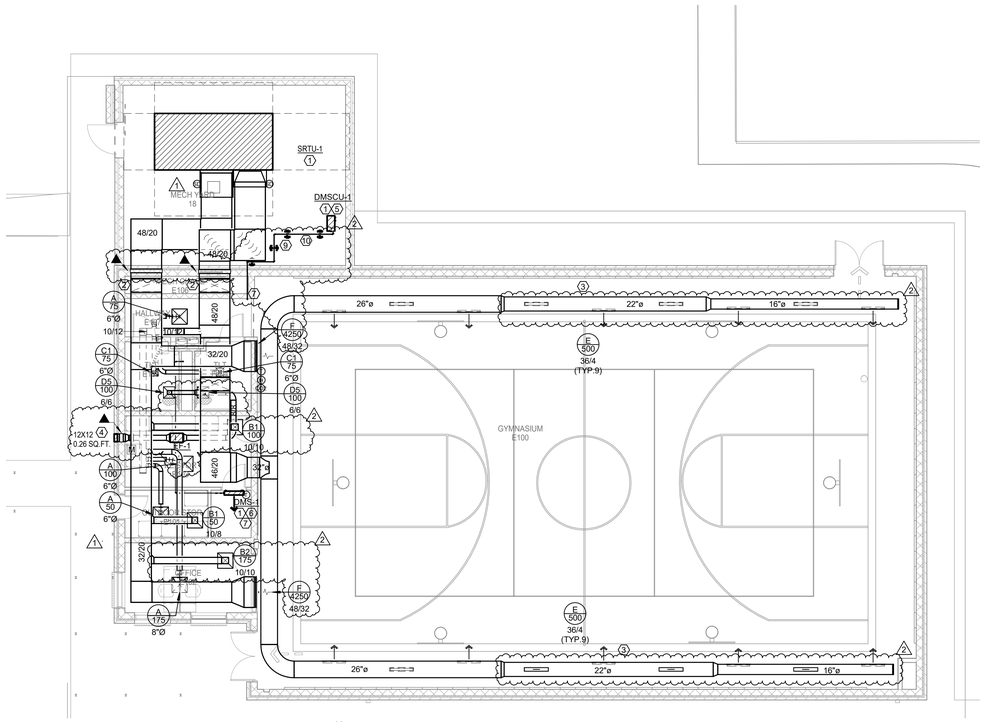
MECHANICAL KEYED NOTES:

1. VERIFY SERVICE CLEARANCE WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
2. ROUTE DUCTWORK WITHIN CHASE AND UP TO PLENUM SPACE AS INDICATED.
3. SPIRAL INSULATED DOUBLE WALL DUCTWORK PAINTED BY ARCHITECT. DUCTWORK SHALL BE TIGHTS TO STRUCTURE.
4. PROVIDE RUSKIN MODEL HZ700 WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER OR APPROVED EQUAL WITH MINIMUM FREE AREA INDICATED. PROVIDE WITH BIRD SCREEN AND PAINT TO MATCH WALL OR AS SPECIFIED BY ARCHITECT.
5. PROVIDE 4" THICK CONCRETE HOUSEKEEPING PAD.
6. ROUTE FULL SIZE CONDENSATE DRAIN PIPE TO LAVATORY WYE TAILPIECE LOCATED IN TLT E105. REFER TO PLUMBING DRAWINGS FOR MORE INFORMATION.
7. ROUTE REFRIGERANT PIPING TO ASSOCIATED OUTDOOR UNIT. REFRIGERANT PIPE ELEVATION INSIDE THE BUILDING SHALL NOT BE LESS THAN 7'3" AFF.
8. EXISTING SUPPLY AND RETURN AIR GRILLES TO REMAIN.
9. PROVIDE REFRIGERANT PIPE SUPPORTS (TYP).
10. REFRIGERANT PIPING SHALL BE INSULATED AND PAINTED PER SPECIFICATIONS.



N

2 **MECHANICAL PLAN - LEVEL 1 - EXTENDED DAY LEARNING**
Scale: 1/8" = 1'-0"



N

1 **MECHANICAL PLAN - LEVEL 1 - NEW GYM**
Scale: 1/8" = 1'-0"

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Consultant

Salas O'Brien

salasobrien.com 281-664-1900
Houston
10930 W. Sam Houston Pkwy North, Suite 900
Houston, TX 77064

Registration: F-4111
Project No: 2023-04376-00

Notes

Revision	By	Appd	YYYY.MM.DD
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	Dwn.	Dsgn.	Ckkd.	YYYY.MM.DD
	IP	IP	VP	11/27/24

Permit/Seal

BRADLEY KALMANS
80219
LICENSED
10-20-2025

Client/Project Logo

BOND
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
MECHANICAL FLOOR PLANS

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
2	M201-PES

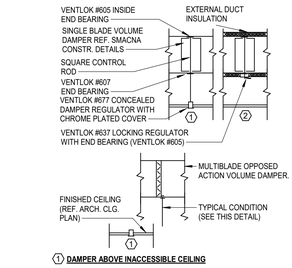
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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

SYMBOL LEGEND

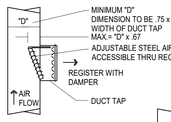
SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
GENERAL	
(#)	KEY NOTE TAG
#A	REVISION TAG
	NEW EQUIPMENT
DUCTWORK	
	SUPPLY AIR DUCTWORK
	RETURN AIR AND OUTSIDE AIR DUCTWORK
	EXHAUST AIR DUCTWORK
	FLEXIBLE DUCTWORK
	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	RETURN AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	FIRE DAMPER (VERTICAL)
	FIRE DAMPER (HORIZONTAL)
SD	SMOKE DAMPER (VERTICAL)
SD	SMOKE DAMPER (HORIZONTAL)
FSD	COMBINATION FIRE & SMOKE DAMPER (VERTICAL)
FSD	COMBINATION FIRE & SMOKE DAMPER (HORIZONTAL)
M	MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)
M	MOTORIZED DAMPER (SEE DAMPER SCHEDULE)
SENSORS	
T	THERMOSTAT AND TEMPERATURE SENSOR
H	HUMIDISTAT
SDI	SMOKE DETECTOR
HD	HEAT DETECTOR
AIR DEVICES	
	GRILLE SIZE TAG (REFER TO GRILLE SIZE LEGEND)
	SUPPLY AIR GRILLE WITH FOUR-WAY THROW
	SUPPLY AIR GRILLE WITH THREE-WAY THROW
	SUPPLY AIR GRILLE WITH TWO-WAY THROW
	SUPPLY AIR GRILLE WITH TWO-WAY CORNER THROW
	SUPPLY AIR GRILLE WITH ONE-WAY THROW
	RETURN AIR GRILLE
	RETURN AIR GRILLE WITH SOUND BOOT
	EXHAUST AIR GRILLE
	SUPPLY AIR SIDEWALL GRILLE
	RETURN AIR SIDEWALL GRILLE
20X12	RETURN AIR OPENING ABOVE CEILING
PIPING	
–CWS&R–	CONDENSER WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CWS–	CONDENSER WATER SUPPLY
–CWR–	CONDENSER WATER RETURN
–CHWS&R–	CHILLED WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CHWS–	CHILLED WATER SUPPLY
–CHWR–	CHILLED WATER RETURN
–HWS&R–	HOT WATER FOR HYDRONIC HEATING SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–HWS–	HOT WATER FOR HYDRONIC HEATING SUPPLY
–HWR–	HOT WATER FOR HYDRONIC HEATING RETURN
—D—	CONDENSATE DRAIN LINE
—AD—	AUXILIARY CONDENSATE DRAIN LINE
—RLR—	REFRIGERANT LIQUID & GAS RECIRCULATION LINE (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
—RL—	REFRIGERANT LIQUID LINE
—HG—	REFRIGERANT HOT GAS LINE
—RS—	REFRIGERANT SUCTION LINE
	ELBOW UP
	ELBOW DOWN
	90° ELBOW
	45° ELBOW
	TEE
	TEE DOWN
	TEE UP
	TOP BRANCH CONNECTION
	BOTTOM BRANCH CONNECTION
	FLANGE
	CAP
	CONTINUATION
	FLOOR DRAIN (REFER TO PLUMBING DRAWINGS)
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	BUTTERFLY VALVE WITH OPERATOR
	PLUG VALVE
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BALL VALVE
	STRAINER
	UNION
	THERMOMETER WELL
	PETE'S PLUG
	PRESSURE GAUGE
	TEMPERATURE SENSOR IN PIPE
	VENTURI FLOW METER
	FLOW SWITCH
FM	FLOW MEASURING STATION
	EXPANSION JOINT
	FLEXIBLE CONNECTION
G.C.	GAUGE COCK
	SITE GLASS
	DIFFERENTIAL PRESSURE SENSOR
	TURBINE FLOW METER
	ANCHOR
	PIPE GUIDE
SUBSCRIPTS AND ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
BBS	BELOW BOTTOM OF STRUCTURE
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CA	COMBUSTION AIR
CFM	CUBIC FEET PER MINUTE
EA	EXHAUST AIR
FPM	FEET PER MINUTE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR

DUCTWORK CONSTRUCTION DETAILS



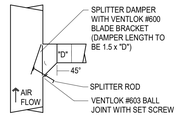
1 **DAMPER ABOVE INACCESSIBLE CEILING**

2 **DAMPER ABOVE LIFT-OUT CEILING**

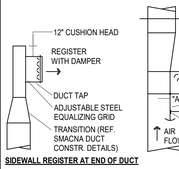


NOTES:
1. MAX. WIDTH OF DUCT TAP SHALL BE 48". PROVIDE BOTTOM BRACKET FOR SUPPORT WHERE EXTRACTOR EXCEEDS 16"
2. MAX. HEIGHT OF DUCT TAP SHALL BE 12" (MIN.= 4")

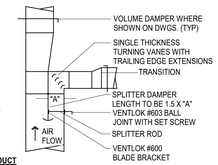
EXTRACTOR SIDEWALL REGISTER



DUCT TAP



SIDEWALL REGISTER AT END OF DUCT



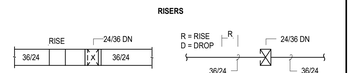
SPLITTER

DUCTWORK SYMBOLS LEGEND

TRANSITIONS



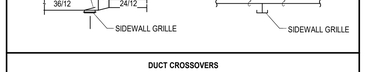
MAIN BRANCH TAKE-OFFS



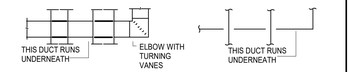
RISERS



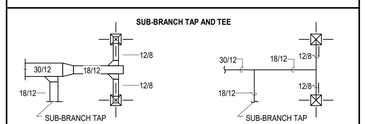
SIDEWALL REGISTERS

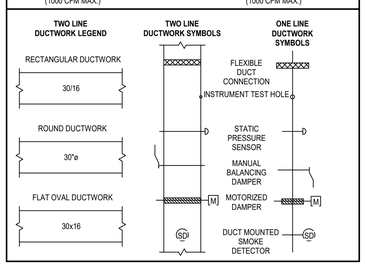


DUCT CROSSOVERS



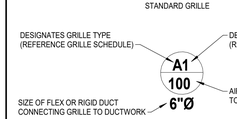
SUB-BRANCH TAP AND TEE





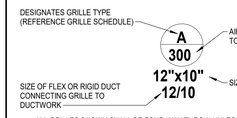
GRILLE SIZING SCHEDULE

STANDARD GRILLE



ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN.

REGISTER OR NONSTANDARD GRILLE



ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN. ALL REGISTERS SHALL HAVE A 45° HORIZONTAL DEFLECTION UNLESS OTHERWISE SHOWN.

GRILLE SIZE DESIGNATION	GRILLE NECK SIZE	GRILLE SIZE DESIGNATION	GRILLE NECK SIZE
1	6" x 6"	7	15" x 15"
2	8" x 8"	8	16" x 16"
3	9" x 9"	9	18" x 18"
4	10" x 10"	10	20" x 20"
5	12" x 12"	11	22" x 22"
6	14" x 14"	12	24" x 24"

DUCTLESS MINI-SPLIT - INDOOR UNIT

MARK	SUPPLY AIR CFM	WATTS	CURRENT CHARAC. V	P	F	AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	COOLING MIN. TOTAL CAPACITY (BTUH)	MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ SEER	REMARKS
DMS-1	370	40.0	208	1	60	75.0	62.5	17,105	11,628	-/15.0	(1,2,3,4,5,6)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. DUCTLESS WALL MOUNTED UNIT.
2. UNIT TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. CONTROLLED BY PROGRAMMABLE WIRED THERMOSTAT.
4. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.
5. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.
6. PROVIDE ASPEN MINI AQUA PUMP TO BE INSTALLED INSIDE UNIT.

DUCTLESS MINI-SPLIT - OUTDOOR UNIT

MARK	MIN. TOTAL CAPACITY (BTUH)	OUTDOOR AIR TEMP (°F)	MINIMUM EER/ SEER	CURRENT CHARAC. V	PH	F	RELATED UNIT MARK	REMARKS
DMSCU-1	17,100	95	-/15.0	208	1	60	DMS-1	(1,2,3)

GENERAL NOTES:
1. MINIMUM RECOMMENDED CLEARANCE AROUND ROOFTOP UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE FOR CONDENSER AIR FLOW AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE WITHLOW AMBIENT CONTROL DOWN TO 20°F.
2. PROVIDE WITH DISCONNECT SWITCH.
3. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.

SPECIALIZED PACKAGED ROOFTOP UNIT - ELECTRIC HEAT

MARK	FAN SUPPLY AIR CFM	FAN OUTSIDE AIR CFM	FAN EXT.STATIC PRESSURE (IN. W.C.)	FAN HORSE POWER	FAN CURRENT CHARAC. V	P	F	COOLING AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	COOLING AMBIENT TEMP	COOLING MIN. TOTAL CAPACITY (BTUH)	COOLING MIN. SENS. CAPACITY (BTUH)	COOLING MINIMUM EER/ IEER	ELECTRIC HEATING ENTERING AIR TEMP.(°F)	ELECTRIC HEATING MINIMUM CAPACITY (BTUH)	ELECTRIC HEATING KW	ELECTRIC HEATING NUMBER OF STAGES	REMARKS
SRTU-1	9,550	2,000	1.15	10.0	480	3	60	79.9	66.6	98.0	335,100	251,200	10.0/13.2	61.8	245,664	72	SCR	(1,2,3,4,5,6,7,8,9,10, 11,12,13,14)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE SRTU FOR GROUND MOUNT WITH SIDE DISCHARGE AND DISCONNECT SWITCH.
2. PROVIDE UNIT WITH FACTORY MOUNTED GFCI RECEPTACLE FOR UNIT WITH LOW AMBIENT CONTROL. ELECTRICIAN TO WIRE TO SEPARATE CIRCUIT.
3. PROVIDE FACTORY MOUNTED DDC CONTROLLER.
4. PROVIDE DIGITAL COMPRESSOR AND PREMIUM EFFICIENT MOTORS.
5. PROVIDE METAL MESH OUTSIDE AIR PRE FILTER WITH 2" PLEATED AND 4" FINAL FILTERS.
6. PROVIDE FAN CYCLING AND ADJUSTABLE COMPRESSOR LOCKOUT FOR LOW AMBIENT OPERATION.
7. PROVIDE MODULATING HOT GAS REHEAT.
8. PROVIDE A WATER LEVEL SENSING DEVICE IN THE PRIMARY DRAIN PAN. THIS DEVICE SHALL SHUT OFF THE APPLIANCE IN THE EVENT THE PRIMARY DRAIN LINE BECOMES RESTRICTED.
9. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL COSTS IF ALTERNATE UNIT IS PROVIDED WITH GREATER ELECTRICAL CHARACTERISTICS THAN SHOWN.
2 10. SRTU SHALL PROVIDE A MINIMUM OF 850 CFM OF OUTSIDE AIR TO SPACE.
11. PROVIDE WITH HORIZONTAL DISCHARGE OR TRANSITION PLENUM CURB.
12. PROVIDE UNIT WITH DIFFERENTIAL ENTHALPY CONTROLLED ECONOMIZER AND POWERED EXHAUST. ECONOMIZER DAMPER SHALL BE ULTA LOW LEAK EQUIVALENT TO RUSKIN CD60 OR BETTER.
13. PROVIDE WITH DUCT STATIC PRESSURE SENSOR.
14. PROVIDE WITH EVAPORATOR COIL LEAVING AIR TEMPERATURE SENSOR.

FAN SCHEDULE

TAG	LOCATION	CFM	EXT. STATIC PRESSURE (IN.W.C.)	MAX RPM	HORSE POWER	CURRENT CHAR V	P	F	LOCALLY SWITCHED	INTERLOCK WITH	FAN TYPE	DRIVE TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
EF-1		200	0.55	1800	0.5	120	1	60	-	SRTU-1	INLINE	DIRECT	COOK	SQN	(1,2,3,4)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MINIMUM RECOMMENDED CLEARANCE AROUND UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE WITH DISCONNECT.
2. PROVIDE WITH MOTORIZED DAMPER.
3. SUSPEND UNIT WITH FOUR THREADED HANGER RODS ATTACHED TO UNISTRUT RUNNERS SECURED TO STRUCTURE. PROVIDE SPRING ISOLATION. REFER TO MANUFACTURER FOR MORE DETAILS.
4. PROVIDE WITH FAN SPEED CONTROLLER.

GRILLE

MARK	SERVICE	TYPE	DAMPER	CONSTRUCTION MATERIAL	FINISH COLOR	MANUFACTURER	MODEL NUMBER	DESCRIPTION
A	SUPPLY AIR	DIFFUSER	-	STEEL	WHITE	TITUS	OMNI	EXPOSED T-BAR CEILING FRAME STYLE WITH 24"X24" OR 12"X12" FACE.
B	RETURN AIR	DIFFUSER	-	STEEL	WHITE	TITUS	PAR	SURFACE MOUNT CEILING FRAME STYLE WITH 24"X24".
C	SUPPLY AIR	DIFFUSER	-	STEEL	WHITE	TITUS	OMNI	SURFACE MOUNT CEILING FRAME STYLE WITH 18"X18" OR 12"X12" FACE.
D	EXHAUST AIR	DIFFUSER	-	STEEL	WHITE	TITUS	50F	SURFACE MOUNT CEILING FRAME STYLE WITH 18"X18" OR 12"X12" FACE. PERFERATED FACE.
E	GRILLE	SUPPLY AIR	-	STEEL	WHITE	TITUS	DL	LONG THROW SIDEWALL GRILLE WITH ROTATING DRUM.
F	GRILLE	RETURN AIR	-	STEEL	WHITE	TITUS	350RL	DOUBLE DEFLECTION SIDEWALL GRILLE WITH HORIZONTAL FRONT BARS. SURFACE MOUNTED (1)

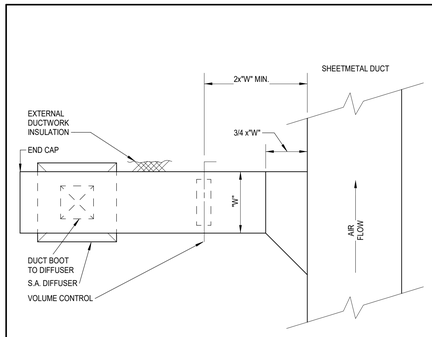
GENERAL NOTES:
1. DAMPERS NOTED AS U.L. SHALLBE A 'U.L.' CLASSIFIED CEILING RADIATION DAMPER WITH THERMAL BLANKET.
2. COORDINATE FINAL AIR DEVICE LOCATION AND FINISH COLOR WITH ARCHITECT.

REMARKS:
1. N/A

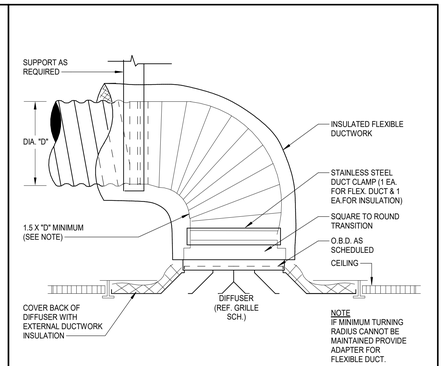
DAMPER

MARK	ACTUATOR	DUTY	BLADE ACTION	MANUFACTURER	MODEL NUMBER	REMARKS
D-1	MANUAL BALANCING	UNDER 9" WIDE	N/A	N/A	N/A	SEE SMACNA CONSTRUCTION DETAILS REFERENCED "TYPICAL CONSTRUCTION DETAILS FOR LOW VELOCITY DUCTS."
D-2	MANUAL BALANCING	OVER 9" WIDE	OPPOSED	RUSKIN	MD-35	MANUAL DAMPER WITH STANDARD CONSTRUCTION FEATURES AND VENTLOCK #639 LOCKING REGULATOR.
D-3	MOTORIZED	OVER 9" WIDE	OPPOSED	RUSKIN	CD-60	LOW LEAKAGE DAMPER WITH BLADE SEALS

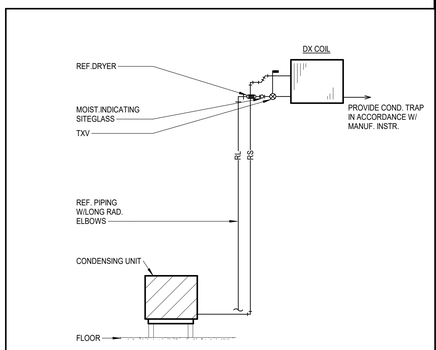
NOTES:
N/A - NOT APPLICABLE



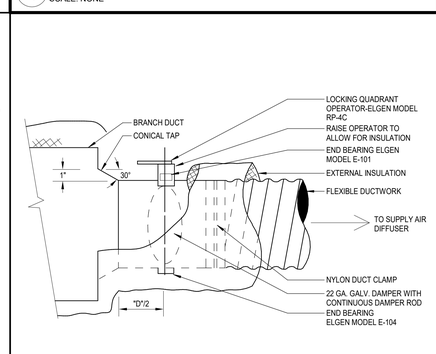
RIGID DUCT TAP TO SINGLE SUPPLY AIR DIFFUSER
4 SCALE: NONE



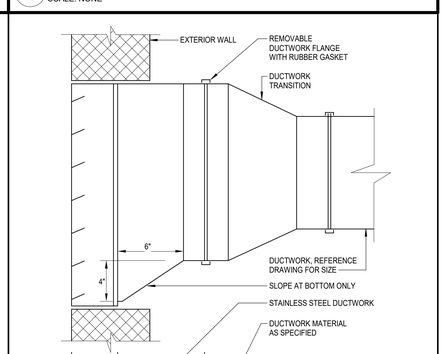
FLEX DUCT CONNECTION AT SUPPLY AIR DIFFUSER
2 SCALE: NONE



REFRIGERANT PIPING DIAGRAM
5 SCALE: NONE



FLEXIBLE DUCT TAP - CONICAL
3 SCALE: NONE



DUCTWORK AT LOUVER
1 SCALE: NONE

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Project No: 2023-04376-00

Notes

Revision	By	Appd	YYYY.MM.DD
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	IP Dwn.	IP Dsgn.	VP Chkd. 11/27/24 YYYY.MM.DD

Permit/Seal

10-20-2025

Client/Project Logo

2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

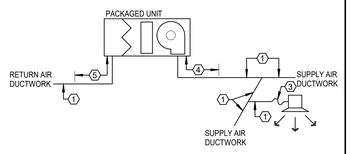
FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
MECHANICAL SCHEDULES

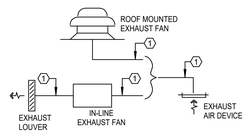
Project No. 214001246
Scale
Revision 2
Drawing No.
M301-PES

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

DUCT LINER AND INSULATION



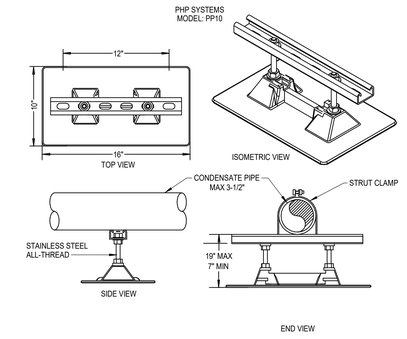
PACKAGED UNIT



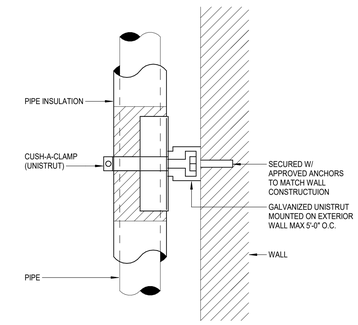
EXHAUST AIR SYSTEMS

KEYED NOTES:

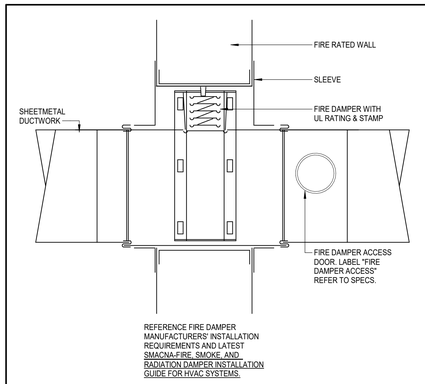
1. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
2. SHEETMETAL DUCTWORK RETURN AIR PLENUM WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
3. FLEXIBLE DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
4. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT DISCHARGE TO 10'-0" DOWNSTREAM.
5. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT INLET TO 10'-0" UPSTREAM.
6. EXHAUST DUCTWORK AS SPECIFIED WITH FIREBOARD INSULATION AS SPECIFIED.
7. SHEETMETAL DUCTWORK ONLY. NO INSULATION REQUIRED.



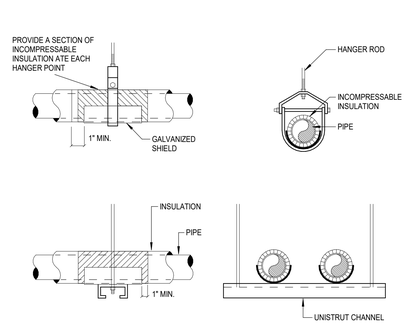
4 PIPE SUPPORT
SCALE: NONE



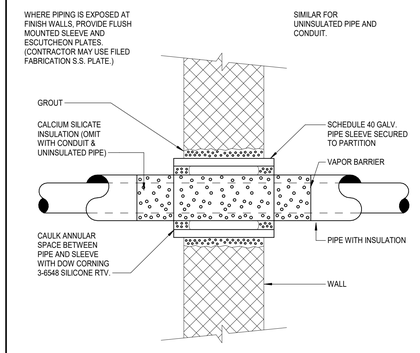
3 EXTERIOR PIPE MOUNTING DETAIL
SCALE: NONE



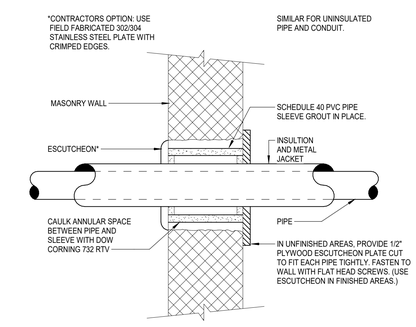
6 FIRE DAMPER
SCALE: NONE



2 PIPE HANGERS
SCALE: NONE



5 PIPE THRU FIRE RATED WALL
SCALE: NONE



1 PIPE THROUGH EXTERIOR WALL
SCALE: NONE

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Project No: 2023-04376-00

Notes

Revision	By	Appd	
2 Addendum 02			10/20/2025 YYYY.MM.DD

Issued	By	Appd	
100% ISSUE FOR BID AND PERMIT			2025.09.24 YYYY.MM.DD
File Name: N/A	IP Dwn.	IP Dsgn.	VP Chkd. 11/27/24 YYYY.MM.DD

Permit/Seal

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
10-20-2025

Client/Project Logo

2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
MECHANICAL DETAILS

Project No. 214001246
Scale
Revision 2
Drawing No.
M401-PES

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

ELECTRICAL KEYED NOTES

KEYED NOTE	Description
1	MOUNT AT +54" AFF. FOR BMCS CONNECTION.
2	MOUNT AT +54" AFF. FOR F/A CONNECTION.
3	NOT USED.
4	ROUTE 3/4" C. TO ASSOCIATED OUTDOOR UNIT. ROUTE PARALLEL WITH REFRIGERATION LINES.
5	RECEPTACLE TO BE MOUNTED HORIZONTALLY BELOW GYM WALL PADDING AT 12' A.F.F. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

ELECTRICAL GENERAL NOTES

1. CONNECT NEW LIGHT FIXTURES AND/OR EXIT SIGNS TO EXISTING CIRCUITS LEFT IN PLACE AFTER DEMOLITION OR NEW AS SHOWN. PROVIDE EMERGENCY CIRCUIT FOR HATCHED FIXTURE AND/OR EXIT SIGNS. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT TO EXISTING LOCATION AND/OR NEW FIXTURES. FIELD VERIFY CONNECTED LOAD NOT TO EXCEED 3500 W @ 277V. TYPICAL.

2. LOCATION OF NEW LIGHT FIXTURES SHALL REUSE EXISTING J-BOX AND EXISTING LIGHT FIXTURE WHIPS AS PRACTICAL. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT AND PROVIDE NEW J-BOX ABOVE ACCESIBLE CEILING WITH ½-INCH FLEXIBLE STEEL CONDUIT OR STEEL MC CABLE. LENGTH NOT TO EXCEED 6-FEET, "DAISY CHAINING" LIGHT FIXTURES INSTALLED FOR LAY-IN CEILING AREAS IS NOT ALLOWED. FOR NON-ACCESIBLE CEILINGS, LIGHT FIXTURE WHIPS SHALL BE ½-INCH FLEXIBLE STEEL CONDUIT, LENGTH AS REQUIRED TO MAKE A TAP AT AN ACCESSIBLE J-BOX. RECESSED LIGHT FIXTURES IN NON-ACCESSIBLE CEILINGS MAY BE DAISY CHAINED USING THE LIGHT FIXTURE'S INTEGRAL, UL LISTED J-BOX OR INTERNAL WIRE WAY THAT IS ACCESSIBLE THROUGH FIXTURE FROM BELOW THE CEILING. REFER TO 26 05 33 CONDUIT SYSTEMS.

3. PROVIDE NEW LIGHTING CONTROLS, SENSORS AND ASSOCIATED DEVICES, AND 20A EMERGENCY LOAD CONTROL RELAYS/TRANSFER DEVICES. REFER TO 26 09 24 LIGHTING CONTROLS.

4. OCCUPANCY/VACANCY SENSOR AND DAYLIGHTING SENSOR LOCATIONS INDICATE SPACE OR AREA CONTROLLED, CONTRACTOR TO PROVIDE ACTUAL QUANTITIES, TYPES, AND MOUNTING LOCATIONS AS RECOMMENDED BY MANUFACTURER AND IECC-2015 C405.

5. SPACES WITH MULTIPLE OCCUPANCY/VACANCY SENSORS OR WHERE LINE OF SIGHT MAY BE OBSCURED, SHALL BE LINKED TOGETHER FOR SIMULTANEOUS OPERATION WITHIN THE SPACE.

6. CONTRACTOR SHALL MAINTAIN CONSTANT UNSWITCHED CIRCUITS FROM EXISTING SOURCE AND/OR NEW AS SHOWN FOR EMERGENCY FIXTURES, EMERGENCY LOAD RELAYS, TRANSFER SWITCHES AND EXIT SIGNS.

7. COORDINATE LOCATION OF LIGHT FIXTURES IN ALL MECHANICAL AND ELECTRICAL ROOMS WITH MECHANICAL EQUIPMENT, PIPING, AND ALL OTHER TRADES.

8. REFER TO TECHNOLOGY DRAWINGS, DIVISION 27 AND 28 FOR TELECOMMUNICATIONS PATHWAYS AND OTHER ADDITIONAL REQUIREMENTS TO BE PROVIDED AS SPECIFIED IN DIVISION 26.

LINETYPE LEGEND

———	EXISTING TO REMAIN
— — — —	DISCONNECT AND REMOVE
———	NEW WORK

IN NON-ACCESSIBLE AND/OR HIGH CEILING AREAS, LOCATE DIGITAL LIGHTING CONTROLLER AND/OR EMERGENCY LOAD CONTROL RELAY/TRANSFER SWITCH IN ADJACENT ANCILLARY AREA WITH ACCESSIBLE CEILING. IN AREAS WITH NO CEILING AND/OR IN EXTERIOR APPLICATIONS LOCATE ADJACENT TO NORMAL POWER PANEL SERVING THE LOAD. PROVIDE LABEL WITH WORDING PER SPECIFICATIONS.

FIRE ALARM SYSTEM SHALL COMPLY WITH ALL CITY OF HOUSTON IBC AMENDMENTS. SMOKE DETECTORS SHALL BE PROVIDED IN ALL APPLICABLE ROOMS LISTED IN SECTION 907.2.3.1 OF THE 2021 IBC CITY OF HOUSTON AMENDMENTS.

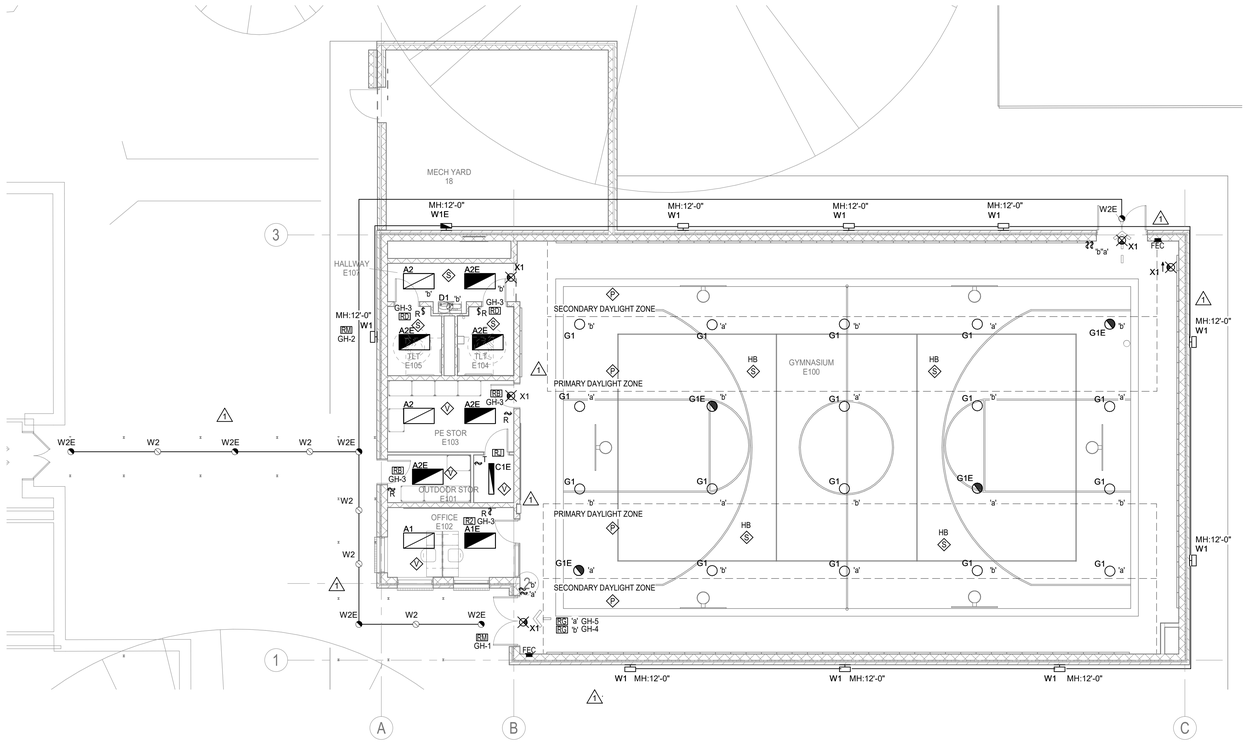
DEMOLITION / EXISTING DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED. CONTRACTOR TO VERIFY EXISTING CONDITIONS ON FIELD AND NOTIFY ENGINEER IF THERE ARE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND DRAWINGS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL REMOVE SUCH EXISTING WORK AS CALLED FOR ON THE DRAWINGS OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.

PROVIDE NEW LIGHTING DEVICES AND SWITCH BOX EXTENSIONS IN ALL AREAS WHERE GYPSUM BOARD OR OTHER WALL COVERING ADDS TO THE THICKNESS OF WALLS. SEE ARCHITECTURAL DRAWINGS FOR AREAS AFFECTED.

EXISTING RACEWAYS AND LOCATION OF ELECTRICAL OUTLETS ON EXISTING WALLS TO REMAIN SHALL BE RE-USED AS PRACTICAL FOR NEW DEVICES AS PART OF NEW WORK.

IECC-2021, C405.11 AUTOMATIC RECEPTACLE CONTROL. AT LEAST 50 PERCENT OF ALL 125V, 15-AMP AND 20-AMP RECEPTACLES INSTALLED IN ENCLOSED OFFICES, CONFERENCE ROOMS, ROOMS USED PRIMARILY FOR COPY OR PRINT FUNCTIONS, BREAKROOMS, CLASSROOMS AND INDIVIDUAL WORKSTATIONS, INCLUDING THOSE INSTALLED IN MODULAR PARTITIONS AND MODULE OFFICE WORKSTATION SYSTEMS SHALL HAVE AUTOMATIC RECEPTACLE CONTROL, AN OCCUPANT SENSOR SHALL TURN OFF INDICATED RECEPTACLES WITHIN 20 MINUTES AFTER DETERMINING THAT THE AREA IS UNOCCUPIED.

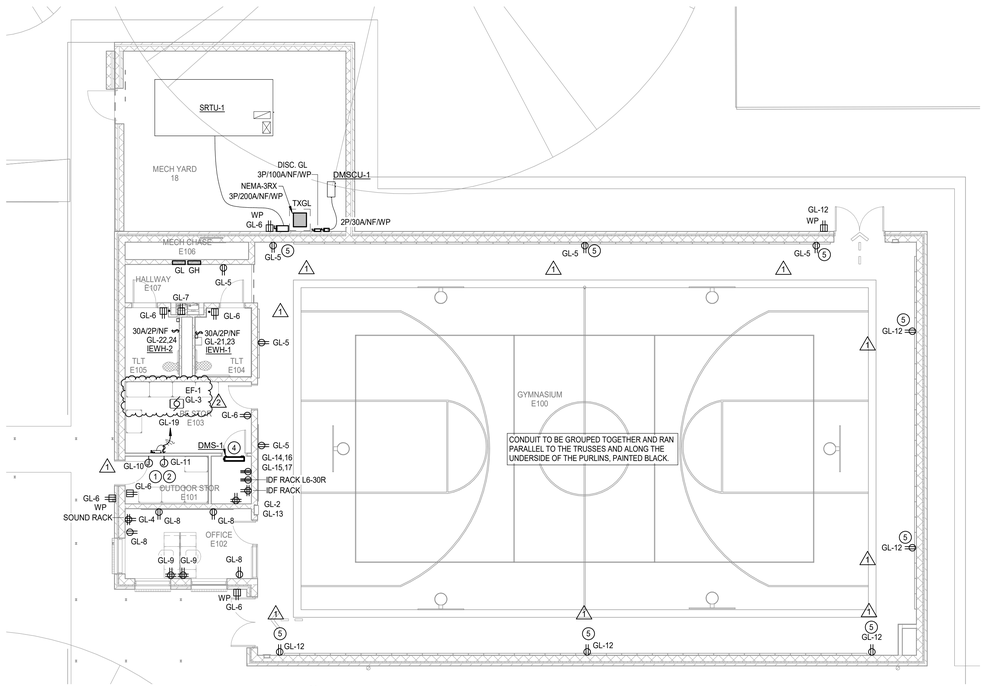
2 PROVIDE POWER FOR ALL MOTORIZED/SMOKE DAMPERS IN THIS AREA FROM CIRCUIT GL-1. COORDINATE WITH DIVISION 23 FOR FINAL QUANTITY AND LOCATIONS. PROVIDE FINAL CONNECTION TO EACH FIRE/SMOKE DAMPER WITH 2#12, 1#12G, 3/4"C.



N

1 ELECTRICAL LIGHTING PLAN - LEVEL 1 - NEW GYM

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



N

2 ELECTRICAL POWER PLAN - LEVEL 1 - NEW GYM

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



N

3 ELECTRICAL LIGHTING PLAN - LEVEL 1 - EXTENDED DAY LEARNING

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

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Notes

Revision	By	Appd	YYYY.MM.DD
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	Dwn.	Dsgn.	Ckkd.	YYYY.MM.DD
	KJ	KJ	JZ	03/20/25

Permit/Seal

BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
10-20-2025

Client/Project Logo

BOND
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
ELECTRICAL FLOOR PLANS

Project No.	Scale
214001246	1/8" = 1'-0"
Revision	Drawing No.
2	E201-PES

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ORIGINAL SHEET - ARCH E1

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GENERATOR LOAD ANALYSIS
EXIST. PANEL EH

277/480, 3PH, 4W
40kVA/32kW - 60A

LOAD DESCRIPTION	LOAD KVA
EXISTING LOAD	1.9
CALCULATED EXISTING LOAD (125%)	2.38
NEW LOAD:	
RECEPTACLES (CONNECTED NEC 220.44)	10.6
1ST 10KVA @100% (NEC 220.44)	10
REMAINDER @50% (NEC 220.44)	0.3
HVAC - FANS, AHU'S (NEC 220)	--
LIGHTING	1.3
LIGHTING @ 125%	1.6
TOTAL KVA	14.3
TOTAL AMPS	17.2

TWO-HOUR FIRE RATED CABLE:

1. TWO-HOUR FIRE RATED POWER CABLE SHALL BE APPROVED BY THE LOCAL AHJ AND INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS IN COMPLIANCE WITH UL FIRE RESISTANCE DIRECTORY, ELECTRICAL CIRCUIT PROTECTIVE SYSTEMS (FHIT), AND SYSTEM 27.

2. TWO-HOUR FIRE RATED POWER CABLE SHALL BE INSTALLED AS APPROVED BY THE LOCAL AHJ IN STEEL EMT OR STEEL RIGID CONDUIT WITH STEEL SET SCREW OR THREADED FITTINGS. UL LISTED FLEXIBLE METALLIC STEEL CONDUIT MAY BE USED IN LENGTHS NOT TO EXCEED 6-FEET. SUPPORT CONDUIT EVERY 5-FEET ON CONCRETE OR MASONRY WALLS OR A CONCRETE FLOOR-CEILING ASSEMBLY. THE FIRE RATING OF THE WALL OR FLOOR-CEILING ASSEMBLY MUST BE EQUAL TO OR GREATER THAN THE RATING OF THE ELECTRICAL CIRCUIT PROTECTIVE SYSTEM. PROVIDE J-BOX AT EACH END OF THE FIRE RATED CABLES IN THE FIRE RATED ROOM TO ALLOW SPLICE TO STANDARD BUILDING CABLE TO THE EQUIPMENT. PROVIDE SEALANT TO THE END OF THE RACEWAY TO PREVENT GASES FROM MIGRATING FROM THE FIRE RATED CABLE DOWN INTO THE EQUIPMENT.

INSULATION FOR TWO-HOUR FIRE RATED POWER CABLE:

1. INSULATION SHALL MEET OR EXCEED THE REQUIREMENTS OF UL 2196 FIRE TEST FOR CIRCUIT INTEGRITY OF FIRE-RESISTIVE POWER, INSTRUMENTATION, CONTROL AND DATA CABLES, AND UL 44, THERMOSET INSULATED WIRES AND CABLES.

a. INSULATION FOR CONDUCTORS SHALL BE UL TYPE RHW-2 OR RW90, 90 DEGREES C FOR WET LOCATIONS AND 90 DEGREES C FOR DRY LOCATIONS.
b. ELECTRICAL CIRCUIT PROTECTIVE SYSTEMS (FHIT) – SYSTEM 27 OF THE UL FIRE RESISTANCE DIRECTORY.

2 PROVIDE POWER FOR ALL MOTORIZED/SMOKE DAMPERS IN THIS AREA FROM CIRCUIT GLE-9. COORDINATE WITH DIVISION 23 FOR FINALQUANTITY AND LOCATIONS. PROVIDE FINAL CONNECTION TO EACH FIRE/SMOKE DAMPER WITH 2#12, 1#12G. 3/4"C.

FEEDER SCHEDULE

AMPERAGE	# SETS	CONDUCTOR (QTY.)/SIZE	GROUND (QTY.)/SIZE	CONDUIT
100A	1	(4) #3	#8	1-1/2"C

TRANSFORMER SCHEDULE

PRIMARY (480V 3PH 3W +GND)			SECONDARY (120/208V 3PH 4W +GND)		
KVA	WIRE & CONDUIT	CIRCUIT BREAKER	WIRE & CONDUIT	CIRCUIT BREAKER	GROUNDING ELECTRODE CONDUCTOR
30KVA	3#6, 1-1/4"C, 1#10G	3P-50A	4#2, 1-1/2"C, 1#8G	3P-100A	#8

LIGHTING CONTROLS SCHEDULE - ALTERNATE

Type	Sensor Operation	# of Lighting Zones	# of Plug Load Zones	# of Total Zones	Description
ER	-	-	-	-	UL924 LOAD CONTROL RELAY, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM
ES	-	-	-	-	UL1008 GENERATOR TRANSFER DEVICE, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM

1

LIGHTING FIXTURE SCHEDULE - ALTERNATE

Type Mark	CATALOG NUMBER MANUFACTURER	CATALOG NUMBER MODEL	MOUNTING	LAMP TYPE	CCT	CRI	VOLTAGE	LOAD	REMARKS
A1	METALUX	24CGT5540C	T-GRID/GYP	5500L LED	4000 K	80	277 V	50 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED.
A2	METALUX	24CGT4540C	T-GRID/GYP	4500L LED	4000 K	80	277 V	40 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED.
C1	METALUX	4SNLED-LD5-LN-41SL-LN-UNV-L840-CD1-U	SUSPENDED/SURFACE	4100L LED	4000 K	80	277 V	35 W	1x4 SUSPENDED/SURFACE STRIP.
G1	METALUX	SSLED-LD5-12-M-UNV-L840	SUSPENDED/SURFACE	12000L LED	4000 K	80	277 V	100 W	ROUND HIGH BAY FIXTURE .
W1	GARDCO	GWM-A09-840-T3M-UNV	WALL	6000L LED	4000 K	80	277 V	40 W	LED ARCHITECTURAL WALLPAK, ALUMINUM HOUSING. COORDINATE FINISH WITH EXISTING EXTERIOR FIXTURES. DLC CERTIFIED.
XG	SURE-LITES	LPX6-W-WG10	UNIVERSAL	LED	4000 K	0	277 V	5 W	UNIVERSAL LED EXIT SIGN WITH WHITE HOUSING, RED LETTERING. PROVIDE WIRE GUARD.

Branch Panel: GHE — NEW PANEL

Location: OUTDOOR STOR E101 | Volts: 277/480 Wye | A.I.C. Rating: 18,000
Supply From: | Phases: 3 | Enclosure: Type 1
Mounting: Surface | Wires: 4 | Mains: 60A MCB LSI 1

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
	1	Lighting	#12	20	1	0.0 / 0.2			1	20	#12	Lighting	2	
	3	Lighting Room E103, E101, E102, E107	#12	20	1		0.7 / 0.0		1	--	--	SPACE	4	
	5	SPACE	--	--	1			0.0 / 0.0	1	--	--	SPACE	6	
	7	SPACE	--	--	1	0.0 / 0.0			1	--	--	SPACE	8	
	9	SPACE	--	--	1		0.0 / 0.0		1	--	--	SPACE	10	
	11	SPACE	--	--	1			0.0 / 0.0	1	--	--	SPACE	12	
	13					5.1 / 0.0							14	
	15	TGLE	ONE LINE	50	3		3.3 / 0.0		3	30	--	SPDL	16	
	17							2.8 / 0.0					18	
			Total Load:			5.3 kVA	4.0 kVA	2.8 kVA						
			Total Amps:			20 A	15 A	10 A						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	0.9 kVA	125.00%	1.1 kVA		
Motor	0.5 kVA	100.00%	0.5 kVA	Total Conn. Load:	12.0 kVA
Receptacles	10.6 kVA	97.26%	10.3 kVA	Total Est. Demand:	11.9 kVA
				Total Conn. Current:	14 A
				Total Est. Demand Current:	14 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: GLE — NEW PANEL

Location: OUTDOOR STOR E101 | Volts: 120/208 Wye | A.I.C. Rating: 10,000
Supply From: TGLE | Phases: 3 | Enclosure: Type 1
Mounting: Surface | Wires: 4 | Mains: 100A MCB LSI 1

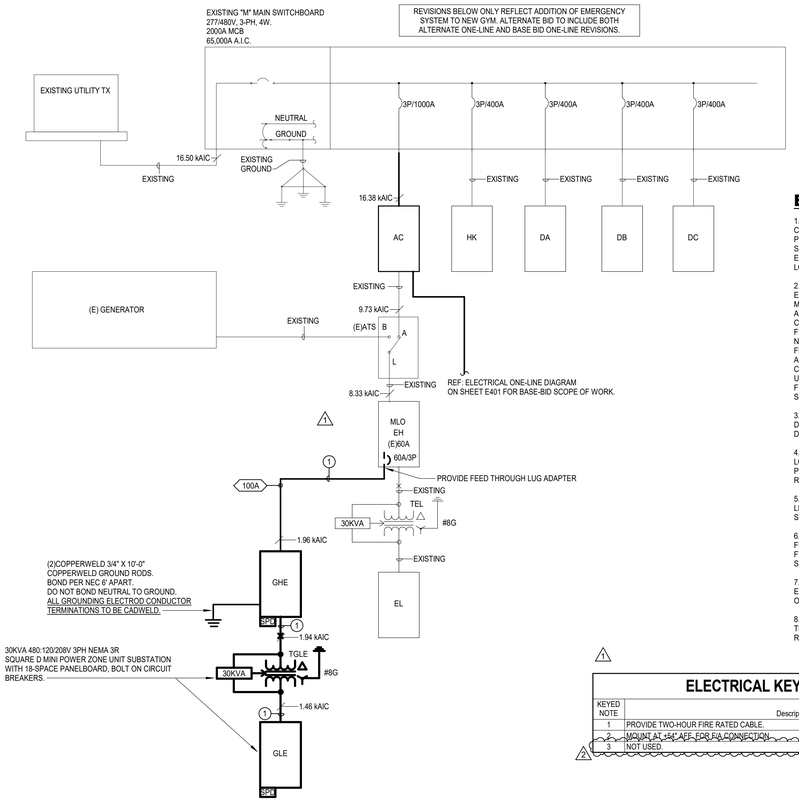
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
	1	IDF Rack PE STOR E103	#10	30	2	1.8 / 1.0			1	20	#12	IDF Rack PE STOR E103	2	
	3						1.8 / 1.0		1	20	#12	Sound Rack OFFICE E102	4	
	5	IDF Rack PE STOR E103	#10	30	2			1.8 / 1.0	1	20	#12	IDF Rack PE STOR E103	6	
	7					1.8 / 0.5			1	20	#12	Motorized Damper PE STOR E103	8	LO
LO	9	F/A OUTDOOR STOR E101	#12	20	1		0.5 / 0.0		1	--	--	SPACE	10	
	11	SPACE	--	--	1			0.0 / 0.0	1	--	--	SPACE	12	
	13	SPARE	--	20	1	0.0 / 0.0							14	
	15	SPARE	--	20	1		0.0 / 0.0		3	30	--	SPDL	16	
	17	SPARE	--	20	1			0.0 / 0.0					18	
			Total Load:			5.1 kVA	3.3 kVA	2.8 kVA						
			Total Amps:			43 A	28 A	23 A						

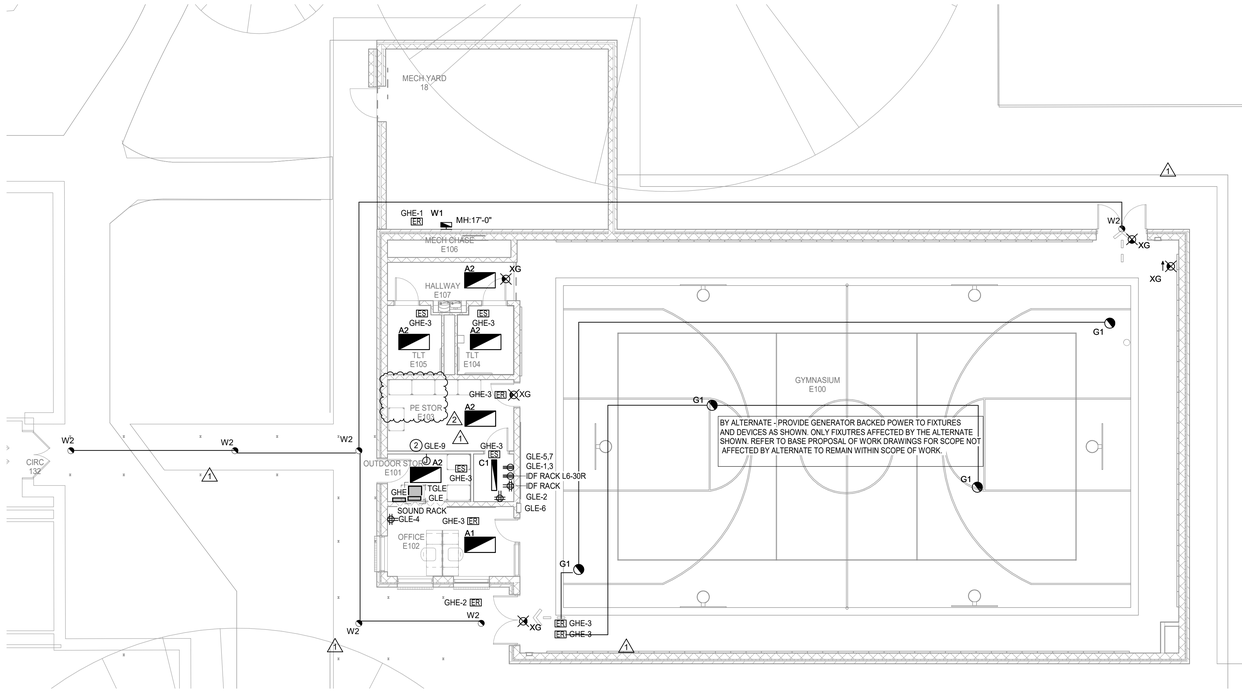
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	0.5 kVA	100.00%	0.5 kVA		
Receptacles	10.6 kVA	97.26%	10.3 kVA	Total Conn. Load:	11.1 kVA
				Total Est. Demand:	10.8 kVA
				Total Conn. Current:	31 A
				Total Est. Demand Current:	30 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE



2 **ELECTRICAL ONE-LINE DIAGRAM - ALTERNATE**
Scale: N.T.S.



N
1 **ELECTRICAL POWER PLAN - LEVEL 1 - NEW GYM - ALTERNATE**
Scale: 1/8" = 1'-0"

LINETYPE LEGEND

———	EXISTING TO REMAIN
— — —	DISCONNECT AND REMOVE
———	NEW WORK

IN NON-ACCESSIBLE AND/OR HIGH CEILING AREAS, LOCATE DIGITAL LIGHTING CONTROLLER AND/OR EMERGENCY LOAD CONTROL RELAY/TRANSFER SWITCH IN ADJACENT ANCILLARY AREA WITH ACCESSIBLE CEILING; IN AREAS WITH NO CEILING AND/OR IN EXTERIOR APPLICATIONS LOCATE ADJACENT TO NORMAL POWER PANEL SERVING THE LOAD. PROVIDE LABEL WITH WORDING PER SPECIFICATIONS.

ELECTRICAL GENERAL NOTES

1. CONNECT NEW LIGHT FIXTURES AND/OR EXIT SIGNS TO EXISTING CIRCUITS LEFT IN PLACE AFTER DEMOLITION OR NEW AS SHOWN. PROVIDE EMERGENCY CIRCUIT FOR HATCHED FIXTURE AND/OR EXIT SIGNS. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT TO EXISTING LOCATION AND/OR NEW FIXTURES. FIELD VERIFY CONNECTED LOAD NOT TO EXCEED 3500 W @ 277V. TYPICAL.

2. LOCATION OF NEW LIGHT FIXTURES SHALL REUSE EXISTING J-BOX AND EXISTING LIGHT FIXTURE WHIPS AS PRACTICAL. EXTEND WIRING WITH MATCHING CONDUCTORS/CONDUIT AND PROVIDE NEW J-BOX ABOVE ACCESIBLE CEILING WITH ½-INCH FLEXIBLE STEEL CONDUIT OR STEEL MC CABLE. LENGTH NOT TO EXCEED 6-FEET. "DAISY CHAINING" LIGHT FIXTURES INSTALLED FOR LAY-IN CEILING AREAS IS NOT ALLOWED. FOR NON-ACCESSIBLE CEILINGS, LIGHT FIXTURE WHIPS SHALL BE ½-INCH FLEXIBLE STEEL CONDUIT, LENGTH AS REQUIRED TO MAKE A TAP AT AN ACCESSIBLE J-BOX. RECESSED LIGHT FIXTURES IN NON-ACCESSIBLE CEILINGS MAY BE DAISY CHAINED USING THE LIGHT FIXTURE'S INTEGRAL UL LISTED J-BOX OR INTERNAL WIRE WAY THAT IS ACCESSIBLE THROUGH FIXTURE FROM BELOW THE CEILING. REFER TO 26 05 33 CONDUIT SYSTEMS.

3. PROVIDE NEW LIGHTING CONTROLS, SENSORS AND ASSOCIATED DEVICES, AND 20A EMERGENCY LOAD CONTROL RELAYS/TRANSFER DEVICES. REFER TO 26 09 24 LIGHTING CONTROLS.

4. OCCUPANCY/VACANCY SENSOR AND DAYLIGHTING SENSOR LOCATIONS INDICATE SPACE OR AREA CONTROLLED, CONTRACTOR TO PROVIDE ACTUAL QUANTITIES, TYPES, AND MOUNTING LOCATIONS AS RECOMMENDED BY MANUFACTURER AND IECC-2015 C405.

5. SPACES WITH MULTIPLE OCCUPANCY/VACANCY SENSORS OR WHERE LINE OF SIGHT MAY BE OBSCURED, SHALL BE LINKED TOGETHER FOR SIMULTANEOUS OPERATION WITHIN THE SPACE.

6. CONTRACTOR SHALL MAINTAIN CONSTANT UNSWITCHED CIRCUITS FROM EXISTING SOURCE AND/OR NEW AS SHOWN FOR EMERGENCY FIXTURES, EMERGENCY LOAD RELAYS, TRANSFER SWITCHES AND EXIT SIGNS.

7. COORDINATE LOCATION OF LIGHT FIXTURES IN ALL MECHANICAL AND ELECTRICAL ROOMS WITH MECHANICAL EQUIPMENT, PIPING, AND ALL OTHER TRADES.

8. REFER TO TECHNOLOGY DRAWINGS. DIVISION 27 AND 28 FOR TELECOMUNICATIONS PATHWAYS AND OTHER ADDITIONAL REQUIREMENTS TO BE PROVIDED AS SPECIFIED IN DIVISION 26.

1

ELECTRICAL KEYED NOTES

KEYED NOTE	Description
1	PROVIDE TWO-HOUR FIRE RATED CABLE.
2	MOUNT AT +54" AFF. FOR F/A CONNECTION.
3	NOT USED.

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Project No: 2023-04376-00

Notes

Revision	By	Appd	YYYY.MM.DD
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	YYYY.MM.DD
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File Name: N/A	Dwn.	Dsgn.	Ckkd.	YYYY.MM.DD
	KJ	KJ	JJ	03/20/25

Permit/Seal

BRADLEY KALMANS 80219 LICENSED PROFESSIONAL ENGINEER
10-20-2025

Client/Project Logo

BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
ELECTRICAL FLOOR PLANS - ALTERNATE

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
2	E301-PES

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ORIGINAL SHEET - ARCH E1

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LIGHTING FIXTURE SCHEDULE

Type Mark	CATALOG NUMBER MANUFACTURER	CATALOG NUMBER MODEL	MOUNTING	LAMP TYPE	CCT	CRI	VOLTAGE	LOAD	REMARKS
A1	METALUX	24CGTS540C	T-GRID/GYP	5500L LED	4000 K	80	277 V	50 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED.
A1E	METALUX	24CGTS540C - EL14W	T-GRID/GYP	5500L LED	4000 K	80	277 V	50 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED. PROVIDE INTEGRAL EMERGENCY BATTERY BACKUP.
A2	METALUX	24CGT4540C	T-GRID/GYP	4500L LED	4000 K	80	277 V	40 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED.
A2E	METALUX	24CGT4540C - EL14W	T-GRID/GYP	4500L LED	4000 K	80	277 V	40 W	2X4 FLAT LENSED TROFFER, ACRYLIC DIFFUSER. 0-10V DIMMING DRIVER. DLC CERTIFIED. PROVIDE INTEGRAL EMERGENCY BATTERY BACKUP.
C1	METALUX	4SNLED-LD5-LN-41SL-LN-UNV-L840-CD1-U	SUSPENDED/SURFACE	4100L LED	4000 K	80	277 V	35 W	1x4 SUSPENDED/SURFACE STRIP.
C1E	METALUX	4SNLED-LD5-LN-41SL - EL14W	SUSPENDED/SURFACE	4100L LED	4000 K	80	277 V	35 W	1x4 SUSPENDED/SURFACE STRIP. PROVIDE INTEGRAL EMERGENCY BATTERY BACKUP.
D1	HALO	HC640D010-HM63040840-61MDH	RECESSED	4000L LED	4000 K	80	277 V	45 W	LED 6" RECESSED CAN LIGHT.0-10V DIMMING DRIVER. DLC CERTIFIED.
G1	METALUX	SSLED-LD5-12-M-UNV-L840	SUSPENDED/SURFACE	12000L LED	4000 K	80	277 V	100 W	ROUND HIGH BAY FIXTURE .
G1E	METALUX	SSLED-LD5-12-M-UNV-L840-EL20WREM	SUSPENDED/SURFACE	12000L LED	4000 K	80	277 V	100 W	ROUND HIGH BAY FIXTURE . PROVIDE INTEGRAL EMERGENCY BATTERY PACK.
W1	GARDCO	GWM-A09-840-T3M-UNV	WALL	6000L LED	4000 K	80	277 V	40 W	LED ARCHITECTURAL WALLPAK, ALUMINUM HOUSING. COORDINATE FINISH WITH EXISTING EXTERIOR FIXTURES. DLC CERTIFIED.
W1E	GARDCO	GWM-A09-840-T3M-UNV	WALL	6000L LED	4000 K	80	277 V	40 W	LED ARCHITECTURAL WALLPAK, ALUMINUM HOUSING. COORDINATE FINISH WITH EXISTING EXTERIOR FIXTURES. DLC CERTIFIED. PROVIDE INTEGRAL EMERGENCY BATTERY PACK.
W2	FAIL-SAFE	TRO11-LD4-25W-40-OPL-XX-UNV-EDC1	SURFACE	1695L LED	4000 K	80	277 V	25 W	LED 11-INCH ARCHITECTURAL ROUND FIXTURE, SURFACE MOUNTED, WET LOCATION LISTED, ALUMINUM HOUSING, POLYCARBONATE LENS. COORDINATE FINISH WITH ARCHITECT. DLC CERTIFIED.
W2E	FAIL-SAFE	TRO11-LD4-25W-40-OPL-XX-UNV-EDC1-EL5W	SURFACE	1695L LED	4000 K	80	277 V	25 W	LED 11-INCH ARCHITECTURAL ROUND FIXTURE, SURFACE MOUNTED, WET LOCATION LISTED, ALUMINUM HOUSING, POLYCARBONATE LENS. COORDINATE FINISH WITH ARCHITECT. DLC CERTIFIED.PROVIDE INTEGRAL EMERGENCY BATTERY PACK.
X1	SURE-LITES	LPXW7-W	UNIVERSAL	LED	4000 K	0	277 V	5 W	VANDAL PROOF POLYCARBONATE UNIVERSAL LED EXIT SIGN WITH WHITE HOUSING, RED LETTERING AND EMERGENCY BATTERY BACK-UP.
XG	SURE-LITES	LPX6-W-WG10	UNIVERSAL	LED	4000 K	0	277 V	5 W	UNIVERSAL LED EXIT SIGN WITH WHITE HOUSING, RED LETTERING. PROVIDE WIRE GUARD.
XG	SURE-LITES	LPXW6-W	UNIVERSAL	LED	4000 K	0	277 V	5 W	VANDAL PROOF POLYCARBONATE UNIVERSAL LED EXIT SIGN WITH WHITE HOUSING, RED LETTERING AND EMERGENCY BATTERY BACK-UP.

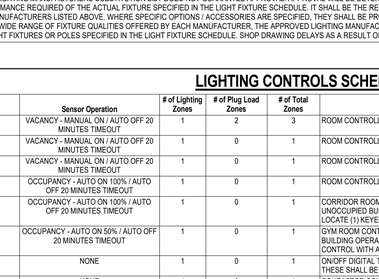
APPROVED LIGHTING MANUFACTURERS:
PHILLIPS, COOPER (METALUX), LITHONIA, OR LUTRON

NOTES:
REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS NOT INDICATED IN THE LIGHT FIXTURE SCHEDULE. WHERE THERE IS AN INCONSISTENCY BETWEEN THE LIGHT SCHEDULE AND THE SPECIFICATIONS, THE BETTER QUALITY OF WORK SHALL BE INCLUDED IN THE PROPOSAL.
THE ABOVE LIGHTING MANUFACTURERS SUBSTITUTION LIST DOES NOT GUARANTEE APPROVAL. APPROVAL WILL BE DETERMINED AFTER REVIEW OF SHOP DRAWING TO DETERMINE IF THE FIXTURE OR POLE SUBMITTED MEETS OR EXCEEDS THE DESIGN STANDARDS AND PERFORMANCE REQUIRED OF THE ACTUAL FIXTURE SPECIFIED IN THE LIGHT FIXTURE SCHEDULE. IT SHALL BE THE RESPONSIBILITY OF THECONTRACTOR TO CAREFULLY SELECT SUBSTITUTIONS FOR THE SPECIFIED LIGHT FIXTURES FROM THE APPROVED LIGHTING MANUFACTURERS LISTED ABOVE. WHERE SPECIFIC OPTIONS / ACCESSORIES ARE SPECIFIED, THEY SHALL BE PROVIDED AS SPECIFIED WITH THE SUBSTITUION.
DUE TO THE WIDE RANGE OF FIXTURE QUALITIES OFFERED BY EACH MANUFACTURER, THE APPROVED LIGHTING MANUFACTURERS SUBSTITUTION LIST IS NOT INTENDED TO INDICATE THAT ANY OR ALL MANUFACTURERS LISTED WILL HAVE SUITABLE SUBSTITUTIONS FOR THE LIGHT FIXTURES OR POLES SPECIFIED IN THE LIGHT FIXTURE SCHEDULE. SHOP DRAWING DELAYS AS A RESULT OF INAPPROPRIATE SUBSTITUTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

LIGHTING CONTROLS SCHEDULE

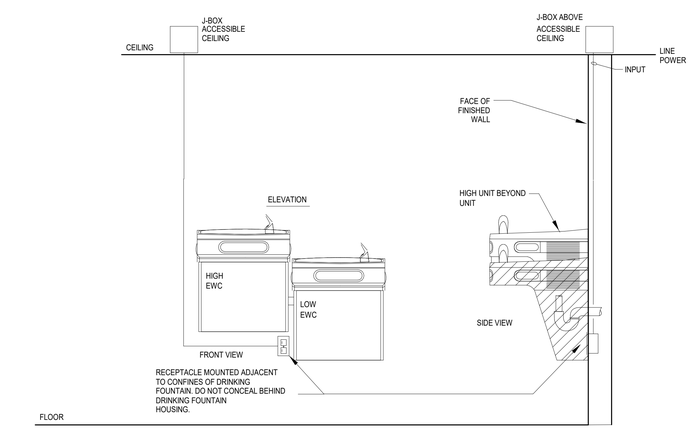
Type	Sensor Operation	# of Lighting Zones	# of Plug Load Zones	# of Total Zones	Description
R2	VACANCY - MANUAL ON / AUTO OFF 20 MINUTES TIMEOUT	1	2	3	ROOM CONTROLLER, 0-10V DIMMING.
RA	VACANCY - MANUAL ON / AUTO OFF 20 MINUTES TIMEOUT	1	0	1	ROOM CONTROLLER, 0-10V DIMMING.
RB	VACANCY - MANUAL ON / AUTO OFF 20 MINUTES TIMEOUT	1	0	1	ROOM CONTROLLER, NO DIMMING.
RD	OCCUPANCY - AUTO ON 100% / AUTO OFF 20 MINUTES TIMEOUT	1	0	1	ROOM CONTROLLER, NO DIMMING.
RE	OCCUPANCY - AUTO ON 100% / AUTO OFF 20 MINUTES TIMEOUT	1	0	1	CORRIDOR ROOM CONTROLLER, NO DIMMING. BMCS ON/OFF INTERFACE FOR OCCUPIED / UNOCCUPIED BUILDING OPERATION. PROVIDE OCCUPANCY BASED SENSORS WHERE SHOWN. LOCATE (1) KEYED SWITCH AT MAIN ENTRY DOOR ADJACENT TO SECURITY KEYPAD.
RG	OCCUPANCY - AUTO ON 50% / AUTO OFF 20 MINUTES TIMEOUT	1	0	1	GYM ROOM CONTROLLER, 0-10V DIMMING. BMCS ON/OFF INTERFACE FOR OCCUPIED / UNOCCUPIED BUILDING OPERATION. LOCATE 0-10 V DIMMING SWITCHES AT EACH ENTRY FOR DUAL-LEVEL CONTROL WITH ALTERNATE FIXTURES.
RJ	NONE	1	0	1	ON/OFF DIGITAL TIMER SWITCH. WATTSTOPPER TS-400. WHERE MULTIPLE SWITCHES ARE USED, THESE SHALL BE LINKED TOGETHER FOR SIMULTANEOUS OPERATION WITHIN THE SPACE.
RL	NONE	1	0	1	CONTACTOR CONTROLLED WITH BMCS ON/OFF INTERFACE FOR PHOTOSENSOR / SCHEDULE. MANUAL OVERRIDE LOCATED ADJACENT TO PANEL FEEDING LOAD.
RM	NONE	1	0	1	CONTACTOR CONTROLLED WITH BMCS ON/OFF INTERFACE FOR PHOTOSENSOR / SCHEDULE. EXTERIOR LIGHTING SHALL BE TURNED OFF FROM 12:00AM TO 6:00AM OR FROM 1 HOUR AFTER CLOSING TO 1 HOUR BEFORE OPENING. MANUAL OVERRIDE LOCATED IN MDF ROOM.
ER	-	-	-	-	UL924 LOAD CONTROL RELAY, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM
ES	-	-	-	-	UL1008 GENERATOR TRANSFER DEVICE, PLENUM RATED, 0-10V COMPATIBLE, 16A MINIMUM

NOTES:
- PER 2021 IECC C405, AREAS / ROOMS WHERE AUTOMATIC SHUTOFF FOR LIGHTING WOULD ENDANGER OCCUPANT SAFETY ARE EXEMPT FROM AUTOMATIC CONTROLS.
- REFER TO LIGHTING CONTROL DETAILS FOR TYPICAL INSTALLATION.
- PROVIDE PHOTOCELL WITHIN DAYLIGHT ZONE ONLY WHERE SHOWN ON FLOORPLANS.
- CONTRACTOR TO COORDINATE EXACT PROGRAMING OF TIME-SCHEDULE WITH OWNER REPRESENTATIVE.
-ACCEPTABLE LIGHTING CONTROLS MANUFACTURERS: INTELLIGENT LIGHTING CONTROLS (ILC), COOPER, ACUITY, LUTRON
-LIGHTING CONTROLS CATEGORY DATA CABLES TO BE LIME GREEN.

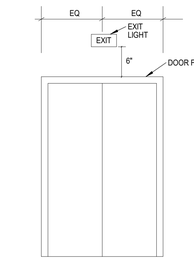


NOTES:
1. PROVIDE, INSTALL, AND LOCATE SURGE PROTECTION DEVICE AS CLOSE AS POSSIBLE TO THE SWITCHBOARD, DISTRIBUTION BOARD, AND PANEL BOARD. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. REFER TO PANEL SCHEDULES AND ONE-LINE DIAGRAM FOR QUANTITY, TYPE, BREAKER SIZE, & WIRE SIZE.

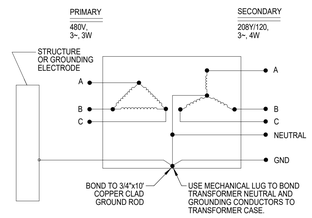
1 SURGE PROTECTION DEVICE DETAIL
Scale: N.T.S.



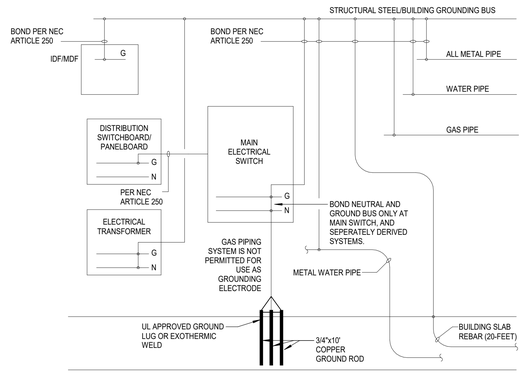
2 ELECTRIC DRINKING FOUNTAIN POWER REQUIREMENTS
Scale: N.T.S.



3 TYPICAL EXIT SIGN LOCATION
Scale: N.T.S.



4 GROUNDING FOR TRANSFORMERS
Scale: N.T.S.



5 SYSTEM GROUNDING DETAIL
Scale: N.T.S.

SYMBOL SCHEDULE

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
LIGHTING (LETTER DENOTES TYPE - SEE LIGHT FIXTURE SCHEDULE)	
	LIGHT FIXTURE
	FIXTURE ON EMERGENCY CIRCUIT
	DOWNLIGHT FIXTURE
	LIGHT FIXTURE - WALL MOUNTED
	DOWNLIGHT FIXTURE ON EMERGENCY CIRCUIT
	LIGHT FIXTURE - WALL MOUNTED ON EMERGENCY CIRCUIT
	EXIT LIGHT-CEILING MTD WITH DIRECTIONAL ARROWS AS REQUIRED
	EXIT LIGHT-WALL MTD WITH DIRECTIONAL ARROWS AS REQUIRED
SWITCHES	
$	LINE VOLTAGE SINGLE POLE SWITCH
$2	LINE VOLTAGE 2-POLE SWITCH
$3	LINE VOLTAGE 3-WAY SWITCH
$4	LINE VOLTAGE 4-WAY SWITCH
$K	LINE VOLTAGE KEYED SWITCH
$3K	LINE VOLTAGE KEYED 3-WAY SWITCH
$D	LINE VOLTAGE WALL DIMMER SWITCH, SIZE AND TYPE AS REQUIRED
$VD	LINE VOLTAGE WALL MOUNTED DIMMER SWITCH WITH VACANCY SENSOR. MANUAL ON / AUTO OFF.
$V	LINE VOLTAGE WALL MOUNTED SWITCH WITH VACANCY SENSOR. MANUAL ON / AUTO OFF.
$OC	LINE VOLTAGE WALL MOUNTED SWITCH WITH VACANCY SENSOR. AUTO ON / AUTO OFF.
$P	LINE VOLTAGE SWITCH WITH PILOT LIGHT
$MC	MOMENTARY CONTACT SWITCH
[B]	PUSH BUTTON
$TH	6-HOUR TIMER SWITCH WITH HOLD
$T	6-HOUR TIMER SWITCH WITH NO HOLD
	20 AMP GENERATOR TRANSFER DEVICE
LOW VOLTAGE LIGHTING CONTROLS	
$R	LOW VOLTAGE LIGHTING CONTROLLER WALL SWITCH
$B	BMCS TIMER LOCAL OVERRIDE SWITCH
	CEILING MOUNTED PHOTO SENSOR
	CEILING MOUNTED VACANCY SENSOR, MANUAL ON / AUTO OFF
	CEILING MOUNTED OCCUPANCY SENSOR, AUTO ON / AUTO OFF
	LIGHTING CONTROLLER WITH GTD. ZONES AS REQUIRED.
RECEPTACLES AND OUTLETS	
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	ISOLATED GROUND RECEPTACLE
	POWER POLE
	125/250 VOLT, 1 PHASE, 3-WIRE, 20 AMPS UNLESS NOTED OTHERWISE
	DOUBLE DUPLEX IN 2-GANG BOX WITH SINGLE COVER PLATE
	DOUBLE DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE IN 2-GANG BOX WITH SINGLE COVER PLATE
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
	FLUSH FLOOR DUPLEX RECEPTACLE OUTLET
	FLUSH FLOOR DOUBLE DUPLEX RECEPTACLE OUTLET
	CONCEALED SERVICE MULTI-ACCESS FLOOR BOX WITH WIRING DEVICES AS INDICATED ON DRAWINGS. SIZE TO MATCH DEVICE QUANTITIES.
[R]	REMOTE BLANK FACE GFCI DEVICE.
U	PROVIDE DUPLEX RECEPTACLE WITH (2) USB CHARGING PORTS.
CR	E.C. TO PROVIDE ROUGH-IN FOR CARD READER JUNCTION BOX. REFER TO TECHNOLOGY SHEETS FOR ADDITIONAL INFORMATION.
SR	SWITCH CONTROLLED RECEPTACLE WITH THE TOP RECEPTACLE LOAD CONTROLLED VIA PLUG LOAD SWITCH MEETING 2021 IECC 405.11 REQUIREMENTS. SPLIT LOAD-CONTROLLED RECEPTACLES SHALL BE PERMANENTLY FACTORY MARKED AS CONTROLLED.

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
MISCELLANEOUS EQUIPMENT	
FACP	FIRE ALARM CONTROL PANEL
ANNC	FIRE ALARM REMOTE ANNUCIATOR
[T]	TRANSFORMER FOR DOOR BELL/BUZZER
	CHIME/BUZZER
MOTOR CONTROLLERS AND EQUIPMENT	
	MOTOR, MAKE FINAL MOTOR CONNECTION
	3-PHASE MOTOR, MAKE FINAL MOTOR CONNECTION
J	DISCONNECT SWITCH AS REQUIRED
J	COMBINATION MOTOR STARTER/DISCONNECT SWITCH AS REQUIRED
	MOTOR STARTER
M	MANUAL MOTOR SWITCH AS REQUIRED
	PREWIRED DEVICE, MAKE ELECTRICAL FINAL CONNECTIONS
VFD	VARIABLE FREQUENCY DRIVE MOTOR CONTROLLER FURNISHED BY DIVISION 23 AND INSTALLED BY DIVISION 26
PB	IN-GROUND PULL BOX
ELECTRICAL EQUIPMENT	
	ELECTRICAL DISTRIBUTION OR PANELBOARD
	ELECTRICAL EMERGENCY LIFE SAFETY DISTRIBUTION OR PANELBOARD
	DRY TYPE TRANSFORMER
CIRCUITING	
	CONDUIT
	CONDUIT BELOW FLOOR, SLAB, OR GRADE
SUBSCRIPTS AND ABBREVIATIONS	
WP	INDICATES WEATHERPROOF
WG	INDICATES WIREGUARD
H	INDICATES HORIZONTAL
TL	INDICATES TWIST LOCK
NL	LIGHT FIXTURE ON NIGHT LIGHT CIRCUIT
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
1-L	REFER TO ONE-LINE DIAGRAM
	INDICATES WALL MOUNTED DEVICE
•	NEXT TO ANY SYMBOL INDICATES FINAL ROUGH-IN FIELD COORDINATION BY CONTRACTOR WITH ARCHITECTURAL MILLWORK DRAWINGS AND OTHER TRADES

GENERAL NOTES:
-ALL EXTERIOR BUILDING ELECTRICAL EQUIPMENT TO BE WEATHERPROOF NEMA-3R MINIMUM.

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Project No: 2023-04376-00

Notes

2	Addendum 02			10/20/2025
1	Addendum 01			10/10/2025
Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
Issued		By	Appd	YYYY.MM.DD
File Name:: N/A		Author	Designer	Checker 06/18/25
		Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit/Seal

INTERIM REVIEW DOCUMENTS
THE DESIGN DOCUMENTS DEPICTED HEREIN ARE FOR THE PURPOSE OF REVIEW AND MAY NOT BE USED FOR REGULATORY APPROVAL, PERMIT, OR CONSTRUCTION, UNDER THE AUTHORITY OF BRADLEY KALMANS, P.E. TX. REGISTRATION NO. 80319 ON JUNE 20, 2025

Client/Project Logo

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

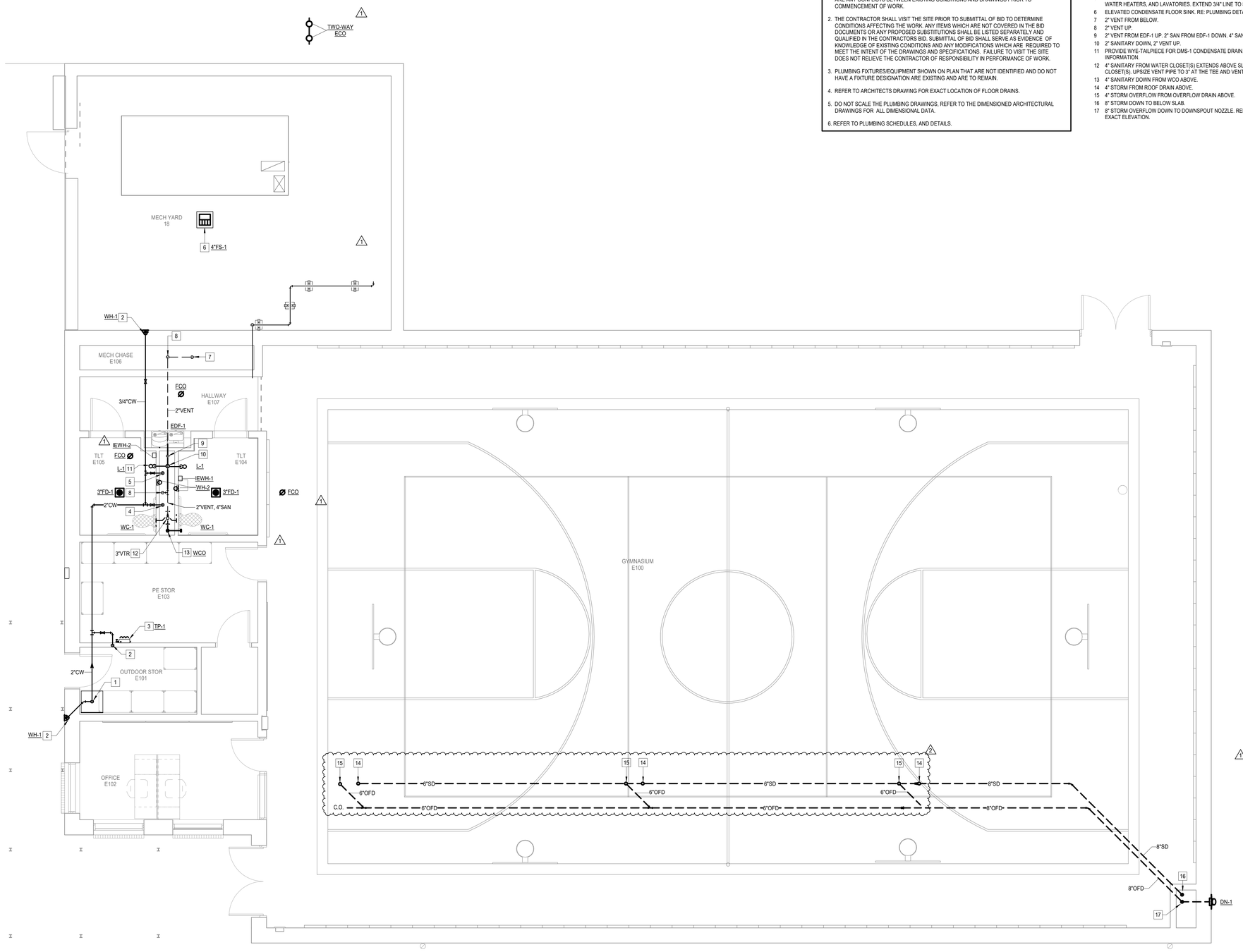
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
ELECTRICAL DETAILS, LEGENDS, AND SCHEDULES

Project No.	Scale
214001246	N.T.S.
Revision	Drawing No.
2	E501-PES

ORIGINAL SHEET - ARCH E1
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PLUMBING GENERAL NOTES

1. CONTRACT DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. CONTRACTOR TO VERIFY AT SITE EXACT LOCATIONS, AND SIZES OF EXISTING PIPING. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF THERE ARE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND DRAWINGS PRIOR TO COMMENCEMENT OF WORK.
2. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE CONTRACTORS BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.
3. PLUMBING FIXTURES/EQUIPMENT SHOWN ON PLAN THAT ARE NOT IDENTIFIED AND DO NOT HAVE A FIXTURE DESIGNATION ARE EXISTING AND ARE TO REMAIN.
4. REFER TO ARCHITECTS DRAWING FOR EXACT LOCATION OF FLOOR DRAINS.
5. DO NOT SCALE THE PLUMBING DRAWINGS, REFER TO THE DIMENSIONED ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONAL DATA.
6. REFER TO PLUMBING SCHEDULES, AND DETAILS.

PLUMBING KEYED NOTES

1 2" CW FROM BELOW SLAB. 2" WATER ENTRY. REFER TO PLUMBING DETAILS SHEET.
2 3/4" CW DOWN TO SERVE PLUMBING FIXTURE/S.
3 PROVIDE AND INSTALL NEW TRAP PRIMER AT 5'-0" ABOVE GRADE. RE: PLUMBING SCHEDULES AND DETAILS SHEETS FOR MORE INFORMATION.
4 2" COLD WATER DOWN IN CHASE. EXTEND 1-1/2" LINE TO EACH WATER CLOSET.
5 1" COLD WATER DOWN IN CHASE. EXTEND 1" LINE TO SERVE WALL HYDRANTS, INSTANTANEOUS WATER HEATERS, AND LAVATORIES. EXTEND 3/4" LINE TO SERVE ELECTRIC WATER FOUNTAIN.
6 ELEVATED CONDENSATE FLOOR SINK. RE: PLUMBING DETAILS SHEET FOR MORE INFORMATION.
7 2" VENT FROM BELOW.
8 2" VENT UP.
9 2" VENT FROM EDF-1 UP. 2" SAN FROM EDF-1 DOWN. 4" SAN DOWN THROUGH SLAB.
10 2" SANITARY DOWN, 2" VENT UP.
11 PROVIDE WYE-TAILPIECE FOR DMS-1 CONDENSATE DRAIN. RE: M201 FOR ADDITIONAL INFORMATION.
12 4" SANITARY FROM WATER CLOSET(S) EXTENDS ABOVE SLAB, 2" VENT UP FROM WATER CLOSET(S). UPSIZE VENT PIPE TO 3" AT THE TEE AND VENT THROUGH ROOF.
13 4" SANITARY DOWN FROM WCO ABOVE.
14 4" STORM FROM ROOF DRAIN ABOVE.
15 4" STORM OVERFLOW FROM OVERFLOW DRAIN ABOVE.
16 8" STORM DOWN TO BELOW SLAB.
17 8" STORM OVERFLOW DOWN TO DOWNSPOUT NOZZLE. REFER TO ARCHITECTURAL DRAWING FOR EXACT ELEVATION.

N

1 PLUMBING PLAN - LEVEL 1 - ENLARGED - NEW GYM
Scale: 1/4" = 1'-0"

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100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	AA Dwn.	AA Dsgn.	EH Chkd. 11/27/24 YYYY.MM.DD

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2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

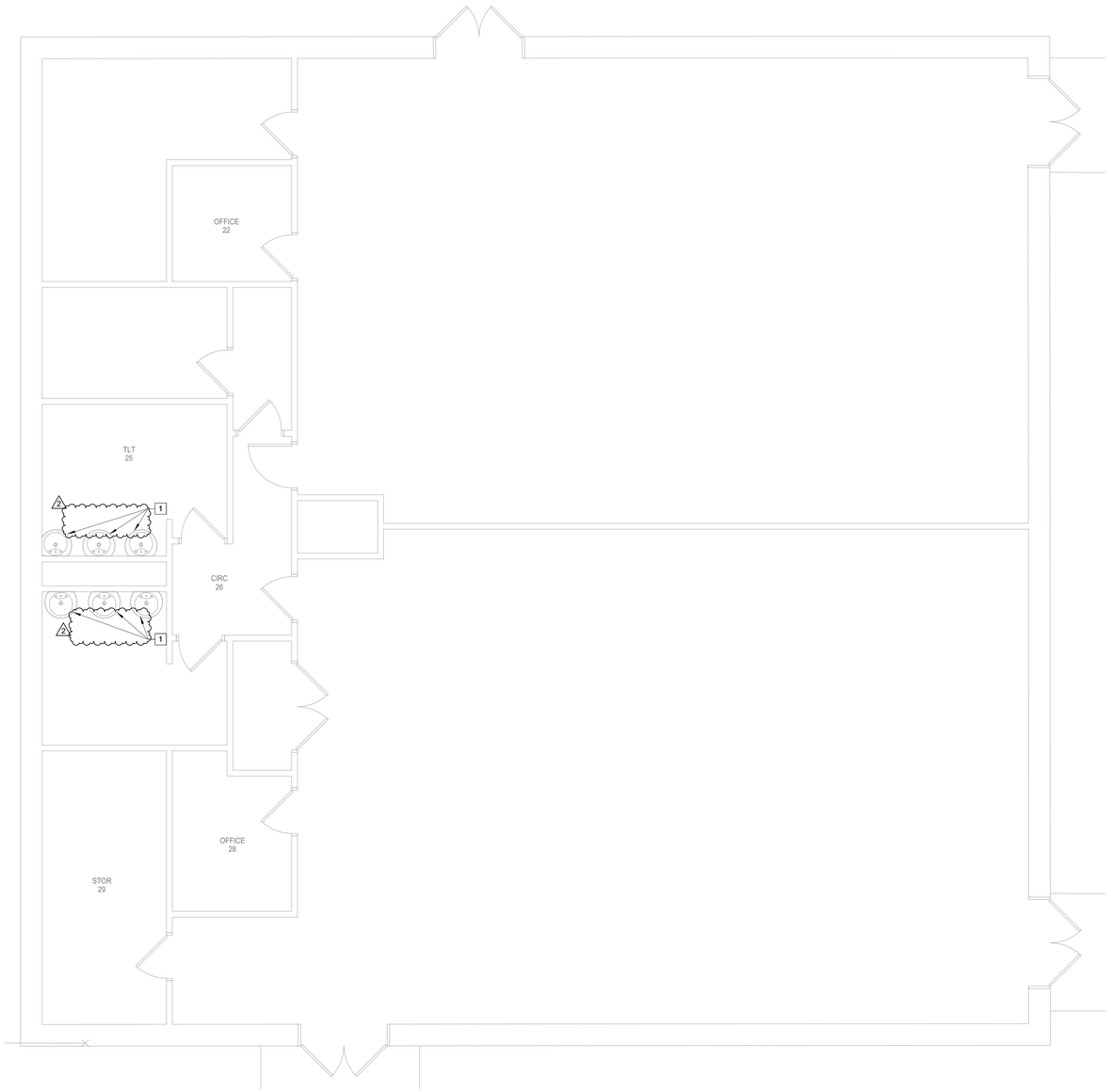
FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
PLUMBING ENLARGED PLAN - LEVEL1 - NEW GYM

Project No. 214001246
Scale As indicated
Revision 2
Drawing No. **P301-PES**

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N

1 **PLUMBING PLAN - LEVEL 1 - ENLARGED - EXTENDED DAY LEARNING**
Scale: 1/4" = 1'-0"

PLUMBING KEYED NOTES

1 PROVIDE INSULATION KITS AT ALL LAVATORIES. RE: GENERAL NOTES, PLUMBING LEGENDS AND SCHEDULES SHEET.

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Project No: 2023-04376-00

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File Name: N/A	AA	AA	BH 11/27/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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PROFESSIONAL ENGINEER
10-20-2025

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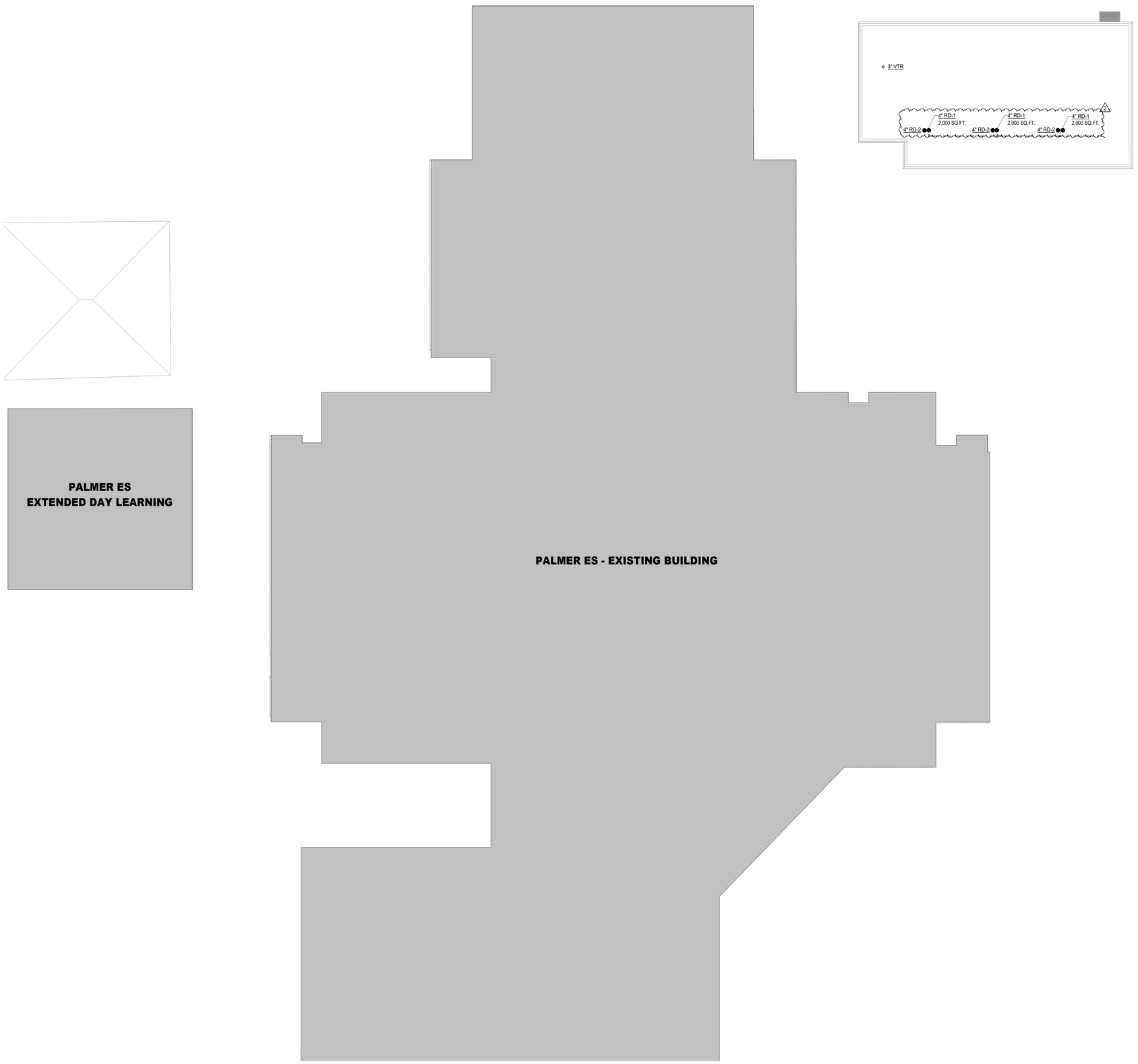
Title
PLUMBING ENLARGED PLAN - LEVEL1 - EXTENDED DAY LEARNING

Project No.	Scale
214001246	1/4" = 1'-0"
Revision	Drawing No.
2	P302-PES

10/17/2025 12:26:44 PM

ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 **PLUMBING ROOF PLAN**
Scale: 1/16" = 1'-0"

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Notes

2 Addendum 02			10/20/2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	AA	AA	EH 11/27/24
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit/Seal



Client/Project Logo

2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

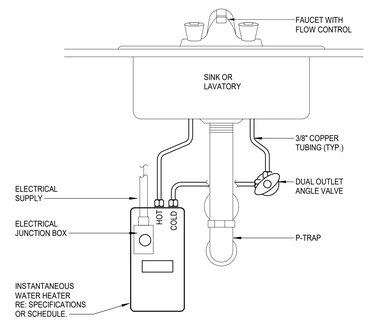
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PLUMBING ROOF PLAN

Project No.	Scale
214001246	1/16" = 1'-0"
Revision	Drawing No.
2	P401-PES

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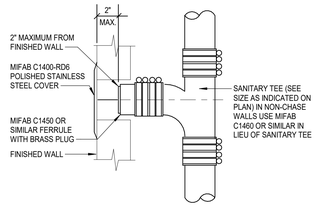
PHW02 - 09/10/18



INSTANTANEOUS ELECTRIC WATER HEATER PIPING FOR SINK OR LAVATORY

16 SCALE: NONE

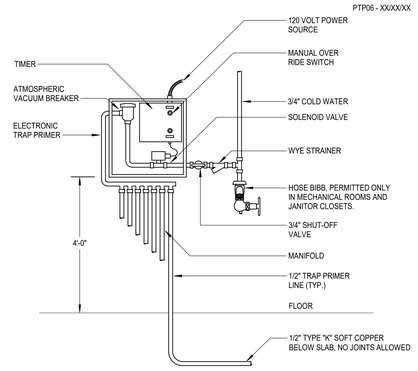
PSAN03- XX/XX/XX



WALL CLEANOUT

12 SCALE: NONE

PTP06 - XX/XX/XX

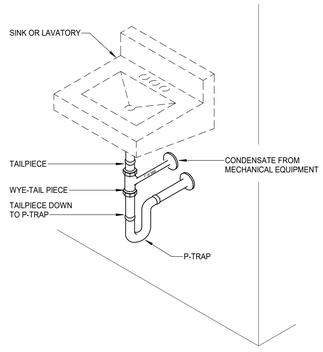


ELECTRONIC TRAP PRIMER

8 SCALE: NONE

2

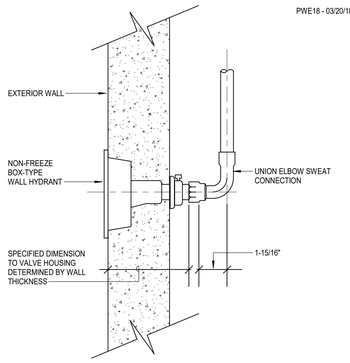
PSAN12- 05/16/24



WYE-TAILPIECE CONDENSATE CONNECTION

19 SCALE: NONE

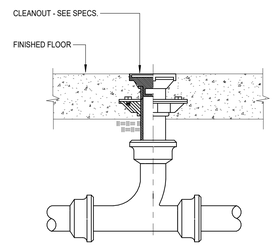
PWE18 - 03/20/18



NON-FREEZE WALL HYDRANT CONNECTION

15 SCALE: NONE

PSAN01- XX/XX/XX

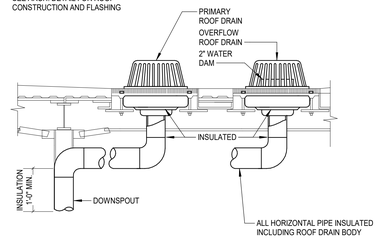


FLOOR CLEANOUT

11 SCALE: NONE

PST02 - 10/29/20

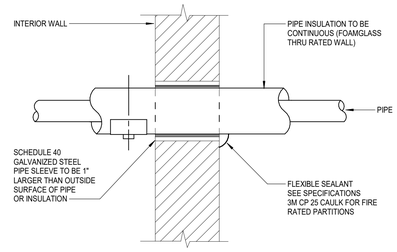
NOTE:
SEE ARCH. DETAIL FOR ROOF CONSTRUCTION AND FLASHING



STORM DRAIN INSULATION

7 SCALE: NONE

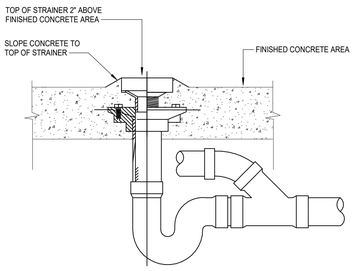
PSL01- XX/XX/XX



INTERIOR WALL PENETRATION

3 SCALE: NONE

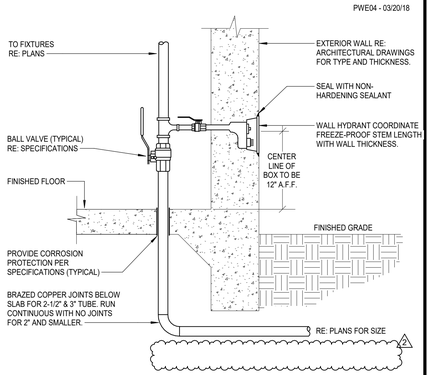
PCON04 - XX/XX/XX



OUTDOOR CONDENSATE DRAIN

18 SCALE: NONE

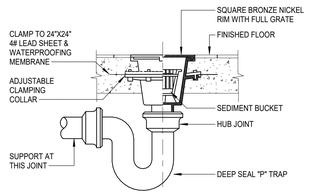
PWE04 - 03/20/18



DOMESTIC WATER ENTRY

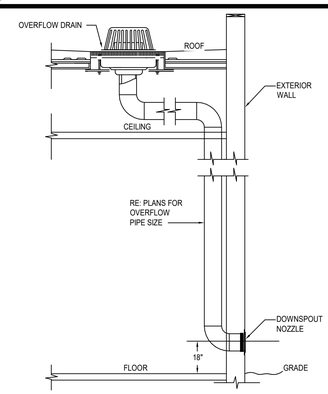
14 SCALE: NONE

PSAN08- XX/XX/XX



FLOOR SINK

10 SCALE: NONE

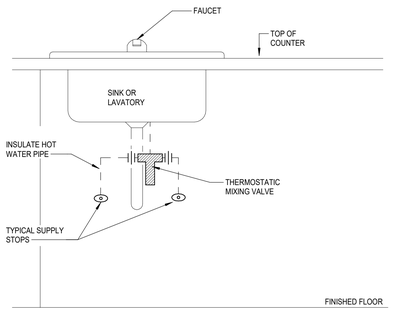


DOWNSPOUT NOZZLE

6 SCALE: NONE

2

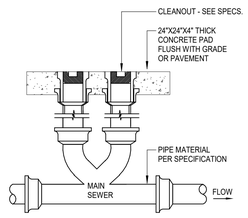
PHW04 - 08/10/20



THERMOSTATIC MIXING VALVE AT SINK/LAVATORY SINGLE TEMPERATURE

17 SCALE: NONE

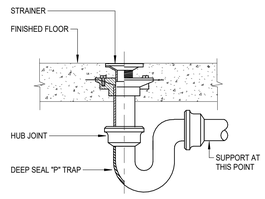
PSAN05- XX/XX/XX



TWO-WAY EXTERIOR CLEANOUT

13 SCALE: NONE

PSAN07- XX/XX/XX

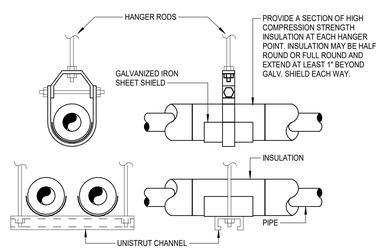


FLOOR DRAIN

9 SCALE: NONE

PP01 - XX/XX/XX

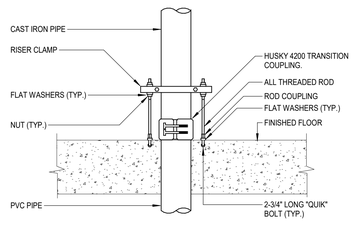
MINIMUM DIMENSIONS OF GALVANIZED SHEETMETAL PROTECTION SHIELDS AT PIPE HANGERS		
NOMINAL SIZE PIPE	SHIELD LENGTH (IN.)	GAUGE THICKNESS
1/2" & 3/4"	12	18
1" - 2-1/2"	12	18
3" - 4"	16	18
6"	18	16



PIPE SHIELDS FOR INSULATED PIPING

5 SCALE: NONE

PSAN12- 05/16/24



NOTE:
1. MAKE CONNECTION FROM PVC BELOW SLAB TO CAST IRON ABOVE SLAB WITH HUSKY 4200 TRANSITION COUPLING.
2. THERE IS TO BE NO EXPOSED PVC ABOVE SLAB.

CAST IRON TO PVC TRANSITION

1 SCALE: NONE

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Project No: 2023-04376-00

Notes

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Revision		By	Appd	YYYY.MM.DD
	100% ISSUE FOR BID AND PERMIT			2025.09.24
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File Name: N/A		AA	AA	EH 11/27/24
		Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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10-20-2025

Client/Project Logo

2022 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project

FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title

PLUMBING DETAILS

Project No.	Scale
214001246	12" = 1'-0"
Revision	Drawing No.
2	P501-PES

11/17/2025 12:58:40 PM
ORIGINAL SHEET - ARCH E1

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PLUMBING GENERAL NOTES

1. WITHIN THE EXISTING BUILDING, EXISTING WATER, WASTE AND VENT SERVICES ARE TO BE MODIFIED AS REQUIRED AND REUSED FOR THE INSTALLATION OF NEW AND/OR RELOCATED PLUMBING FIXTURES. REFER TO PLUMBING FLOOR PLANS FOR POINTS OF CONNECTION.
2. WITHIN THE EXISTING BUILDING, SAWCUT AND REMOVE EXISTING FLOOR SLAB AS REQUIRED TO PROVIDE NEW AND/OR RELOCATED PLUMBING FIXTURES, CLEANOUTS, AND UNDERSLAB WASTE AND VENT PIPING. PATCH AND REFINISH FLOOR TO MATCH EXISTING.
3. IN AREAS WHERE THE FLOOR SLAB IS REMOVED, CONTRACTOR SHALL ALSO REMOVE UNDERSLAB WASTE AND VENT PIPING WHICH SERVES FIXTURES DESIGNATED FOR REMOVAL. PRIOR TO ANY REMOVAL, FIELD VERIFY THAT LINES TO BE REMOVED DO NOT SERVE ANY EXISTING FIXTURES TO REMAIN OR NEW FIXTURES TO BE INSTALLED.
4. IN AREAS WHERE THE FLOOR SLAB IS NOT REMOVED, CONTRACTOR SHALL ABANDON IN PLACE ANY UNDERSLAB WASTE AND VENT PIPING NO LONGER NEEDED, UNLESS THE PIPING MUST BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION. IF NEW WORK DOES NOT NECESSITATE THEIR REMOVAL, CUT AND PLUG SUCH LINES BELOW SLAB, AND PATCH FLOOR TO MATCH EXISTING.
5. FIELD VERIFY EXACT LOCATION, SIZE, DEPTH, DIRECTION OF FLOW, CAPACITY, PIPE MATERIAL AND CONDITION OF EXISTING WASTE PIPING PRIOR TO BEGINNING CONSTRUCTION. ENSURE THAT PROPER CONNECTIONS TO AND EXTENSION OF SUCH UTILITIES CAN BE MADE.
6. WASTE LINES TO BE RE-USED OR RECONNECTED TO SHALL BE THOROUGHLY RODDED OUT AND FLUSHED TO ENSURE THEY ARE FREE FROM BLOCKAGES.
7. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING BELOW SLAB WITH COLUMN FOOTINGS, GRADE BEAMS, UNDERGROUND PLUMBING AND ELECTRICAL UTILITIES, AND OTHER SUB-SURFACE BUILDING ELEMENTS.
8. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH 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.
9. CONTRACTOR TO COORDINATE ALL REMODEL WORK WITH THE WORK OF OTHER TRADES TO AVOID CONFLICTS AND TO MINIMIZE INTERRUPTION OF SERVICES.
10. COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY ROUGH-INS.
11. DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS.
12. CONTRACTOR TO FIELD VERIFY AS NECESSARY THE EXACT ROUTING AND SIZES OF ALL PIPING.
13. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE, INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION.
14. THE PROPER INSTALLATION OF NEW FIXTURES AND THE PROPER CONTINUED OPERATION OF EXISTING FIXTURES TO REMAIN SHALL DETERMINE THE EXTENT AND NATURE OF PLUMBING REMODEL WORK.
15. EACH VENT SHALL TERMINATE VERTICALLY NOT LESS THAN 6" ABOVE ROOF, MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF AND ALL FRESH AIR INTAKES, AND A MINIMUM 5'-0" FROM ANY EXTERIOR WALL.
16. PRIOR TO BEGINNING CONSTRUCTION, COORDINATE BUILDING BACKFLOW PREVENTION REQUIREMENTS WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PROVIDE AS DIRECTED.

SHOCK ARRESTOR SCHEDULE

P.D.I. SYMBOLS:	FIXTURE UNITS:	THREADED CONNECTION	CERTIFICATION
A	1 - 11	1/2"	ASSE 1010
B	12 - 32	3/4"	ASSE 1010
C	33 - 60	1"	ASSE 1010
D	61 - 113	1"	ASSE 1010
E	114 - 154	1"	ASSE 1010
F	155 - 330	1"	ASSE 1010

TANKLESS ELECTRIC WATER HEATER SCHEDULE

ITEM NO.	TEMP RISE AT 0.5 GPM (°F)	WATER TEMP MAXIMUM (°F)	STORAGE CAPACITY	ACTIVATION FLOW (GPM)	TOTAL KW INPUT	VOLT/PHASE	MANUFACTURER / COMMENTS
IEWH-1	66	120	NA	0.3	4.9	208V/1PH.	Eemax, AccuMix® AM007240T
IEWH-2	66	120	NA	0.3	4.9	208V/1PH.	Eemax, AccuMix® AM007240T

NOTES:

1. 30 PSI MINIMUM OPERATING PRESSURE REQUIRED. CONTRACTOR SHALL VERIFY AVAILABLE WATER PRESSURE PRIOR TO PURCHASING AND INSTALLING EQUIPMENT.
2. INSTALL HEATER AND ROUTE PIPING BASED ON MANUFACTURERS RECOMMENDATIONS.
3. UNIT SHALL HAVE REPLACEABLE FILTER IN THE INTEL CONNECTOR.
4. HEATER SHALL BE PROVIDED WITH ASSE 1070 APPROVED INTEGRATED MIXING VALVE TO CONFORM TO UPC 407.3.
5. MOUNTING LOCATION MUST BE LOCATED WITHIN TWO FEET OF FIXTURE.

PLUMBING FIXTURE SCHEDULE

TYPE: WC-1 (T.A.S. COMPLIANT)
DESCRIPTION: WATER CLOSET, WALL HUNG, WHITE VITREOUS CHINA WITH EVERCLEAN, 1.28 GALLON PER FLUSH SIPHON JET ACTION, ELONGATED CLOSET BOWL WITH 1-1/2" TOP SPUD AND BOLT COVERS. AMERICAN STANDARD "AFWALL" #3351.101 ELONGATED OPEN FRONT WHITE PLASTIC SEAT WITH SELF SUSTAINING CONCEALED CHECK HINGES. BEMIS #1955SSCT.
SEAT:
FLUSH VALVE: 1.28 GALLON FLUSH CYCLE. EXPOSED, DIAPHRAGM TYPE, CHROME PLATED CLOSET FLUSHOMETER. VACUUM BREAKER, SPUD COUPLING FOR 1-1/2" TOP SPUD. SLOAN ROAYL #111-1.28.
CARRIER: WADE #311 AND #330 SERIES -AM1.
ROUGH-IN: 4" WASTE, 2" VENT, 1" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: L-1 (T.A.S. COMPLIANT) METERED - STUDENT - TEMPERED
DESCRIPTION: LAVATORY, WALL HUNG, WHITE VITREOUS CHINA, 20-1/2" X 18-1/4" WITH FRONT OVERFLOW AND CONCEALED ARM SUPPORTS, 4" FAUCET SPREAD. AMERICAN STANDARD "LUCERNE" #0355.012.
FAUCET: CHROME PLATED BRASS DECK MOUNTED, 4" FIXED CENTERS LAVATORY FAUCET WITH COVER PLATE, 4-1/8" SPOUT, AND PUSH BUTTON HANDLE INDEXED "PUSH". SELF CLOSING METERING CARTRIDGE, VANDAL PROOF 0.5 GPM LAMINAR SPRAY. CHICAGO MODEL #857-E280S-665PSHAB. (2)
STRAINER: 1-1/4" 17 GAUGE CHROME PLATED BRASS GRID STRAINER WITH TAILPIECE. MCGUIRE #155A.
P-TRAP: 1-1/4" 17 GAUGE CHROME PLATED HEAVY CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE. MCGUIRE #8872.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE WITH (4) 1/2" BOLTS, ADJUSTABLE SLEEVE, THREADED CONCEALED ARMS, ALIGNMENT BAR, LOCKING DEVICE, AND LEVELING SCREWS. WADE #520-08.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER - TEMPERED OUT. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: EDF-1 (T.A.S. COMPLIANT) - INTERIOR
DESCRIPTION: WALL HUNG, BOTTLE FILLING STATION AND BI-LEVEL VANDAL-RESISTANT COOLER HIGH EFFICIENCY NON-FILTERED REFRIGERATED STAINLESS CHILLING CAPACITY OF 8.0 GPH (GALLONS PER HOUR) OF 50F DRINKING WATER, BASED ON 80F INLET WATER AND 90F AMBIENT, PER ASHRAE 18 TESTING. FEATURES SHALL INCLUDE ANTIMICROBIAL, GREEN COUNTER, HIGH EFFICIENCY, LAMINAR FLOW, REAL DRAIN, SANITARY SENSOR ACTIVATED, VANDAL RESISTANT SMARTFLOW BUBBLER. ELECTRONIC BOTTLE FILLER SENSOR WITH MECHANICAL FRONT BUBBLER BUTTON ACTIVATION. PRODUCT SHALL BE WALL MOUNT. HALSEY TAYLOR #HTHB-HVRGRN8BL-NF. PROVIDE CANE TOUCH APRON IN ALL STAINLESS STEEL ON ALL UNITS MOUNTED WITH A CLEAR KNEE SPACE GREATER THAN 27" HIGH. ELKAY APRON #98324C.
P-TRAP: 1-1/4" CHROME PLATED CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON. MCGUIRE #8872.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE SLAB WITH (4) 1/2" BOLTS. ADJUSTABLE SLEEVE FOR CONNECTION TO HANGER PLATE PROVIDED BY FIXTURE MANUFACTURER. WADE #403-BL.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: FS-1
SERVICE: MECHANICAL ROOM EQUIPMENT CONDENSATE.
DESCRIPTION: CAST IRON FLANGED RECEPTOR WITH SEEPAGE HOLES, ACID RESISTANT COATED INTERIOR, NICKEL BRONZE RIM AND SECURED ADA GRATE. 12" SQUARE FLOOR SINK WITH 8" DEEP DOME BOTTOM STAINER. WHITE ABS SEDIMENT BUCKET. FLASHING CLAMP, NB RIM AND ½ STAINLESS STEEL GRATE. TRAP PRIMER. JAY R SMITH # 3150-C-12-NBSS-P
TRAP PRIMER: SERVED BY ELECTRONIC TRAP PRIMER, REFER TO PLANS.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATE FINAL LOCATION WITH EQUIPMENT PLACEMENT.

TYPE: FD-1
SERVICE: TOILET ROOMS AND GENERAL USE
DESCRIPTION: FLOOR DRAIN, DUCO CAST IRON BODY WITH FLASHING COLLAR AND ADJUSTABLE STRAINER HEAD WITH ADA GRATE. 6" ROUND TOP (2) (3) STAINLESS STEEL GRATE, TRAP PRIMER CONNECTION 1/2", WITH VANDAL PROOF SCREWS. JAY R SMITH #2005-A06NBSS-P050-U (1)
TRAP PRIMER: SERVED BY ELECTRONIC TRAP PRIMER, REFER TO PLANS.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATE FINAL LOCATION AND INSTALLATION WITH ARCHITECTURAL DRAWINGS / FLOOR CONSTRUCTION.

TYPE: TP-1 (FLUSH MOUNT)
SERVICE: E104, E105, AND MECH YARD 18.
DESCRIPTION: ELECTRONIC TRAP PRIMER WITH FLUSH MOUNT CABINET AND STAINLESS STEEL ACCESS DOOR, SOLENOID VALVE, 1/2" COMPRESSION FITTING ATMOSPHERIC VACUUM BREAKER, CIRCUIT BREAKER, AND TIMER. 120V. PRECISION PLUMBING PRODUCTS "PRIME-TIME" #PT-4.
ROUGH-IN: 3/4" COLD WATER.

TYPE: RD-1 (2)
DESCRIPTION: ROOF DRAIN. DUCO CAST IRON BODY WITH COMBINED FLASHING CLAMP AND GRAVEL STOP WITH ALUMINUM DOME. SUMP RECEIVER, ADJUSTABLE EXTENSION FOR ROOF CONSTRUCTION, AND UNDERDECK CLAMP. JAY R SMITH# 1015-AD-R-C FOR 8" AND SMALLER OUTLET.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES.

TYPE: RD-2
DESCRIPTION: OVERFLOW ROOF DRAIN. DUCO CAST IRON BODY WITH COMBINED FLASHING CLAMP AND GRAVEL STOP WITH ALUMINUM DOME. SUMP RECEIVER, ADJUSTABLE EXTENSION FOR ROOF CONSTRUCTION AND UNDERDECK CLAMP. JAY R SMITH# 1045-AD-R-C FOR 8" AND SMALLER OUTLET.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES.

TYPE: DN-1
DESCRIPTION: OVERFLOW DOWNSPOUT NOZZLE WITH HINGED PERFORATED COVER. VANDAL PROOF. FABRICATED STAINLESS STEEL WITH NO HUB OUTLET AND FLANGE TO SECURE NOZZLE TO WALL. INSTALL AT 12" ABOVE FINISHED SLAB OR AS DIRECTED BY ARCHITECT. JAY R SMITH : 1775 - U
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES.

TYPE: WH-1 - COLD WATER - NON FREEZ
DESCRIPTION: ENCASED, LEAD-FREE, NON-FREEZ WALL HYDRANT, INTEGRAL BACKFLOW PREVENTER WITH ANTI-SIPHON TECHNOLOGY, COPPER CASING, ALL-BRONZE INTERIOR COMPONENTS WITH 1/2 TURN CERAMIC CARTRIDGE, COMBINATION 3/4" FEMALE SOLDER AND 3/4" MALE PIPE THREAD INLET CONNECTION, AND 3/4" MALE HOSE CONNECTION. 304 SS HOUSING WITH LOCKING HINGED. INSTALL WITH BOTTOM OF HYDRANT 18" A.F.F. WADE #8701-L6.
ROUGH-IN: 3/4" COLD WATER.

TYPE: WH-2 - COLD WATER - RESTROOMS
DESCRIPTION: ENCASED, LEAD-FREE, INTERIOR WALL HYDRANT, INTEGRAL BACKFLOW PREVENTER WITH ANTI-SIPHON TECHNOLOGY, COPPER CASING, ALL-BRONZE INTERIOR COMPONENTS WITH 1/2 TURN CERAMIC CARTRIDGE, COMBINATION 3/4" FEMALE SOLDER AND 3/4" MALE PIPE THREAD INLET CONNECTION, AND 3/4" MALE HOSE CONNECTION. 304 SS FLANGED BOX WITH LOCKING HINGED COVER. INSTALL WITH BOTTOM OF HYDRANT 18" A.F.F. WADE #8708
ROUGH-IN: 3/4" COLD WATER.

TYPE: WCO
DESCRIPTION: WALL CLEANOUT. CAST IRON CLEANOUT FERRULE WITH COUNTERSUNK BRONZE PLUG AND ROUND STAINLESS COVER PLATE WITH CENTER SECURING SCREW. WADE #6550-75 WITH #8304-VP. PROVIDE WADE #8560 CAST IRON CLEANOUT TEE IN LIEU OF FERRULE AS REQUIRED FOR WALL CONSTRUCTION.

TYPE: FCO
DESCRIPTION: FLOOR CLEANOUT, PAINTED CAST IRON ADJUSTABLE FLOOR CLEANOUT WITH ABS THREADED ADJUSTABLE HOUSINGS, FLANGED CAST IRON FERRULE, INTEGRAL CLAMPING COLLAR, GASKETED ABS THREADED PLUG AND SCORIATED STAINLESS STEEL TOP. WADE #6000-85. FOR CARPETED FLOORS PROVIDE WADE #6000-85-CM. FOR TERRAZO TILES #6000-85-U, FOR RECESSED TILE #6000-85-T. FOR VCT TILES COORDINATE WITH MANUFACTURER FOR INSTALLATION INSTRUCTIONS.

TYPE: ECO
DESCRIPTION: EXTERIOR CLEANOUT TO GRADE, PAINTED CAST IRON BODY WITH ANCHOR FLANGE ADJUSTABLE TOP ASSEMBLY, AND ROUND SCORIATED VANDAL RESISTANT DUCTILE IRON TRACTOR TYPE COVER. IF LOCATED IN ASPHALT OR DIRT PROVIDE 18"X18"X12" CONCRETE PAD. WADE #6000-Z.

GENERAL NOTES

ALL LAVATORIES AND SINKS SHALL BE SUPPLIED WITH HOT AND COLD WATER (UNLESS NOTED TO BE COLD WATER ONLY) TO FAUCETS AS INDICATED ON PLANS AND FIXTURE SCHEDULE. PROVIDE CHROME PLATED BRASS SUPPLY STOPS WITH LOOSE KEYS AND WALL ESCUTCHEONS. PROVIDE CHROME PLATED FLEXIBLE RISERS OF SIZE REQUIRED TO PROPERLY CONNECT FIXTURES. PROVIDE 17 GAUGE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON (UNLESS NOTED TO BE AN ACID WASTE FIXTURE). REFER TO FIXTURE SCHEDULE FOR MINIMUM SIZES OF PLUMBING FIXTURE ROUGH-INS.

INSULATION KITS AT ALL LAVATORIES AND SINKS REQUIRED TO BE T.A.S. ACCESSIBLE (MCGUIRE OR TRUEBRO); ALL SUCH FIXTURES AND FINAL INSTALLATIONS SHALL COMPLY WITH THE STATE ACCESSIBILITY STANDARDS REQUIREMENTS.

INSERT TRAP GUARDS AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS-TIGHT SEAL. FOR DRAIN RODDING AFTER INSTALLATION. INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

PLUMBING PIPING LEGEND

SYMBOLS	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
GW	GREASE WASTE PIPING (GW)
GW	GREASE WASTE PIPING BELOW GRADE (GW)
SD	STORM DRAIN PIPING (SD)
SD	STORM DRAIN PIPING BELOW GRADE (GW)
SSD	SUB-SOIL DRAIN OR FOOTING DRAIN (SSD)
AW	ACID WASTE PIPING (AW)
AW	ACID WASTE PIPING BELOW GRADE (AW)
PD	PUMPED DISCHARGE (PD)
CD	CONDENSTATE DRAIN PIPING (CD)
D	CONDENSTATE - INDIRECT DRAIN PIPING (D)
	VENT PIPING (V)
CW	COLD WATER PIPING (CW)
HW	HOT WATER PIPING (HW)
HWR	HOT WATER RETURN PIPING (HWR)
SCW	SOFT COLD WATER PIPING (SCW)
CDW	CHILLED DRINKING WATER PIPING (CDW)
TP	TRAP PRIMER LINE (TP)
F	FIRE PROTECTION PIPING (F)
AS	AUTOMATIC SPRINKLER PIPING (AS)
GAS	NATURAL GAS PIPING (G)
GV	GAS VENT PIPING (GV)
AIR	COMPRESSED AIR PIPING (A)
	FLOW DIRECTIONAL ARROW
	SHUT-OFF VALVE
	BALANCING VALVE (BV)
	SOLENOID VALVE (SV)
	BALL VALVE (BV)
	BUTTERFLY VALVE
	LUBRICATED PACKED PLUG STOP STOP COCK (PC)
	HORIZONTAL SWING CHECK
	UNION
	HORIZONTAL SWING CHECK
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	REDUCED PRESSURE BACKFLOW PREVENTER (RPBFP)
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CAP ON END OF PIPE
	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)
	FIRE DEPARTMENT VALVE AT RISER
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
	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
	VALVE IN RISE
	ASME TEMPERATURE & PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	ANGLE VALVE
	OS&Y VALVE
	ROOF DRAIN
1	REFER TO KEYED NOTE
FS	FLOW SWITCH
	FLOOR SINK (FS)
	FLOOR DRAIN (FD)
	FLOOR DRAIN WITH P-TRAP (FD)
	FLOOR DRAIN WITH P-TRAP AT 45° ANGLE (FD)
	HUB DRAIN (HD)
	ACCESS PANEL FOR TRAP PRIMER OR SHOCK ABSORBER
AP1	ACCESS PANEL LOCATION SYMBOL
A	SHOCK ABSORBER
	AIR CHAMBER
(E)	EXISTING
(N)	NEW
VTR	VENT THRU ROOF
B.F.F.	BELOW FINISHED FLOOR
A.F.F.	ABOVE FINISHED FLOOR
	NEW CONNECTION
IE=100.00"	INVERT ELEVATION
1	DELTA CHANGE SYMBOL
P 1	4" VTR RISER FLAG

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Notes

Revision	By	Appd	YYYY.MM.DD
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
	AA	AA	EH	11/27/24

Permit/Seal

BRADLEY KALMANS 80219 LICENSED PROFESSIONAL ENGINEER
10-20-2025

Client/Project Logo

2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
PLUMBING LEGENDS AND SCHEDULES

Project No.	Scale
214001246	1'2" = 1'-0"
Revision	Drawing No.
2	P601-PES

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



FIRE ALARM

BASEB BID - PROJECT SCOPE INCLUDES ADDING A NEW STANDALONE FIRE ALARM SYSTEM IN THE GYMNASIUM ADDITION WITH VOICE EVACUATION. CONTRACTOR TO TIE SYSTEM INTO THE MAIN CAMPUS FACP FOR MONITORING.

ALTERNATE 6C - CONTRACTOR TO REPLACE THE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY WITH NEW VOICE EVACUATION FIRE ALARM SYSTEM. CONTRACTOR TO DEMOLISH ALL EXISTING DEVICES AND WIRING UPON ACCEPTANCE OF NEW SYSTEM BY THE AHJ AND OWNER.

LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL
FAA	FIRE ALARM ANNUNCIATOR PANEL

NOTES:

1. FIRE ALARM SYSTEM IS PERFORMANCE BASED PER SPECIFICATIONS. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. A LICENSED FIRE ALARM PLANNING SUPERINTENDENT CERTIFIED TO A MINIMUM LEVEL 3, IN THE SUBFIELD OF FIRE ALARM SYSTEMS THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET), SHALL PROVIDE PLANS AND CALCULATIONS FOR A MANUAL AND AUTOMATIC FIRE DETECTION AND ALARM SYSTEM TO COMPLY WITH THE BUILDING SPACE LAYOUT, BUILDING OCCUPANCY, CURRENT NFPA 72, LOCAL AND STATE CODE REQUIREMENTS, AND THE FIRE ALARM AND DETECTION SYSTEM SPECIFICATIONS.

TECHNOLOGY KEYED NOTES:

1 REFER TO ELECTRICAL SHEET E100-PES FOR CONDUIT REQUIREMENTS.

N

1 **FIRE ALARM COMPOSITE PLAN**
Scale: 1/16" = 1'-0"

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Notes

2	Addendum 02			10/20/2025
Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
Issued		By	Appd	YYYY.MM.DD
File Name: N/A		Author	Designer	Checker	10/19/25
		Dwn.	Dsgn.	Ckkd.	YYYY.MM.DD

Permit/Seal



Client/Project Logo

BOND
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

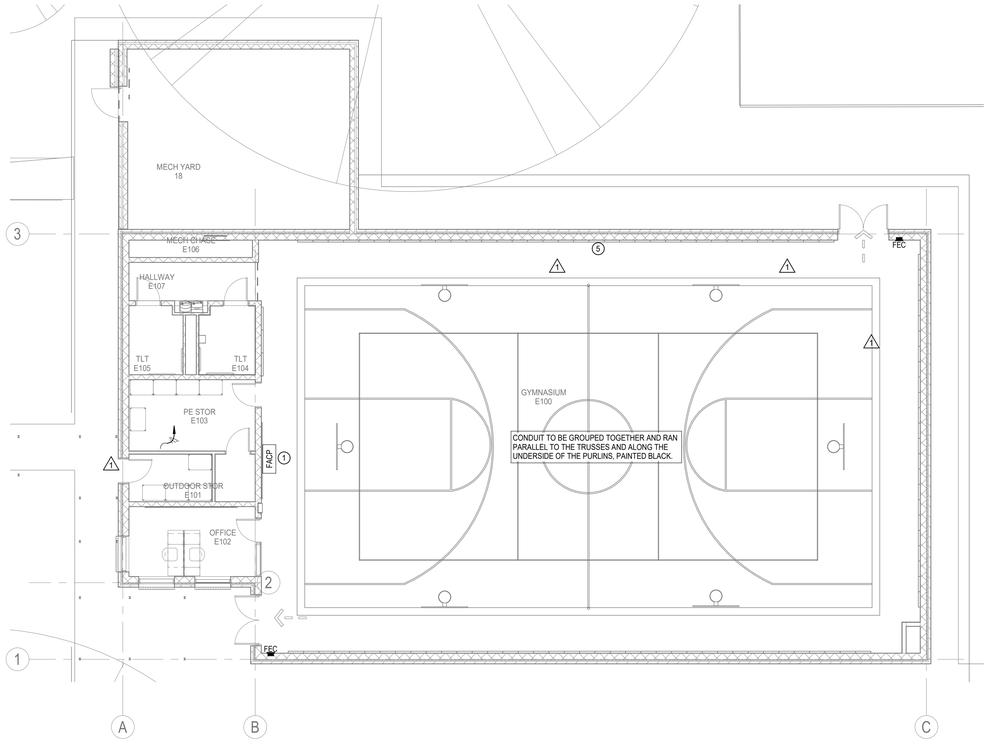
FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
FIRE ALARM COMPOSITE PLAN

Project No.	Scale
214001246	1/16" = 1'-0"
Revision	Drawing No.
2	FA100-PES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 **FIRE ALARM PLAN - LEVEL 1 - NEW GYM**
Scale: 1/8" = 1'-0"

FIRE ALARM

BASEB BID - PROJECT SCOPE INCLUDES ADDING A NEW STANDALONE FIRE ALARM SYSTEM IN THE GYMNASIUM ADDITION WITH VOICE EVACUATION. CONTRACTOR TO TIE SYSTEM INTO THE MAIN CAMPUS FACP FOR MONITORING.

ALTERNATE 6C - CONTRACTOR TO REPLACE THE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY WITH NEW VOICE EVACUATION FIRE ALARM SYSTEM. CONTRACTOR TO DEMOLISH ALL EXISTING DEVICES AND WIRING UPON ACCEPTANCE OF NEW SYSTEM BY THE AHJ AND OWNER.

LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL
FAA	FIRE ALARM ANNUNCIATOR PANEL

NOTES:

1. FIRE ALARM SYSTEM IS PERFORMANCE BASED PER SPECIFICATIONS. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. A LICENSED FIRE ALARM PLANNING SUPERINTENDENT CERTIFIED TO A MINIMUM LEVEL 3, IN THE SUBFIELD OF FIRE ALARM SYSTEMS THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET), SHALL PROVIDE PLANS AND CALCULATIONS FOR A MANUAL AND AUTOMATIC FIRE DETECTION AND ALARM SYSTEM TO COMPLY WITH THE BUILDING SPACE LAYOUT, BUILDING OCCUPANCY, CURRENT NFPA 72, LOCAL AND STATE CODE REQUIREMENTS, AND THE FIRE ALARM AND DETECTION SYSTEM SPECIFICATIONS.

TECHNOLOGY KEYED NOTES:

1. PROPOSED FIRE ALARM CONTROL PANEL LOCATION. VERIFY FINAL LOCATION WITH OWNER PRIOR TO ROUGH-IN.

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Notes

Revision	By	Appd	YYYY.MM.DD
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	YYYY.MM.DD
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File Name: N/A	Author	Designer	Checker	10/19/25
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal



10-20-2025

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2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
FIRE ALARM PLAN - GYMNASIUM

Project No.	Scale
214001246	1/8" = 1'-0"

Revision: 2
Drawing No.: FA201-PES 2

10/19/2025 8:16:17 PM
ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

AUDIO/VISUAL MULTIMEDIA LEGEND

SYMBOL	DESCRIPTION
A##▷ V##▷	WALL AV ROUGH-IN DETAIL
A## V##	CEILING AV ROUGH-IN DETAIL
A## V##	FLOOR AV ROUGH-IN DETAIL
IWB| |IWB	INTERACTIVE WHITE BOARD - WALL - CEILING
PJ| |PJ	MULTIMEDIA PROJECTOR
FP# |FP#	MULTIMEDIA FLAT PANEL DISPLAY
S S	LOUDSPEAKER, WALL MOUNTED AND CEILING MOUNTED RESPECTIVELY - # INDICATES TYPE
CP#	CONTROL PANEL
TP#	TOUCH PANEL
M	MICROPHONE, CEILING MOUNTED - # INDICATES TYPE
VC ▷	VOLUME CONTROL
WB	WALL BOX ENCLOSURE
D1 A1	D1 = DIGITAL SINGLE SIDED CLOCK / A1 = ANALOG SINGLE SIDED CLOCK
D2 A2	D2 = DIGITAL DOUBLE SIDED CLOCK / A2 = ANALOG DOUBLE SIDED CLOCK
ENC	CEILING AV ENCLOSURE
C C	PRESENTATION CAMERA - CEILING - WALL MOUNTED

PREMISE SECURITY LEGEND

SYMBOL	DESCRIPTION
CR	CARD READER
CR M	CARD READER MULLION
KP	INTRUSION DETECTION KEYPAD
IC	INTERCOM (1 DATA CABLE)
IC MS	INTERCOM MASTER STATION (1 DATA CABLE)
PB	PANIC/DURESS BUTTON
LD	LOCK DOWN BUTTON
MD	MOTION DETECTOR
GB	ACCOUSTICAL GLASS BREAK SENSOR
BM	BIOMETRIC READER
RX	REQUEST TO EXIT - SURFACE PIR
KS	KEY SWITCH
LA	LOCAL ALARM SOUNDER
RG	RED/GREEN INDICATOR LIGHT
DB	DOORBELL
DH	MAGNETIC DOOR HOLD
DR	DOOR RELEASE
RX	REQUEST TO EXIT - INTEGRAL TO DOOR HARDWARE
DC	DOOR CONTACT / MONITOR
ES EL EH	ELECTRIFIED STRIKE - ELECTRIFIED LATCH - ELECTRIFIED HARDWARE (REFER TO SCHEDULES)
C C	STANDARD IP SURVEILLANCE CAMERA, (1) CABLE
C C C	180° MULTI-IMAGER IP SURVEILLANCE CAMERA, (1) CABLE
C	360° MULTI-IMAGER IP SURVEILLANCE CAMERA, (1) CABLE
C	360° FISHEYE LENS CAMERA
IR	IR ILLUMINATOR

STRUCTURED CABLING LEGEND

SYMBOL	DESCRIPTION
#	TELECOMMUNICATIONS OUTLET, # =NUMBER OF DATA CABLE(S)/JACK(S)
##	TELECOMMUNICATIONS OUTLET, ## = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S)
#	TELECOMMUNICATIONS OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S), SURFACE MOUNT
##	TELECOMMUNICATIONS OUTLET, ## = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S), SURFACE MOUNT
W	WALL MOUNT PHONE (1 CABLE/JACK)
W	WALL MOUNT PHONE, SURFACE MOUNT (1 CABLE/JACK)
#	FLOOR MOUNTED OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S) (FLOOR BOX BY E.C.)
##	FLOOR MOUNTED OUTLET, #/# = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S) (FLOOR BOX BY E.C.)
#	CEILING MOUNTED DATA OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S)
AP#	CEILING MOUNTED OUTLET FOR WIRELESS ACCESS POINT #=NUMBER OF CABLE(S)/JACK(S)
AP#▷	WALL MOUNTED OUTLET FOR WIRELESS ACCESS POINT #=NUMBER OF CABLE(S)/JACK(S)
	CABLING SLEEVE(S)
	TYPICAL LADDER RACK
	TYPICAL CABLE TRAY, BASKET STYLE

GENERAL ANNOTATION LEGEND

SYMBOL	DESCRIPTION
MER	MAIN EQUIPMENT ROOM
TR	TELECOMMUNICATION ROOM
MDF	MAIN DISTRIBUTION FRAME
IDF	INTERMEDIATE DISTRIBUTION FRAME
ETR	EXISTING TO REMAIN
PBO	PROVIDED BY OTHERS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AC	ABOVE COUNTER
EC	ELECTRICAL CONTRACTOR
PSC	PREMISE SECURITY CONTRACTOR
SCC	STRUCTURAL CABLING CONTRACTOR
AVC	AV/MULTIMEDIA CONTRACTOR
UNO	UNLESS NOTED OTHERWISE
ACS	ACCESS CONTROL SYSTEM
VSS	VIDEO SURVEILLANCE SYSTEM

TECHNOLOGY SHEET INDEX

SHEET NUMBER	SHEET NAME
T000 - PES	TECHNOLOGY - INDEX SHEET
T010 - PES	TECHNOLOGY - SITE PLAN
T101 - PES	TECHNOLOGY - GYM

TECHNOLOGY - GENERAL NOTES

1. EACH KEYNOTE MAY NOT BE UTILIZED ON EVERY SHEET.
2. ALL CONDUIT MEASUREMENTS REFER TO STANDARD CONDUIT TRADE SIZES.
3. ALL CABLES SHALL BE CONCEALED.
4. EACH CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY SLEEVES, WHETHER OR NOT SPECIFICALLY NOTED ON PROJECT DRAWINGS. ALL SLEEVES SHALL BE 2" UNLESS NOTED OTHERWISE ON THE DRAWINGS. CABLE FILL PERCENTAGE SHALL COMPLY WITH NEC.
5. DEVICE LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL REVIEW CONDITIONS AND COORDINATE WITH OTHER TRADES AS NECESSARY FOR EXACT PLACEMENT.

TECHNOLOGY SYMBOLS LEGEND

NOT ALL SYMBOLS ARE USED

- AV WALL ROUGH-IN WITH DATA
- KEYNOTE
- Proposed Camera Direction
  SURVEILLANCE CAMERA
  Camera Schedule Number (Floor #-Camera #)
  Camera (N)ew, (E)xisting Rough-in, (D)emo
- Proposed Camera Direction
  PTZ CAMERA
  PTZ
- Proposed Camera Direction
  FIXED SURVEILLANCE CAMERA
- 360°/MULTI-SENSOR FIXED SURVEILLANCE CAMERA OR FISHEYE LENS CAMERA
- Approximate view of lens
  Lens View Angle
  360°/MULTI-SENSOR FIXED SURVEILLANCE CAMERA OR FISHEYE LENS CAMERA
  Lens size
- MICROPHONE WITH AUDIO LINKED TO CAMERA
- CARD READER LINKED TO CAMERA
- SYMBOL TAG
  (#) = DIFFERENT TYPES OF CARD READERS:
  M = MULLION
  W = WIRELESS (Proprietary)
  Wi = Wi-Fi (802.11)
  POE = POWER OVER ETHERNET
- SYMBOL TAG
  (#) = DIFFERENT TYPES OF CARD READERS:
  TS = TOUCHSCREEN
  PU = PUSH BUTTON
- TOP = DETAIL NUMBER
  DETAIL REFERENCE
  BOTTOM = SHEET NUMBER
- NORTH ARROW
- SHEET NUMBER
  SECTION MARKER
  DETAIL NUMBER
- DIRECTION OF ELEVATION
  ELEVATION MARKER
  SHEET NUMBER
  DETAIL NUMBER
- DIRECTION OF ELEVATION
  SHEET NUMBER
  DIRECTION OF ELEVATION
  DETAIL NUMBER
- BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS DRAWING ADJUST SCALES ACCORDINGLY

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Notes

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ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker 2025.07.23
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

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PALMER ELEMENTARY SCHOOL

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title

TECHNOLOGY - INDEX SHEET

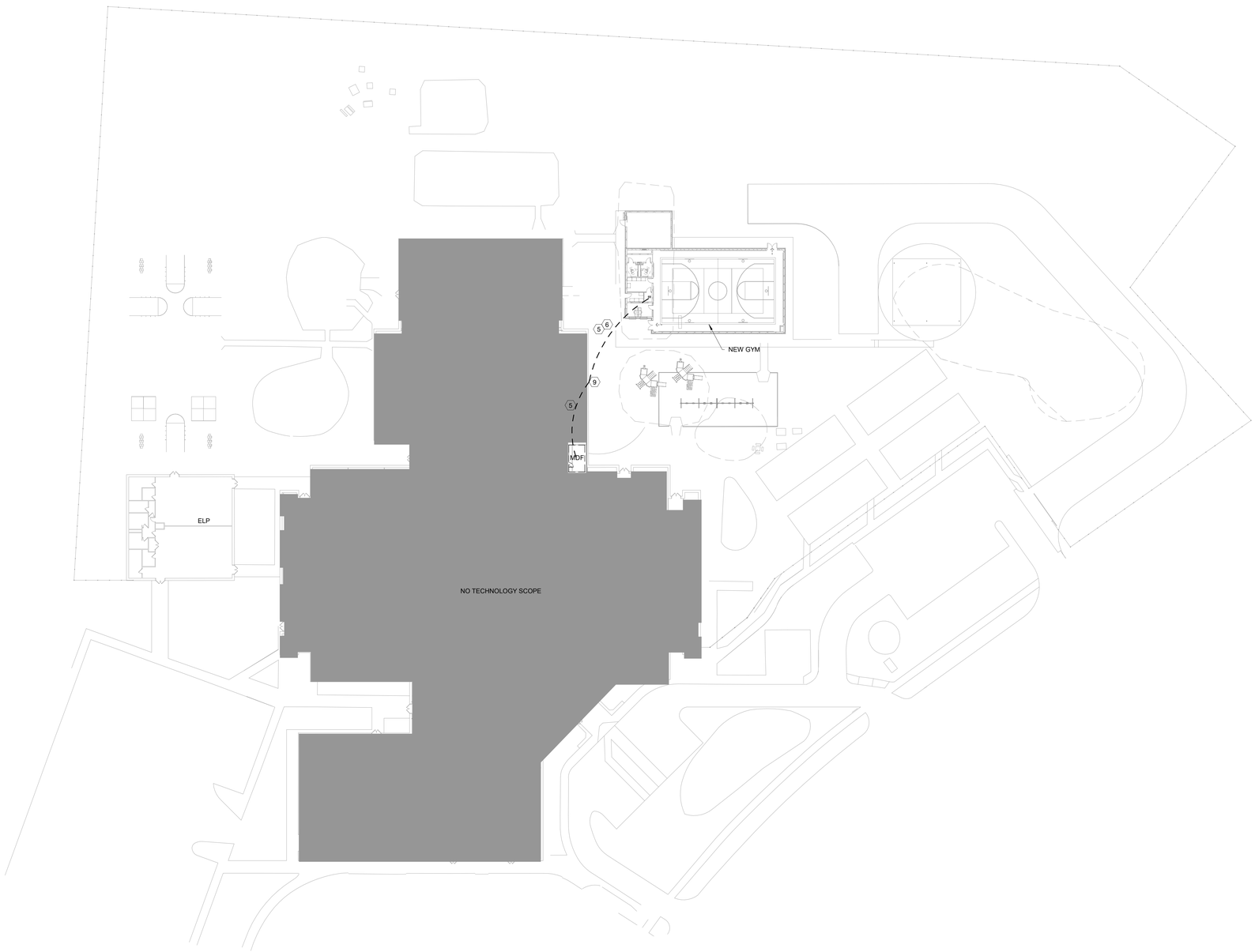
Project No.	Scale
214001246	As indicated
Revision	Drawing No.

T000 - PES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 01 - Level 1 - Site Plan
SCALE: 1/32" = 1'-0"

TECHNOLOGY KEYNOTES

1. CONTRACTOR TO PROVIDE AND INSTALL PROTECTIVE WIRE CAGES FOR WIRELESS ANOLOG CLOCKS.
2. NOT USED
3. ELECTRICAL CONTRACTOR TO PROVIDE 3/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
4. ELECTRICAL CONTRACTOR TO PROVIDE 1" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
5. 12-STRAND MM FIBER FROM MDF TO NEW IDF RACK.
6. TWO (2) UNDERGROUND 4" SCEDULE 80 CONDUITS WITH 3-CELL MAXCELL DETECTABLE INNERDUCT FOR FIBER CONNECTIVITY, AND ONE (1) 1-1/2" UNDERGROUND SCHEDULE 80 CONDUIT WITH PULL STRING FOR INTRUSION SYSTEM. UNDERGROUND CONDUITS SHALL COME THROUGH FOUNDATION/SLAB INSIDE NEW IDF ROOM, AT MIMINUM 4" AFF. AT EXISTING BUILDING, CONDUITS SHOULD EXIT GROUND ADJACENT TO BUILDING, AND BE SECURED TO THE BUILDING, WHERE A LB CONNECTOR WILL ALLOW PATHWAY PENETRATION INTO PLENUM SPACE.
7. INTRUSION EXPANSION PANEL IS TO BE WIRED BACK TO EXISTING INTRUSION SYSTEM IN CAMPUS MAIN BUILDING.
8. LOCATION ON NEW ACCESS CONTROL PANEL.
9. IN-GROUND PULL BOX, MINMUM 24X24X18 FOR FIBER OPTIC AND INTRUSION SYSTEM CONDUITS. (2) 4" CONDUITS WILL NEED TO RUN FROM THE IN-GROUND PULL BOX, AND UP THE EXTERIOR OF THE BUILDING, TO HEIGHT OF PLENUM SPACE. AN LB CONNECTOR SHALL BE USED FOR A PULL-POINT, AND PENETRATION INTO THE BUILDING PLENUM SPACE. EXTERIOR WALL PENETRATION SHALL BE PROPERLY SEALED AGAINST WEATHER/WATER INTRUSION INTO BUILDING.

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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker 07/14/20
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

PALMER ELEMENTARY SCHOOL

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
TECHNOLOGY - SITE PLAN

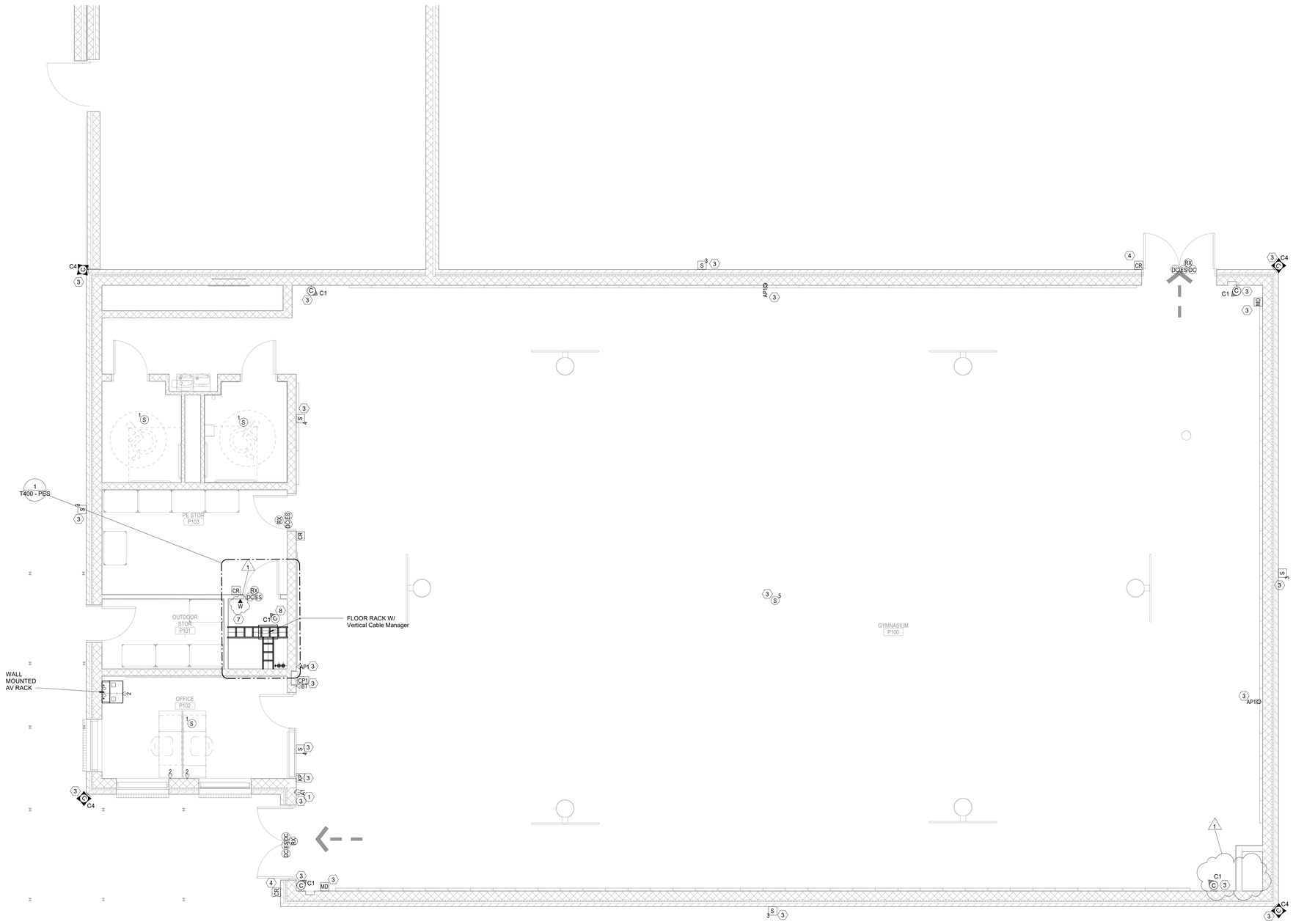
Project No. 214001246
Scale As indicated
Revision
Drawing No.
T010 - PES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

TECHNOLOGY KEYNOTES

1. CONTRACTOR TO PROVIDE AND INSTALL PROTECTIVE WIRE CAGES FOR WIRELESS ANOLOG CLOCKS.
2. NOT USED
3. ELECTRICAL CONTRACTOR TO PROVIDE 3/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
4. ELECTRICAL CONTRACTOR TO PROVIDE 1" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
5. 12-STRAND MM FIBER FROM MDF TO NEW IDF RACK.
6. TWO (2) UNDERGROUND 4" SCEDULE 80 CONDUITS WITH 3-CELL MAXCELL DETECTABLE INNERDUCT FOR FIBER CONNECTIVITY, AND ONE (1) 1-1/2" UNDERGROUND SCHEDULE 80 CONDUIT WITH PULL STRING FOR INTRUSION SYSTEM. UNDERGROUND CONDUITS SHALL COME THROUGH FOUNDATION/SLAB INSIDE NEW IDF ROOM, AT MIMINUM 4" AFF. AT EXISTING BUILDING, CONDUITS SHOULD EXIT GROUND ADJACENT TO BUILDING, AND BE SECURED TO THE BUILDING, WHERE A LB CONNECTOR WILL ALLOW PATHWAY PENETRATION INTO PLENUM SPACE.
7. INTRUSION EXPANSION PANEL IS TO BE WIRED BACK TO EXISTING INTRUSION SYSTEM IN CAMPUS MAIN BUILDING.
8. LOCATION ON NEW ACCESS CONTROL PANEL.
9. IN-GROUND PULL BOX, MINMUM 24X24X18 FOR FIBER OPTIC AND INTRUSION SYSTEM CONDUITS. (2) 4" CONDUITS WILL NEED TO RUN FROM THE IN-GROUND PULL BOX, AND UP THE EXTERIOR OF THE BUILDING, TO HEIGHT OF PLENUM SPACE. AN LB CONNECTOR SHALL BE USED FOR A PULL-POINT, AND PENETRATION INTO THE BUILDING PLENUM SPACE. EXTERIOR WALL PENETRATION SHALL BE PROPERLY SEALED AGAINST WEATHER/WATER INTRUSION INTO BUILDING.



1 01 - GYM
SCALE: 1/4" = 1'-0"

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Notes

2	Addendum 2	BL	1	10/14/25
	Revision	By	Appd	YYYY.MM.DD
	ADDENDUM 2	BRL	RSL	2025.10.14
	Issued	By	Appd	YYYY.MM.DD
	File Name: N/A	Author	Designer	Checker	2025.07.23
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Client/Project Logo

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FORT BEND ISD

PALMER ELEMENTARY SCHOOL

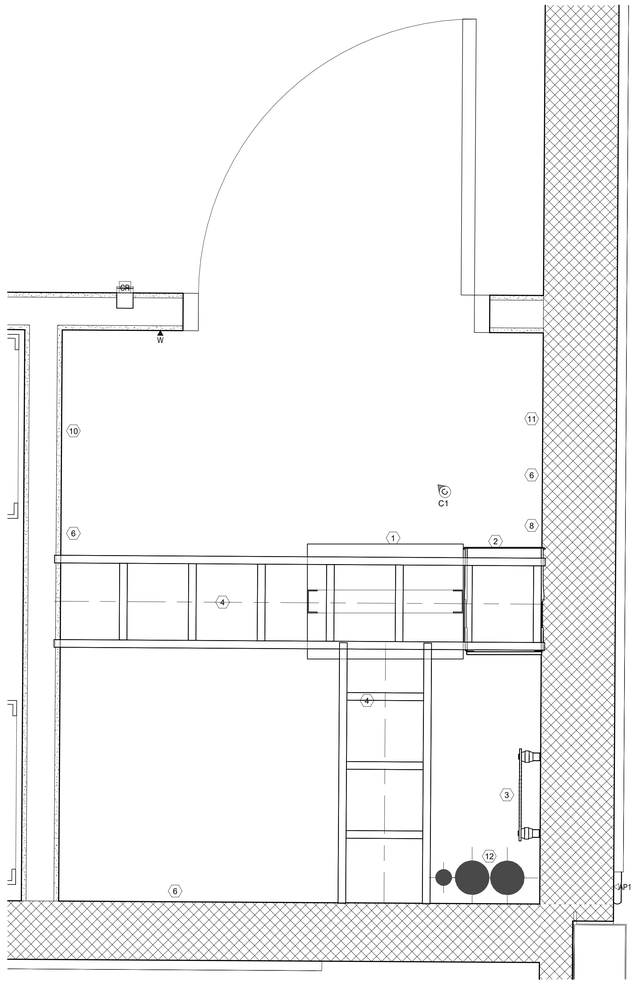
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
TECHNOLOGY - GYM

Project No.	Scale
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Revision	Drawing No.
2	T101 - PES

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1 01 - Level 1 - Gym IDF
SCALE: 1 1/2" = 1'-0"

ENLARGEMENT KEYNOTES

1. 2-POST RACK, SECURED TO FLOOR WITH EXPANSION ANCHORS, VERTICAL WIRE MANAGER ATTACHED TO WALL SIDE OF RACK SHALL BE 6" FROM WALL. (TYPICAL)
2. 10" VERTICAL WIRE MANAGER SECURED TO SIDE OF RACK (TYPICAL)
3. GROUND BUS BAR, MOUNTED 6' AFF, ELECTRON PLATED AND PREDRILLED TO ACCEPT STANDARD TWO-HOLE LUGS.
4. 18"x2" LADDER RACK SECURED TO TOP OF RACK WITH LADDER RACK MOUNTING PLATE AND BOLTED TO WALL, WITH WATER FALLS INTO VERTICAL WIRE MANAGERS (TYPICAL)
5. 12"x4" CABLE TRAY (BASKET STYLE) WITH 6" CLEARANCE FROM WALL (TYPICAL)
6. 3/4" FIRED RATED PLYWOOD SECURED TO WALL AT 22" AFF. IF THE PLYWOOD IS PAINTED, THE PAINT SHALL BE FIRE RETARDANT PAINT ON BOTH SIDES AND THE RATING STAMP ON THE PLYWOOD SHALL BE EXPOSED.
7. SPACE RESERVED FOR FLOOR SUPPORTED AIR CONDITIONER UNIT.
8. SPACE RESERVED FOR PA SYSTEM EXPANSION.
9. FIRESTOP SLEEVES, STI EZPATH OR HILTI SPEED SLEEVES.
10. SPACE RESERVED FOR ACCESS CONTROL PANEL.
11. SPACE RESERVED FOR INTRUSION PANELS.
12. UNDERGROUND CONDUIT STUB-UPS FOR COMMUNICATIONS.

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File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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Client/Project
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PALMER ELEMENTARY SCHOOL

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

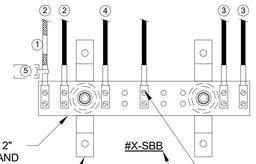
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TECHNOLOGY - ENLARGEMENTS

Project No. 214001246
Scale As indicated
Revision
Drawing No.

T400 - PES

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COPPER UL LISTED SBB (aka TGB) MINIMUM 1/4" H X 2" W X 12" LENGTH WITH TWO MOUNTING BRACKETS AND INSULATORS. ACCEPTABLE MANUFACTURERS: CHATSWORTH, ERITECH, HARGER, HOMACO & PANDUIT. UTILIZE BUSBAR MANUFACTURER FOR COMPRESSION TWO-HOLE LUGS.

#X-SBB

TYPICAL BONDING CONDUCTOR CONNECTORS SHALL BE UL LISTED COMPRESSION TWO-HOLE LUGS. A MINIMUM OF TWO CRIMPS ON A LONG BARREL COMPRESSION LUG.

TYPICAL MOUNTING BRACKET SECURED TO PLYWOOD ON WALL.

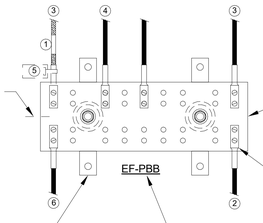
TYPICAL LABEL FOR TELECOMMUNICATIONS SECONDARY BONDING BUSBARS. "#X" IDENTIFIES THE SPACE, COORDINATE IDENTIFICATION OF SPACE WITH PLANS AND OWNER.

SBB GROUNDING & BONDING NOTES

1. TYPICAL OF ALL BONDING CONDUCTORS CABLE IDENTIFIER/ LABEL.
2. TBC TO TELECOMMUNICATIONS CABLE RUNWAYS(S), RACK(S), CABINET(S) AND APPLICABLE EQUIPMENT. DAISY CHAINING OF TBC AT RELAY RACKS IS NOT ACCEPTABLE. EACH RACK IS TO HAVE A TBC TO A COMPRESSION LUGTAP TO DEDICATED HOME RUN BACK TO THE SBB. SEE DETAILS.
3. TYPICAL TBB(S) THAT INTERCONNECTS ALL IDF SBB(S) WITH THE PBB.
4. BONDING CONDUCTOR TO EACH ARMORED FIBER JACKET. IDF SIDE ONLY.
5. TYPICAL OF ALL BONDING CONDUCTORS WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".

BONDING CONDUCTOR SIZING CHART

LENGTH (FEET)	SIZE (AWG)
LESS THAN (<) 13'	# 6
14' - 20'	# 4
21' - 26'	# 3
27' - 33'	# 2
34' - 41'	# 1
42' - 52'	# 1/0
53' - 66'	# 2/0
GREATER THAN (>) 66'	# 3/0



COPPER UL LISTED PBB (aka TMGB) MINIMUM 1/4" H X 4" W X 20" LENGTH WITH TWO MOUNTING BRACKETS AND INSULATORS. ACCEPTABLE MANUFACTURERS: CHATSWORTH, ERITECH, HARGER, HOMACO & PANDUIT. UTILIZE BUSBAR MANUFACTURER FOR COMPRESSION TWO-HOLE LUGS.

MOUNTING HEIGHT 8'-6" AFF. COORDINATE IN FIELD.

EF-PBB

TYPICAL BONDING CONDUCTOR CONNECTORS SHALL BE UL LISTED COMPRESSION TWO-HOLE LUGS. A MINIMUM OF TWO CRIMPS ON A LONG BARREL COMPRESSION LUG.

TYPICAL MOUNTING BRACKET SECURED TO PLYWOOD ON WALL PER DIVISION 27 SPECIFICATIONS.

TYPICAL LABEL FOR TELECOMMUNICATIONS PRIMARY BONDING BUSBAR. "EF" IDENTIFIES THE ENTRANCE FACILITY SPACE, COORDINATE IDENTIFICATION OF SPACE WITH OWNER.

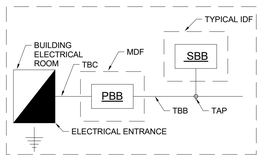
PBB GROUNDING & BONDING RISER NOTES

1. TYPICAL OF ALL BONDING CONDUCTORS CABLE IDENTIFIER/ LABEL.
2. TBC TO NEAREST BUILDING STEEL STRUCTURE. IF APPLICABLE UTILIZED EXOTHERMIC WELDING CONNECTION TO BUILDING STEEL.
3. TELECOMMUNICATIONS BONDING BACKBONE (TBB) FOR BACKBONE BONDING CONDUCTOR (BBC), IF APPLICABLE.
4. TYPICAL TBB(S) THAT INTERCONNECTS ALL SBB(S) WITH THE PBB.
5. TYPICAL OF ALL BONDING CONDUCTORS WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".
6. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (TBC) TO BUILDING GROUNDING ELECTRODE. TBC SHALL NOT BE SMALLER THEN THE TBB.

GROUNDING & BONDING GENERAL NOTES

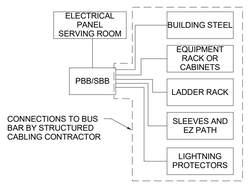
1. ELECTRICAL CONTRACTOR RESPONSIBILITY -PRIMARY BONDING BUSBAR (PBB), SECONDARY BONDING BUSBAR(S) (SBB), AND THE BONDING CONDUCTORS TO THE BUILDING GROUNDING ELECTRODE. BUILDING STRUCTURAL STEEL, AND BONDING OF ALL SBB(S) TO THE PBB SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
2. ALL GROUNDING OF OF EQUIPMENT, RACKS, CABINETS, AND DEVICES SHALL BE THE RESPONSIBILITY OF THE DIVISION 27 TECHNOLOGY CONTRACTOR.
3. FASTENING BONDING CONNECTOR TWO-HOLE LUGS TO ALL BUSBARS SHALL BE CLEANED AND APPLY A COPPER ANTI-OXIDANT TO THE CONTACT AREA OF BOTH THE CONNECTOR LUG AND THE BUSBAR.
4. BONDING CONDUCTORS AND BUSBARS SHALL BE LABELED. WITH IDENTIFICATION IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/TIA/EIA-606-C.
5. BONDING CONDUCTORS SHALL BE LABELED WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".
6. STRUCTURED CABLING CONTRACTOR SHALL PERFORM CONTINUITY TESTING MEASUREMENTS OF THE GROUNDING RESISTANCE TO NOT EXCEED 0.1 OHM BETWEEN:
   - A. THE TMGB AND THE NEAREST GROUNDING ELECTRODE.
   - B. THE TGB AND THE NEAREST GROUNDING ELECTRODE.
   - C. EACH TGB AND THE PATHWAY(S), RACK(S), CABINETS(S) AND APPLICABLE EQUIPMENT .

1 GROUNDING AND BONDING DETAIL
SCALE: NS

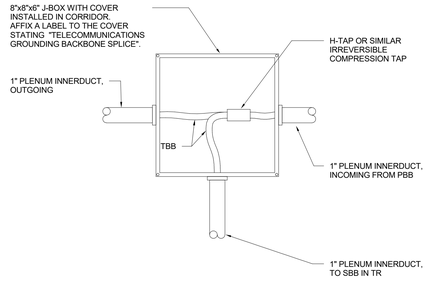


NOTES:
BBC = BACKBONE BONDING CONDUCTOR
BN = BONDING NETWORK
CBB = COMMON BONDING BUSBAR
CTBB = COMMON TELECOMMUNICATIONS BONDING BACKBONE
IDF = INDEPENDENT DISTRIBUTION FRAME
MDF = MAIN DISTRIBUTION FRAME
PBB = PRIMARY BONDING BUSBAR
RBB = RACK BONDING BUSBAR
RBC = RACK BONDING CONDUCTOR
SBB = SECONDARY BONDING BUSBAR
SBC = SECONDARY BONDING CONDUCTOR
TBB = TELECOMMUNICATIONS BONDING BACKBONE
TBC = TELECOMMUNICATIONS BONDING CONDUCTOR
TEBC = TELECOMMUNICATIONS EQUIPMENT BONDING CONDUCTOR

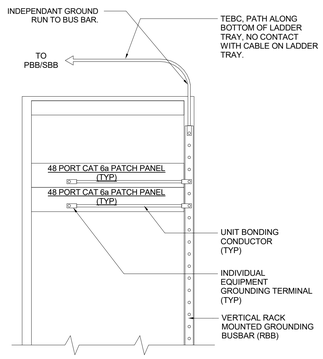
2 TYPICAL GROUNDING FLOW DIAGRAM
SCALE: NS



3 TELECOM ROOM BONDING DIAGRAM
SCALE: NS



4 TELECOM BONDING BACKBONE SPLICE DETAIL
SCALE: NS



5 RACK MOUNTED GROUNDING BAR DETAIL
SCALE: NS

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Title
TECHNOLOGY - DETAILS

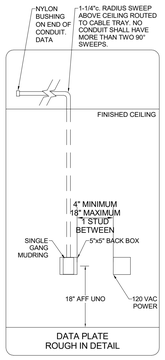
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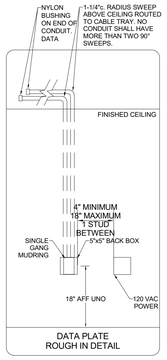
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GENERAL NOTE

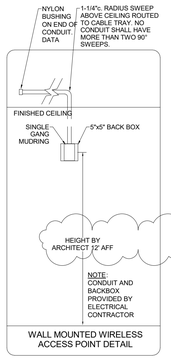
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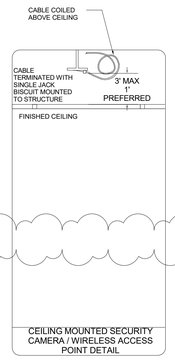
DATA PLATE
ROUGH IN DETAIL



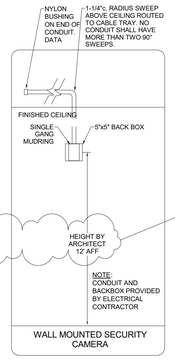
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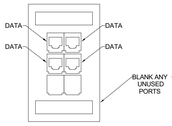
WALL MOUNTED WIRELESS
ACCESS POINT DETAIL



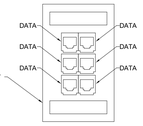
CEILING MOUNTED SECURITY
CAMERA / WIRELESS ACCESS
POINT DETAIL



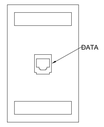
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CAMERA



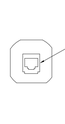
DATA
WALL PLATE



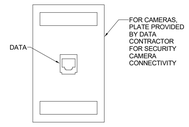
DATA
WALL PLATE



WALL WIRELESS ACCESS
POINT PLATE

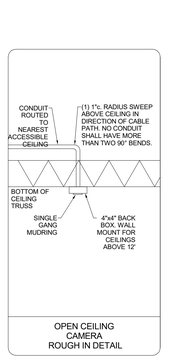


CEILING WIRELESS ACCESS
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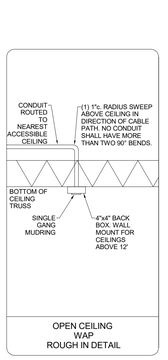


WALL CAMERA / WIRELESS
ACCESS POINT/ CMU DATA
PLATE

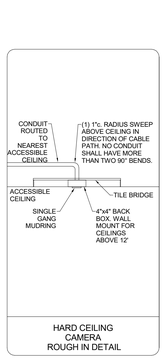
1 DATA ROUGH-IN DETAILS
SCALE: NS



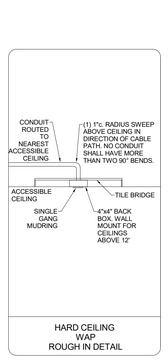
OPEN CEILING
CAMERA
ROUGH IN DETAIL



OPEN CEILING
WAP
ROUGH IN DETAIL

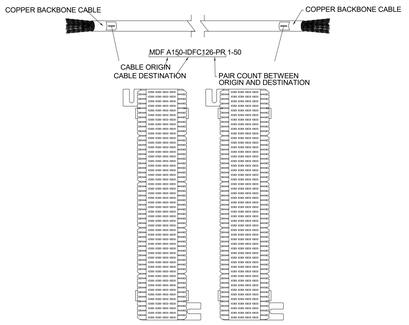


HARD CEILING
CAMERA
ROUGH IN DETAIL



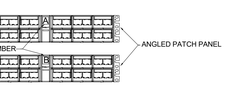
HARD CEILING
WAP
ROUGH IN DETAIL

2 HARD AND OPEN CEILING DETAILS FOR CAMERAS AND DATA OUTLETS
SCALE: NTS



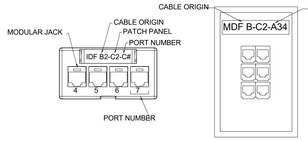
NOTE: 1) PA CONTRACTOR SHALL ENSURE THAT CABLE AND 66 BLOCK SHALL HAVE IDENTICAL LABEL AT BOTH ENDS

PA SYSTEM COPPER BACKBONE LABELING SCHEME



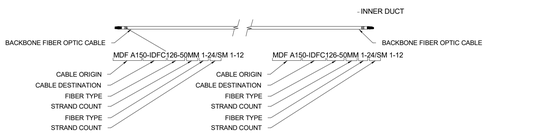
NOTE: 1) FOR DATA JACKS LOCATED ABOVE CEILING (WAP, CAMERA, ETC.)
2) 3/4" SELF-LAMINATING LABEL, WHITE BACKGROUND, BLACK TEXT
3) TEXT IN PLAIN FONT (NO ITALICS, BOLD OR UNDERLINE) TEXT CENTERED IN LABEL. TEXT HEIGHT NOT TO EXCEED 66% OF LABEL HEIGHT.

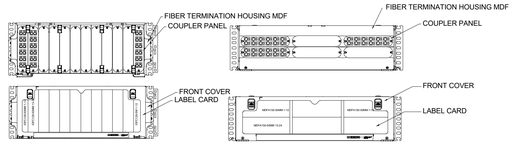
CEILING GRID LABELING SCHEME



NOTE: 1) CABLE SHALL HAVE IDENTICAL LABEL AT BOTH ENDS
2) EACH PATCH PANEL SHALL BE UNIQUELY LABELED ALPHABETICALLY IN EACH MDF OR IDF
3) EACH PATCH PORT SHALL BE NUMBERED SEQUENTIALLY EX. PATCH PANEL A 1 - 48 , PATCH PANEL B 1 - 48.
4) PRIOR TO LABELING, CONSULT WITH OWNER FOR PROPER IDF NUMBERING. (NO NOT USE ROOM NUMBER.)

HORIZONTAL DATA CABLE LABELING SCHEME

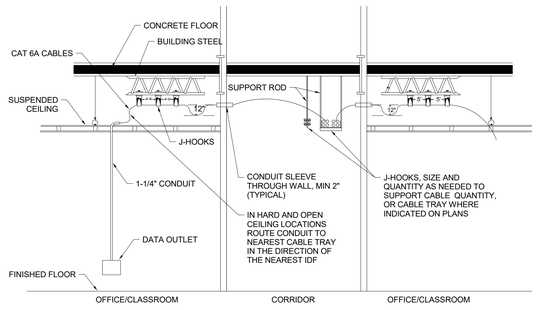




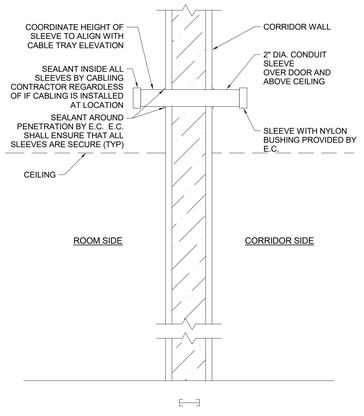
NOTE: 1) CABLE AND INNERDUCT SHALL HAVE IDENTICAL LABEL AT BOTH ENDS

FIBER BACKBONE LABELING SCHEME

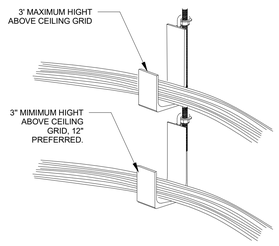
5 LABELING & CABLING SCHEMES
SCALE: NTS



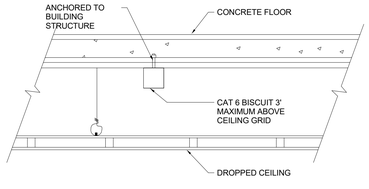
6 CABLE PATHWAY CROSS SECTION
SCALE: NTS



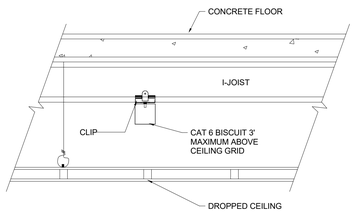
3 TYPICAL CABLING SLEEVE
SCALE: NTS



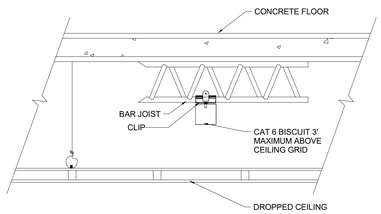
4 PANDUIT J-HOOK DETAIL
SCALE: NTS



7 DROPPED CEILING MOUNTING DETAIL
SCALE: NS



8 I-JOIST MOUNTING DETAIL
SCALE: NS



9 BAR JOIST MOUNTING DETAIL
SCALE: NS

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Notes

2	Addendum 2	BL	1	10/14/25
Revision		By	Appd	YYYY.MM.DD
ADDENDUM 2		BRL	RSL	2025.10.14
Issued		By	Appd	YYYY.MM.DD

File Name: N/A	Author	Designer	Checker	2025.07.23
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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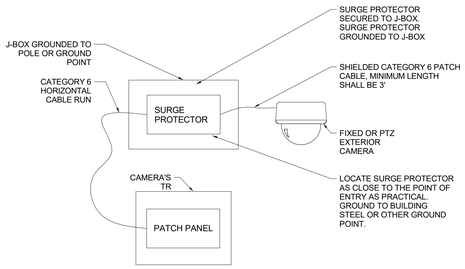
Project No. 214001246
Scale
Revision 2
Drawing No.
T502 - PES

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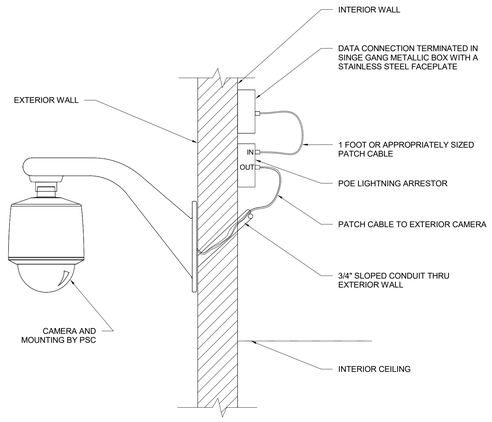
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GENERAL NOTES:

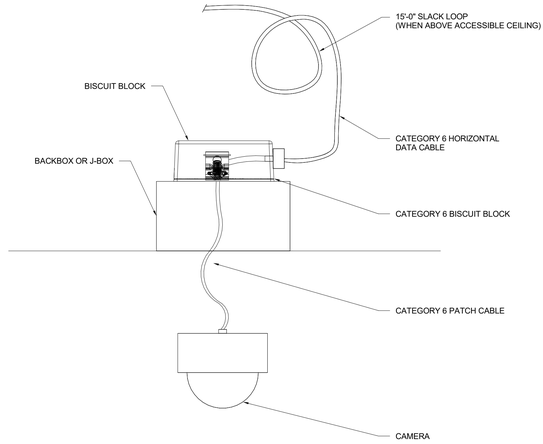
1. REFER TO SECURITY SCHEDULE AND WRITTEN SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE WEATHER PROOF/WATER RESISTANT ENCLOSURE FOR ALL EXTERIOR CAMERAS.
3. ALL CABLES FROM CAMERAS SHALL BE INSTALLED IN FLEXIBLE AND/OR RIGID CONDUIT.
4. ALL MOUNTING DETAILS ARE REFERENCE FOR ALL FIXED DOME, 180°, 360°, PTZ, AND "BULLET/BOX" CAMERAS.



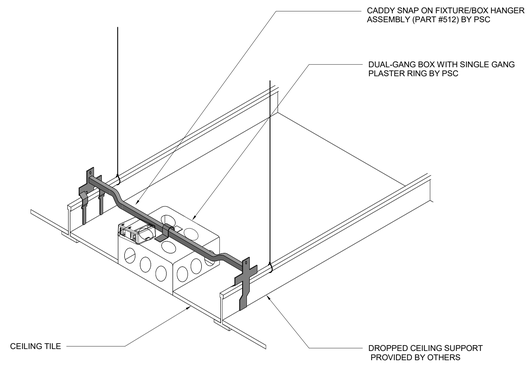
1 CAMERA SIDE SURGE PROTECTOR FOR EXTERIOR CAMERAS
SCALE: NS



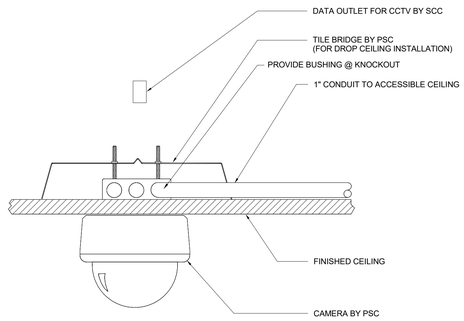
2 EXTERIOR WALL MOUNTED CAMERA DETAIL
SCALE: NTS



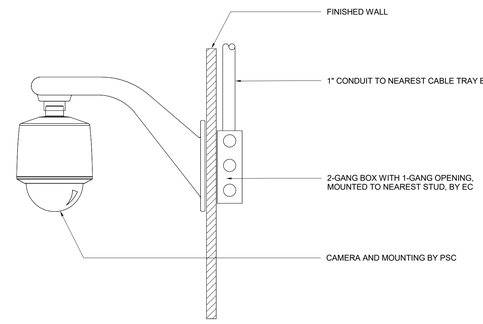
3 TYPICAL CAMERA INSTALLATION SECTION DETAIL
SCALE: NS



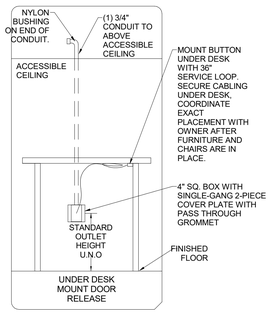
4 TILE BRIDGE DETAIL
SCALE: NS



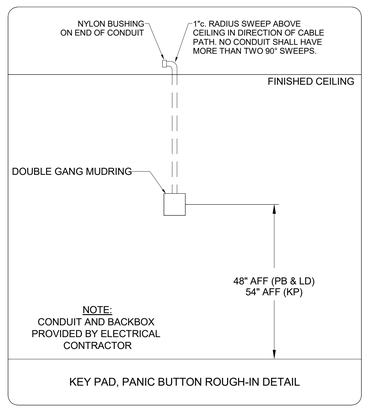
5 CEILING MOUNTED CAMERA DETAIL
SCALE: NS



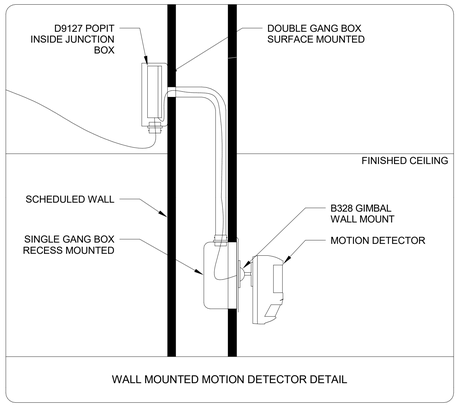
6 WALL MOUNTED CAMERA DETAIL
SCALE: NS



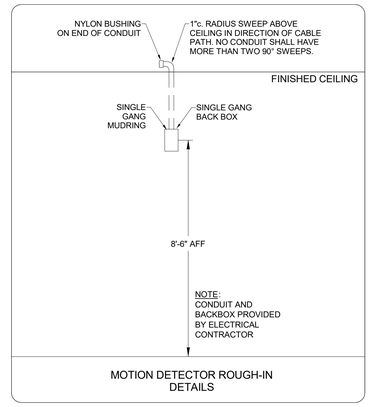
7 UNDER DESK MOUNT DOOR RELEASE BUTTON DETAIL
SCALE: NTS



1 ROUGH-IN DETAILS: KP, PB, LD
SCALE: NTS



2 WALL MOUNTED MD DETAIL
SCALE: NTS



3 IDS WALL-MOUNT MD ROUGH-IN DETAIL
SCALE: NTS

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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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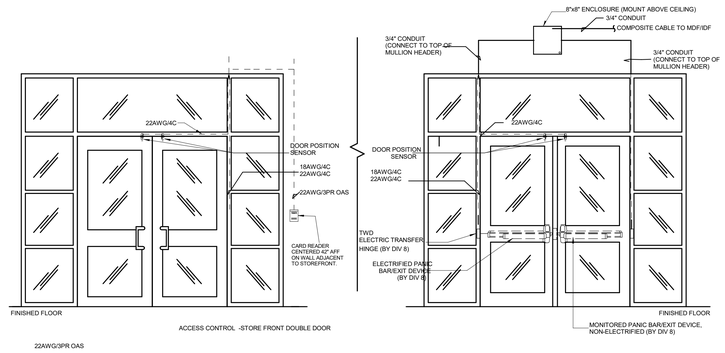
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TECHNOLOGY - SECURITY DETAILS

Project No. 214001246
Scale
Revision
Drawing No.

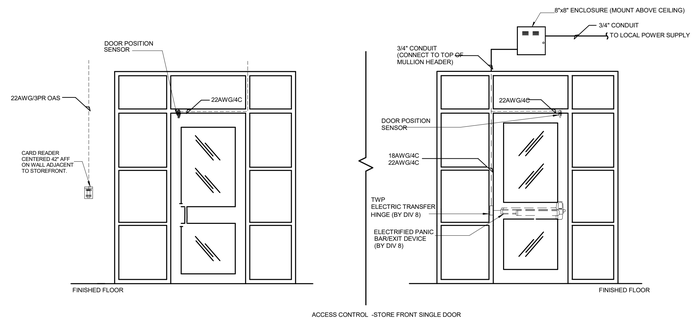
T600 - PES

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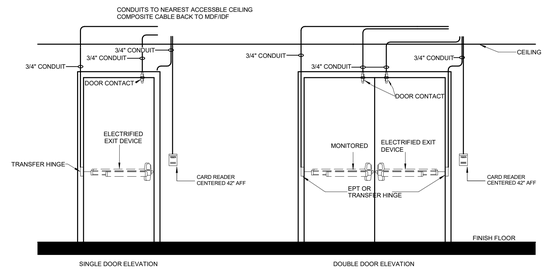
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1 ACCESS CONTROL - STORE FRONT DOUBLE DOOR
SCALE: NTS



2 ACCESS CONTROL - STORE FRONT SINGLE DOOR
SCALE: NTS



3 ACCESS CONTROL - STEEL/HOLLOW METAL DOOR.
SCALE: NTS

4 ACCESS CONTROL - PLAM / INTERIOR DOOR ELEVATION
SCALE: NTS

5 ACCESS CONTROL - WIRING DETAIL - EXIT DEVICE W/ BUILT-IN REX
SCALE: NTS

SHEET GENERAL NOTES:

1. CONDUIT ROUGH-IN IS A GUIDE FOR WHAT WILL BE REQUIRED FOR EACH DOOR. AS DOOR COMPONENTS CHANGE, EXACT CONDUIT LOCATION WILL ALSO NEED TO BE ADJUSTED.

2. CARD READERS SHOWN WITH AN ANNOTATION "M" NEXT TO THE CARD READER ARE TO BE MULLION MOUNTED AND NO CARD READER ROUGH-IN IS REQUIRED.

3. PROTECT EXISTING-TO-REMAIN ACCESS CONTROL DEVICES AND CABLE THROUGHOUT RENOVATION WORK. IF CABLE AND/OR DEVICES ARE DAMAGED, SECURITY CONTRACTOR TO REPLACE WITH NEW.

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Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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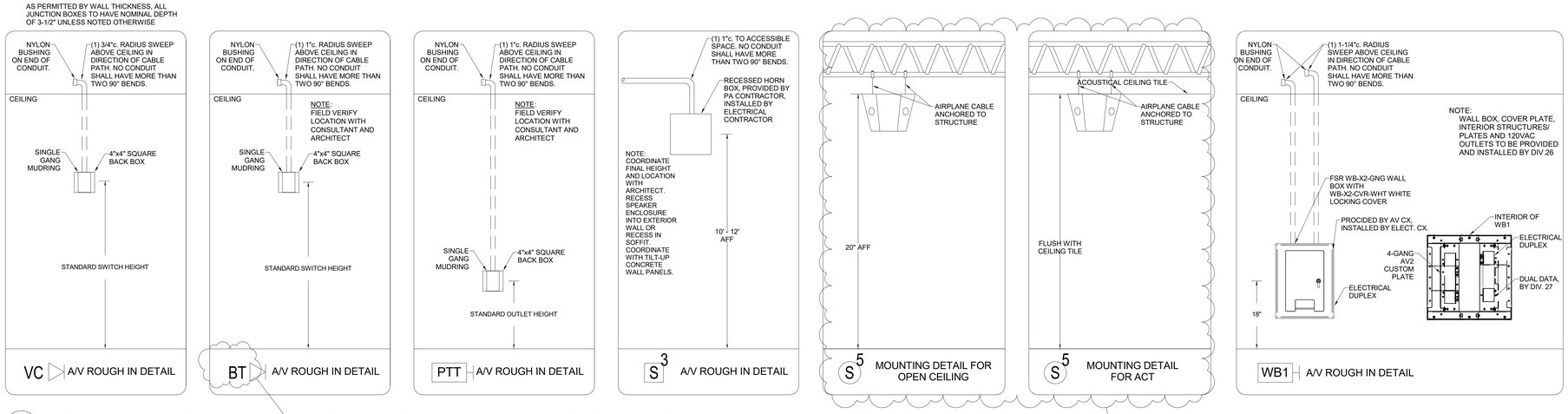
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Project No. 214001246
Scale
Revision
Drawing No.

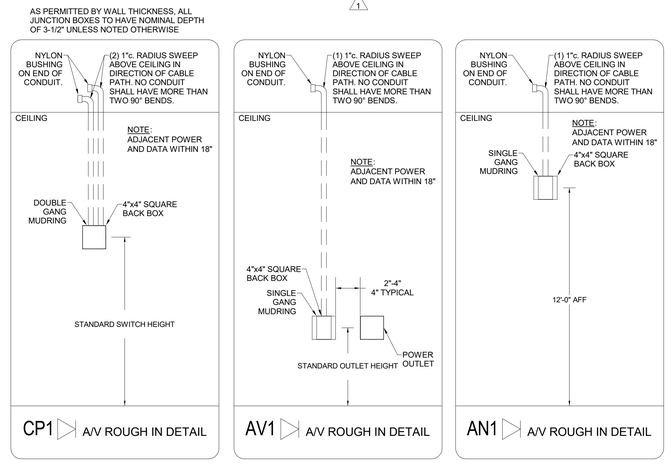
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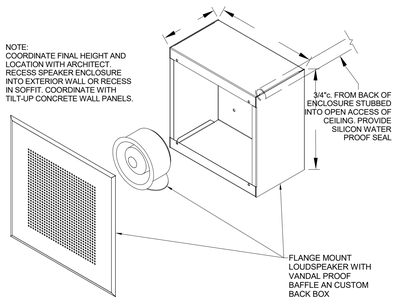
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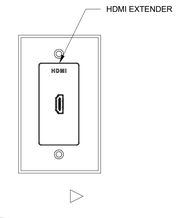
1 A/V ROUGH-IN DETAILS, PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE
SCALE: NTS



2 A/V ROUGH-IN DETAILS, PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR
SCALE: NTS



3 OUTSIDE LOUDSPEAKER DETAIL
SCALE: NTS



4 AV1 DETAIL
SCALE: NTS

CAMERA TYPE	MANUFACTURER	MODEL NUMBER	GENERAL DESCRIPTION		
C1	PANASONIC (i-PRO)	(WV-S22500-V3L)	5MP INTERIOR VANDAL DOME - CORR., COMMON, SPED		
C2	PANASONIC (i-PRO)	(WV-S25500-V3LN)	5MP EXTERIOR VANDAL DOME		
C3	PANASONIC (i-PRO)	(WV-S4156A)	5MP 360 (FISHEYE) - STAIRWELLS		
C4	PANASONIC (i-PRO)	(WV-S8544L)	4x2MP EXTERIOR MULTI - BUILDING PERIMETER		
C5	PANASONIC (i-PRO)	(WV-S8574L)	4x4K (33MP) EXTERIOR MULTI - PARKING LOTS, STADIUM		
NOTE: * DENOTES CAMERA MODEL FROM OWNER STANDARDS/TECHNOLOGY GUIDELINES. THESE MODELS HAVE BEEN DISCONTINUED BY THE MANUFACTURER. DIRECT REPLACEMENT MODELS ARE IN ( ) FOLLOWING THE OLDER MODEL CAMERA.					

5 CAMERA SCHEDULE
SCALE: NTS

	PRODUCT			CONNECTED TO		DIVISION	
Number	Manufacturer	Model	Description	Paging	Program/Local	Provided By	Comments
S1	Lowell	LT2-810-72-BB	2x2 Lay-in tile Speaker	X		27 51 00	Provide 2x2 Grille with speaker (If specified in hard ceiling, replace S1 with S2).
S2	Lowell	810-72	8in Ceiling Speaker	X		27 51 00	Provide Grille and Back Box in Hard Ceiling Areas (If specified in lay-in ceiling, replace S2 with S1).
S3	Lowell	VRG-LUH15TX	Vandal and Weather Resistant 15W Horn	X		27 51 00	Provide with Back Box (Lowell CB84-SGVPO)
S4	Lowell	DSL-805-72	8" Surface Mount Speakers	X		27 51 00	
S5	Octasound	SP840A	Omnidirectional hanging speaker	X	X	27 41 00	Provide RDL ST-VP2 ducking module for integration w/ PA

6 Speaker Schedule
SCALE: 12" = 1'-0"

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2 Addendum 2	BL By	I Appd	10/14/25 YYYY.MM.DD
Revision			
ADDENDUM 2	BRL By	RSL Appd	2025.10.14 YYYY.MM.DD
Issued			
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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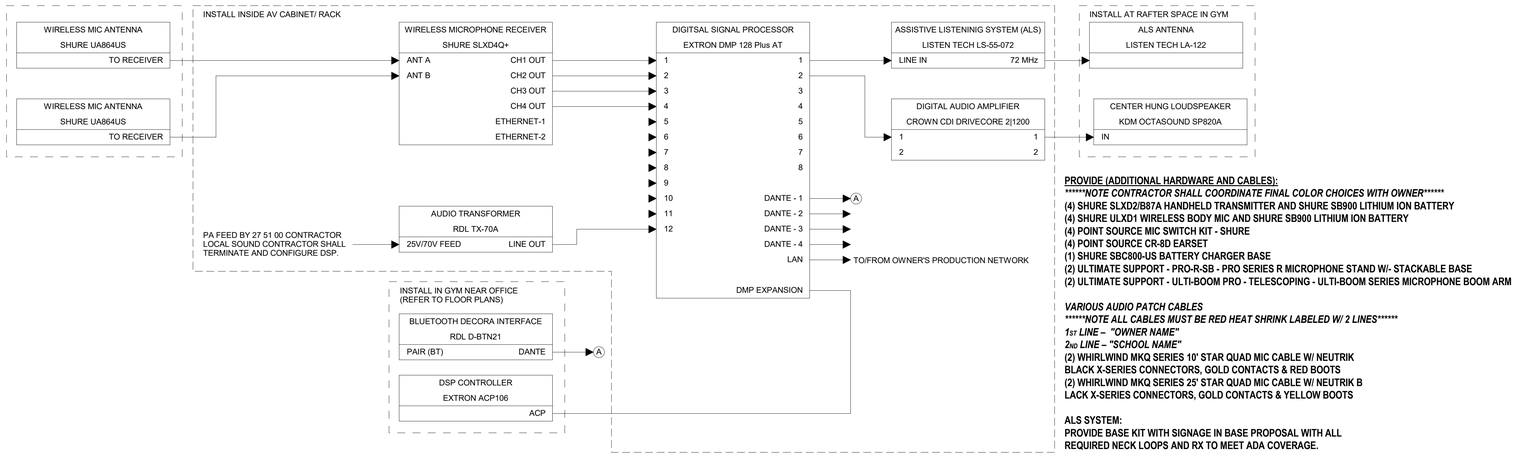
4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
TECHNOLOGY - AV DETAILS

Project No. 214001246
Scale 12" = 1'-0"
Revision 2
Drawing No. **T700 - PES**

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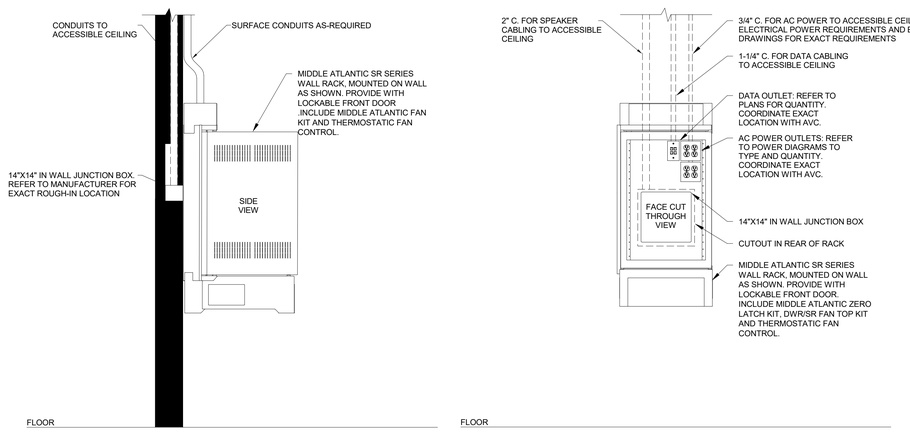


PROVIDE (ADDITIONAL HARDWARE AND CABLES):
*********NOTE CONTRACTOR SHALL COORDINATE FINAL COLOR CHOICES WITH OWNER*********
(4) SHURE SLXD2/B87A HANDHELD TRANSMITTER AND SHURE SB900 LITHIUM ION BATTERY
(4) SHURE ULXD1 WIRELESS BODY MIC AND SHURE SB900 LITHIUM ION BATTERY
(4) POINT SOURCE MIC SWITCH KIT - SHURE
(4) POINT SOURCE CR-8D EARSET
(1) SHURE SBC800-US BATTERY CHARGER BASE
(2) ULTIMATE SUPPORT - PRO-R-SB - PRO SERIES R MICROPHONE STAND W/- STACKABLE BASE
(2) ULTIMATE SUPPORT - ULTI-BOOM PRO - TELESCOPING - ULTI-BOOM SERIES MICROPHONE BOOM ARM

VARIOUS AUDIO PATCH CABLES
*********NOTE ALL CABLES MUST BE RED HEAT SHRINK LABELED W/ 2 LINES*********
1ST LINE – "OWNER NAME"
2ND LINE – "SCHOOL NAME"
(2) WHIRLWIND MKQ SERIES 10' STAR QUAD MIC CABLE W/ NEUTRIK
BLACK X-SERIES CONNECTORS, GOLD CONTACTS & RED BOOTS
(2) WHIRLWIND MKQ SERIES 25' STAR QUAD MIC CABLE W/ NEUTRIK B
LACK X-SERIES CONNECTORS, GOLD CONTACTS & YELLOW BOOTS

ALS SYSTEM:
PROVIDE BASE KIT WITH SIGNAGE IN BASE PROPOSAL WITH ALL REQUIRED NECK LOOPS AND RX TO MEET ADA COVERAGE.

1 ELEMENTARY GYM AV SYSTEM SCHEMATIC
SCALE: NTS

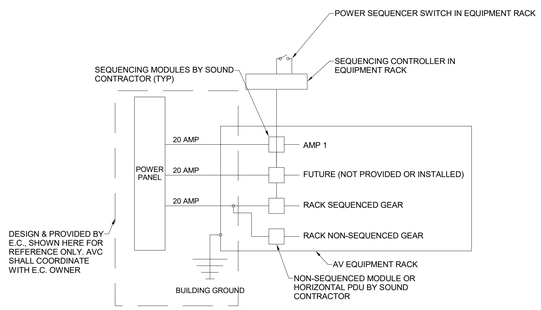


2 MIDDLE ATLANTIC SR SERIES SOUND RACK ROUGH-IN DETAIL
SCALE: NTS

RACK HEADER	
BLANK	ASSISTIVE LISTENING SYSTEM LISTEN TECH
BLANK MIDDLE ATLANTIC VTF1	
POWER SEQUENCER FURMAN CN-2400S W/ (2) CN-20MP	
BLANK MIDDLE ATLANTIC VTF1	
WIRELESS MIC RECEIVER SHURE SLXD4Q+	
BLANK MIDDLE ATLANTIC VTF1	
DIGITAL SIGNAL PROCESSOR (DSP) EXTRON DMP128 AT PLUS	
BLANK MIDDLE ATLANTIC VTF1	
AUDIO POWER AMPLIFIER CROWN CDI DRIVECORE 2|1200	
RACK STORAGE DRAWER MIDDLE ATLANTIC D2LK	

RACK SHALL BE MIDDLE ATLANTIC DWR SERIES WITH LOCKABLE FRONT DOOR. INCLUDE FAN KIT FK-22 AND THERMOSTATIC FAN CONTROL FC-4-1CA.

3 ES GYM AUDIO RACK ELEVATION
SCALE: NTS



4 ELECTRICAL POWER REQUIREMENTS FOR ES GYM AV RACK
SCALE: NTS

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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd.	2025.07.23 YYYY.MM.DD

Permit/Seal

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Client/Project Logo

2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

PALMER ELEMENTARY SCHOOL

4208 CROW VALLEY DR, MISSOURI CITY, TX 77459

Title
TECHNOLOGY - AV DETAILS

Project No.
214001246

Scale

Revision

Drawing No.
T701

<Pcs location in Project Information>
10/13/2025 1:54:21 PM
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REPLACE FULL LENGTH OF CASEWORK TYP.

REPLACE FULL LENGTH OF CASEWORK TYP.

REPLACE FULL LENGTH OF CASEWORK TYP.

FURNISHINS AND EQUIPMENT PLAN - CASEWORK

A1 / A711 - RES

3/32" = 1'-0"

*Pick location in Project Information
10/20/2025 10:37:39 PM

ORIGINAL SHEET - ARCH D1

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Notes

2	Addenda 2		2025.10.16
1	Addenda 1		10.03.2025
Revision		By	Appd	YYYY.MM.DD

100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD

File Name: N/A	Author	Designer	Checker	11/12/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

REGISTERED ARCHITECT · DANIELLE DUNN · 28298 · STATE OF TEXAS

Client/Project Logo

2023 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project

FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

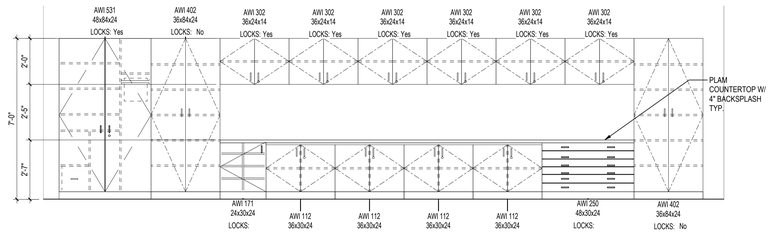
6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title

FURNISHINGS AND EQUIPMENT PLAN - CASEWORK

Project No.	Scale
214001246	3/32" = 1'-0"
Revision	Drawing No.
2	A711 - RES

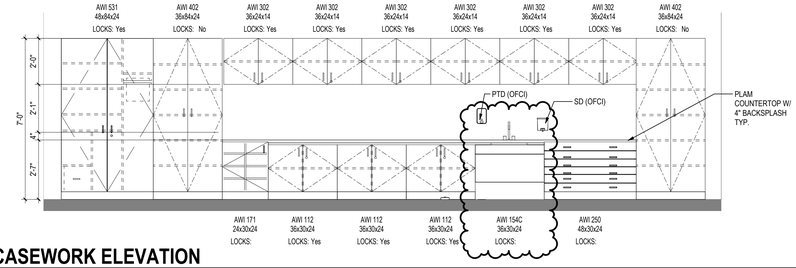
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C1 A712 — **CASEWORK ELEVATION - MUSIC**

3/8" = 1'-0"

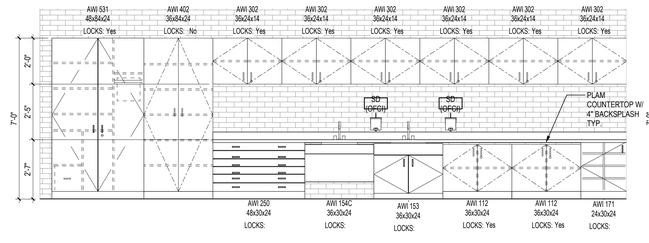
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1 A712 — **CASEWORK ELEVATION**

3/8" = 1'-0"

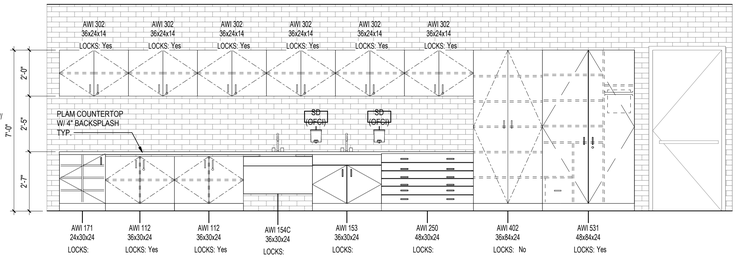
RES



B1 A712 — **CASEWORK ELEVATION - CLASSROOM 116**

3/8" = 1'-0"

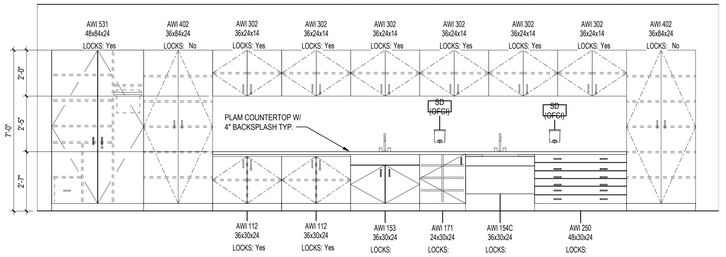
RES



B2 A712 — **CASEWORK ELEVATION - CLASSROOM 114**

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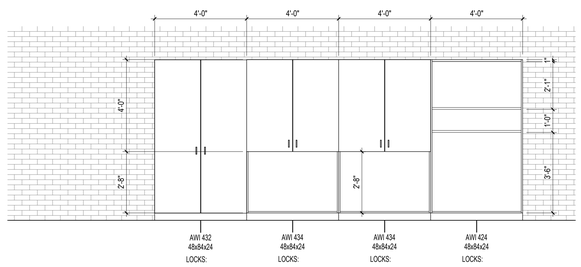
RES



B3 A712 — **CASEWORK ELEVATION - ART**

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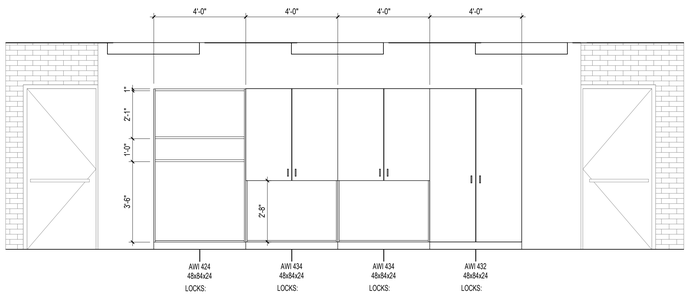
RES



A1 A712 — **CASEWORK ELEVATION - CLASSROOM 600**

3/8" = 1'-0"

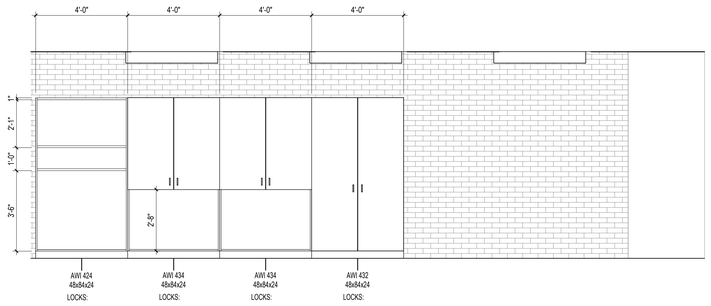
RES



A2 A712 — **CASEWORK ELEVATION - CLASSROOM 601**

3/8" = 1'-0"

RES



A3 A712 — **CASEWORK ELEVATION - CLASSROOM 602**

3/8" = 1'-0"

RES

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Notes

2 Addenda 2			2025.10.16
1 Addenda 1			10.03.2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker
	Dwn.	Dsgn.	Chkd.
			11/12/24
			YYYY.MM.DD

Permit/Seal

REGISTERED ARCHITECT
DANIELLE DUNN
82978
STATE OF TEXAS

Client/Project Logo

2025 BOND
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS

6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
CASEWORK ELEVATIONS

Project No.	Scale
214001246	3/8" = 1'-0"
Revision	Drawing No.
2	A712 - RES

*Plot location in Project Information
10/01/2025 10:01:42 PM

ORIGINAL SHEET - ARCH E1

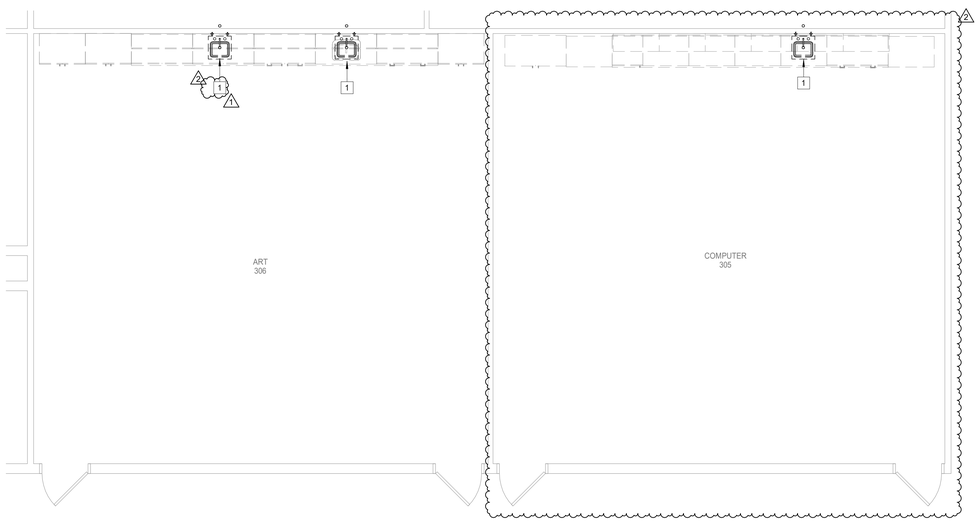
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PLUMBING GENERAL NOTES

1. CONTRACT DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. CONTRACTOR TO VERIFY AT SITE EXACT LOCATIONS, AND SIZES OF EXISTING PIPING. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF THERE ARE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND DRAWINGS PRIOR TO COMMENCEMENT OF WORK.
2. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE CONTRACTORS BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.
3. PLUMBING FIXTURES/EQUIPMENT SHOWN ON PLAN THAT ARE NOT IDENTIFIED AND DO NOT HAVE A FIXTURE DESIGNATION ARE EXISTING AND ARE TO REMAIN.
4. ANY OTHER ITEMS NOT REFERENCED WHICH ARE LOCATED IN THE DEMOLISHED SPACE (VENT, WASTE, WATER HEATER, PLUMBING FIXTURE, ETC.) THAT ARE IDENTIFIED OR DISCOVERED DURING DEMOLITION WHICH WILL NOT BE USED FOR THIS PROJECT, SHALL BE DEMOLISHED BACK TO THE MAIN SOURCE OR RISER, AND DEVICES SHALL BE RETAINED TO THE OWNER STORAGE AS DIRECTED BY THE ARCHITECT/OWNER.
5. OWNER OR ITS REPRESENTATIVE SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL PLUMBING FIXTURES/ EQUIPMENT BEING REMOVED FROM THIS PROJECT. THIS INCLUDES BUT NOT LIMITED TO PUMPS, HEATERS, AND STAINLESS STEEL SINKS. CONTRACTOR TO NOTIFY DISTRICT PRIOR TO DEMOLITION WORK TO DISCUSS ALL RETURNED ITEMS TO DISTRICT.

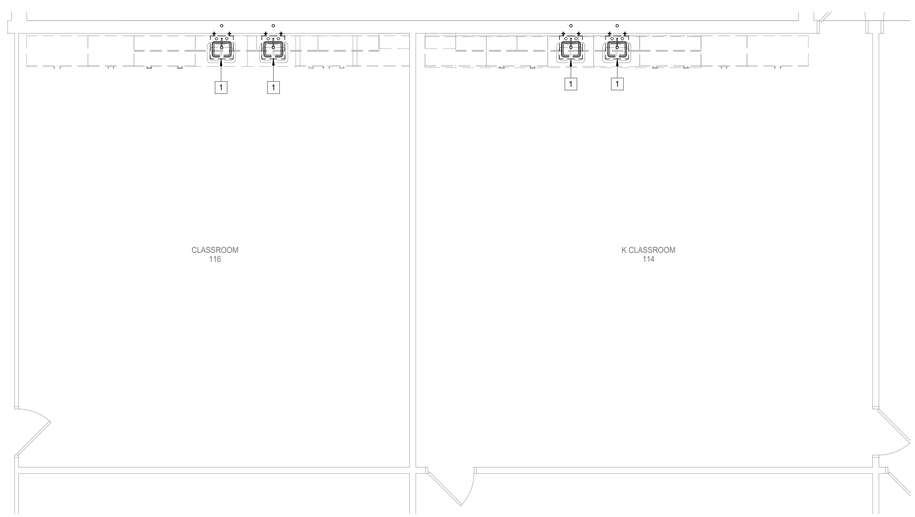
PLUMBING KEYED NOTES

1 EXISTING SINK TO BE REMOVED AND REPLACED WITH A NEW. MAINTAIN EXISTING UTILITIES/ROUGH-IN TO SERVE NEW FIXTURE(S). FIELD VERIFY THE EXACT LOCATION, SIZE, AND CONDITION OF EXISTING PIPING. REPAIR EXISTING PIPING IF NEEDED AND PREPARE FOR NEW CONNECTION.



N

2 **PLUMBING ENLARGED DEMOLITION PLAN - LEVEL 1 - ART 306 & COMPUTER 305**
Scale: 1/4" = 1'-0"



N

1 **PLUMBING ENLARGED DEMOLITION PLAN - LEVEL 1 - K CLASSROOM**
Scale: 1/4" = 1'-0"

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Houston, TX 77064
Registration: F-4111
Project No: 2023-04376-00

Notes

Revision	By	Appd	
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025
			YYYY.MM.DD

Issued	By	Appd	
100% ISSUE FOR BID AND PERMIT			2025.09.24
			YYYY.MM.DD

File Name: N/A	Dwn.	Dsgn.	Ckkd.	
	AA	AA	EH	11/27/24
				YYYY.MM.DD

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10-20-2025

Client/Project Logo

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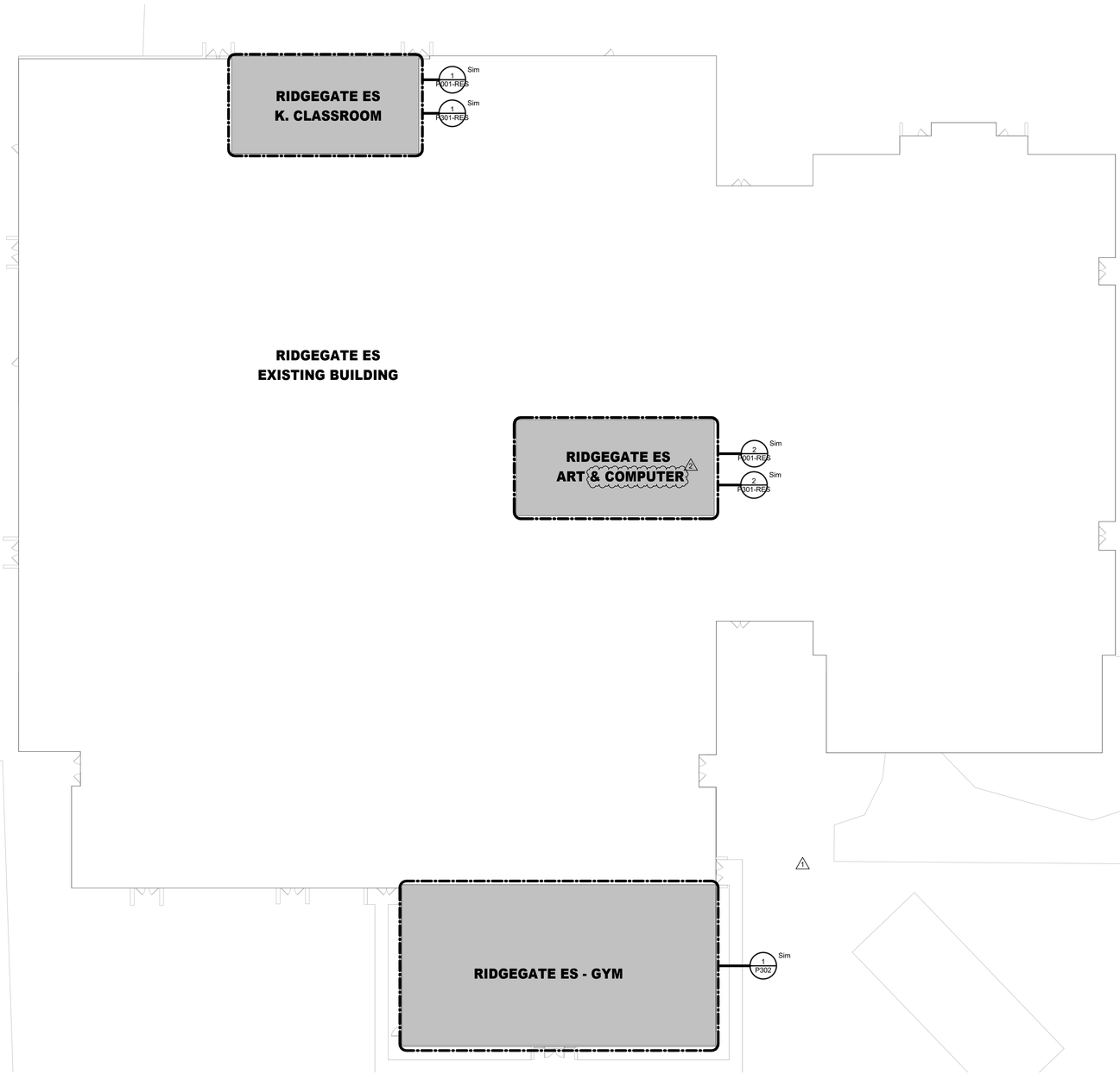
FBISD BP022 GYM RENOVATIONS AND ADDITIONS
6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
PLUMBING ENLARGED DEMOLITION FLOOR PLANS

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
2	P001-RES

*Plot location in Project Information
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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 **PLUMBING COMPOSITE PLAN**
Scale: 1/16" = 1'-0"

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Houston, TX 77064

Registration: F-4111
Project No: 2023-04376-00

Notes

No.	Revision	By	Appd	YYYY.MM.DD
2	Addendum 02			10/20/2025
1	Addendum 01			10/10/2025

Issued	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	AA	AA	EH
	Dwn.	Dsgn.	Chkd.
			11/27/24 YYYY.MM.DD

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10-20-2025

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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
PLUMBING COMPOSITE PLAN

Project No.	Scale
214001246	1/16" = 1'-0"
Revision	Drawing No.
2	P100-RES

•PCS location in Project Information•
10/17/2025 1:37:53 AM

ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

FIRE SPRINKLER SYSTEM NOTES

A. EXISTING FIRE SPRINKLER SYSTEM TO BE MAINTAINED IN FULL OPERATING ORDER FOR ENTIRE BUILDING AT ALL TIMES. LICENSED SPRINKLER ENGINEER OR LICENSED SPRINKLER CONTRACTOR, TO PROVIDE DRAWINGS AND HYDRAULIC CALCULATIONS FOR CHANGES TO EXISTING SYSTEM AND TO COMPLY WITH NEW SPACE LAYOUT. NFPA 13, ALL STATE AND LOCAL REQUIRMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

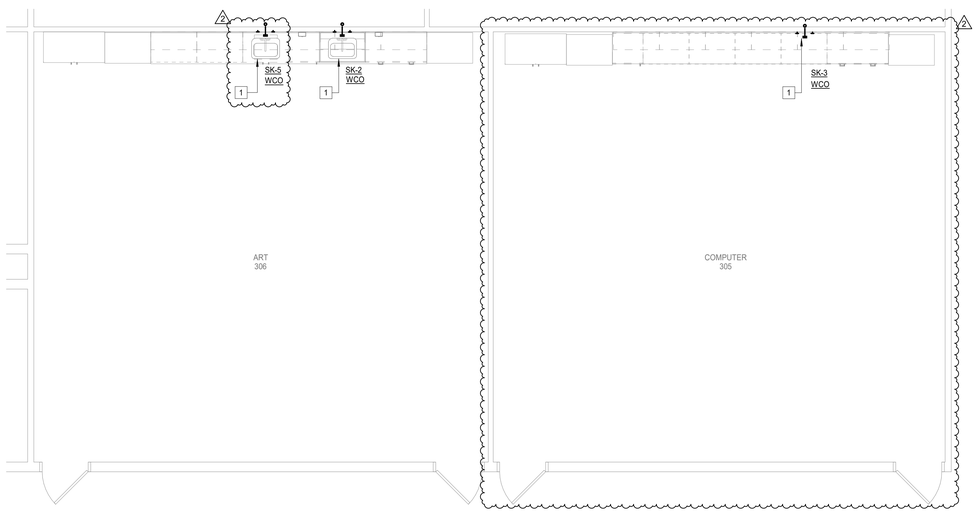
B. REFER TO SPECIFICATIONS FOR PIPE MATERIALS.

PLUMBING GENERAL NOTES

1. CONTRACT DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION, AND WHEN AVAILABLE, EXISTING RECORD DOCUMENTS. CONTRACTOR TO VERIFY AT SITE EXACT LOCATIONS, AND SIZES OF EXISTING PIPING. REPORT DISCREPANCIES TO ARCHITECT BEFORE DISTURBING EXISTING INSTALLATION, AND IMMEDIATELY AFTER SUCH DISCREPANCIES ARE DISCOVERED. CONTRACTOR TO VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF THERE ARE ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND DRAWINGS PRIOR TO COMMENCEMENT OF WORK.
2. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE CONTRACTORS BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.
3. PLUMBING FIXTURES/EQUIPMENT SHOWN ON PLAN THAT ARE NOT IDENTIFIED AND DO NOT HAVE A FIXTURE DESIGNATION ARE EXISTING AND ARE TO REMAIN.
4. REFER TO ARCHITECTS DRAWING FOR EXACT LOCATION OF FLOOR DRAINS.
5. DO NOT SCALE THE PLUMBING DRAWINGS, REFER TO THE DIMENSIONED ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONAL DATA.
6. REFER TO PLUMBING DETAILS AND SCHEDULES SHEET(S).

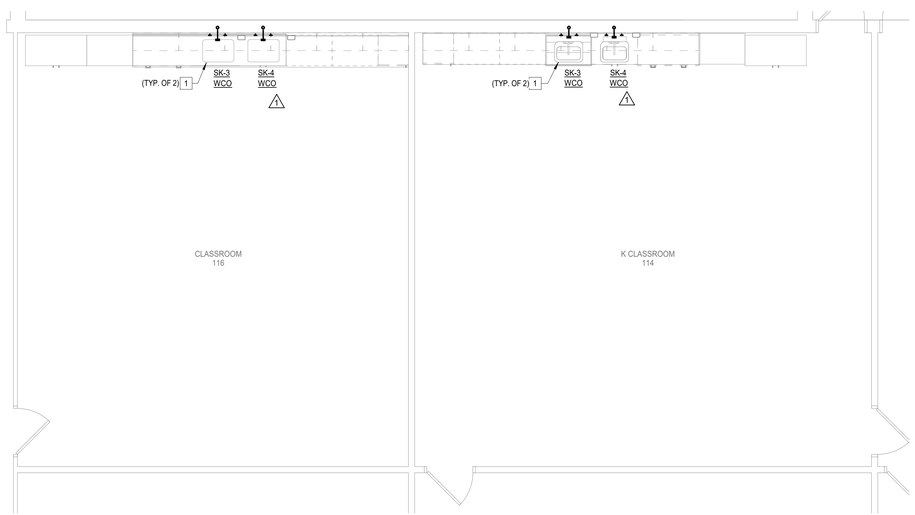
PLUMBING KEYED NOTES

1 PROVIDE NEW PLUMBING FIXURE(S) AS INDICATED. CONNECT TO EXISTING UTILITIES. CW, HW (IF APPLICABLE), SANITARY AND VENT.



N

2 **PLUMBING ENLARGED PLAN - LEVEL 1 - ART 306 & COMPUTER 305**
Scale: 1/4" = 1'-0"



N

1 **PLUMBING ENLARGED PLAN - LEVEL 1 - K CLASSROOM**
Scale: 1/4" = 1'-0"

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Houston, TX 77064

Registration: F-4111
Project No: 2023-04376-00

Notes

Revision	By	Appd	
2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025

Issued	By	Appd	
100% ISSUE FOR BID AND PERMIT			2025.09.24

File Name: N/A	Dwn.	Dsgn.	Chkd.	
	AA	AA	BH	11/27/24

Permit/Seal



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Client/Project
FORT BEND ISD

FBISD BP022 GYM RENOVATIONS AND ADDITIONS
6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
PLUMBING ENLARGED FLOOR PLANS

Project No.	Scale
214001246	As indicated
Revision	Drawing No.
2	P301-RES

*Plot location in Project Information
10/17/2025 11:37:56 AM
ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

PLUMBING GENERAL NOTES

1. WITHIN THE EXISTING BUILDING, EXISTING WATER, WASTE AND VENT SERVICES ARE TO BE MODIFIED AS REQUIRED AND REUSED FOR THE INSTALLATION OF NEW AND/OR RELOCATED PLUMBING FIXTURES. REFER TO PLUMBING FLOOR PLANS FOR POINTS OF CONNECTION.
2. WITHIN THE EXISTING BUILDING, SAWCUT AND REMOVE EXISTING FLOOR SLAB AS REQUIRED TO PROVIDE NEW AND/OR RELOCATED PLUMBING FIXTURES, CLEANOUTS, AND UNDERSLAB WASTE AND VENT PIPING. PATCH AND REFINISH FLOOR TO MATCH EXISTING.
3. IN AREAS WHERE THE FLOOR SLAB IS REMOVED, CONTRACTOR SHALL ALSO REMOVE UNDERSLAB WASTE AND VENT PIPING WHICH SERVES FIXTURES DESIGNATED FOR REMOVAL. PRIOR TO ANY REMOVAL, FIELD VERIFY THAT LINES TO BE REMOVED DO NOT SERVE ANY EXISTING FIXTURES TO REMAIN OR NEW FIXTURES TO BE INSTALLED.
4. IN AREAS WHERE THE FLOOR SLAB IS NOT REMOVED, CONTRACTOR SHALL ABANDON IN PLACE ANY UNDERSLAB WASTE AND VENT PIPING NO LONGER NEEDED, UNLESS THE PIPING MUST BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION. IF NEW WORK DOES NOT NECESSITATE THEIR REMOVAL, CUT AND PLUG SUCH LINES BELOW SLAB, AND PATCH FLOOR TO MATCH EXISTING.
5. FIELD VERIFY EXACT LOCATION, SIZE, DEPTH, DIRECTION OF FLOW, CAPACITY, PIPE MATERIAL AND CONDITION OF EXISTING WASTE PIPING PRIOR TO BEGINNING CONSTRUCTION. ENSURE THAT PROPER CONNECTIONS TO AND EXTENSION OF SUCH UTILITIES CAN BE MADE.
6. WASTE LINES TO BE RE-USED OR RECONNECTED TO SHALL BE THOROUGHLY RODDED OUT AND FLUSHED TO ENSURE THEY ARE FREE FROM BLOCKAGES.
7. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING BELOW SLAB WITH COLUMN FOOTINGS, GRADE BEAMS, UNDERGROUND PLUMBING AND ELECTRICAL UTILITIES, AND OTHER SUB-SURFACE BUILDING ELEMENTS.
8. CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH 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.
9. CONTRACTOR TO COORDINATE ALL REMODEL WORK WITH THE WORK OF OTHER TRADES TO AVOID CONFLICTS AND TO MINIMIZE INTERRUPTION OF SERVICES.
10. COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY ROUGH-INS.
11. DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS.
12. CONTRACTOR TO FIELD VERIFY AS NECESSARY THE EXACT ROUTING AND SIZES OF ALL PIPING.
13. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE, INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION.
14. THE PROPER INSTALLATION OF NEW FIXTURES AND THE PROPER CONTINUED OPERATION OF EXISTING FIXTURES TO REMAIN SHALL DETERMINE THE EXTENT AND NATURE OF PLUMBING REMODEL WORK.
15. EACH VENT SHALL TERMINATE VERTICALLY NOT LESS THAN 6" ABOVE ROOF, MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF AND ALL FRESH AIR INTAKES, AND A MINIMUM 5'-0" FROM ANY EXTERIOR WALL.
16. PRIOR TO BEGINNING CONSTRUCTION, COORDINATE BUILDING BACKFLOW PREVENTION REQUIREMENTS WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PROVIDE AS DIRECTED.

SHOCK ARRESTOR SCHEDULE

P.D.I. SYMBOLS:	FIXTURE UNITS:	THREADED CONNECTION	CERTIFICATION
A	1 - 11	1/2"	ASSE 1010
B	12 - 32	3/4"	ASSE 1010
C	33 - 60	1"	ASSE 1010
D	61 - 113	1"	ASSE 1010
E	114 - 154	1"	ASSE 1010
F	155 - 330	1"	ASSE 1010

PLUMBING FIXTURE SCHEDULE

TYPE: SK-2 (T.A.S. COMPLIANT)
SERVES: ART 306
DESCRIPTION: SINK, COUNTER MOUNTED, SELF-RIMMING, 18 GAUGE TYPE 304 STAINLESS STEEL, 22" X 19-1/2" X 4" DEEP, SINGLE COMPARTMENT WITH FAUCET DECK. THREE FAUCET HOLES ON 4" CENTERS. ELKAY #LRAD221940.
FAUCET: CHROME PLATED CONCEALED DECK-MOUNT FAUCET, 8" ON CENTERS, 8" RIGID/SWING GOOSENECK SPOUT AND 4" WRIST BLADE HANDLES ON 8" CENTERS. QUARTER TURN CERAMIC DISC OPERATING CARTRIDGES, 1.5 GPM LAMINAR FLOW, VANDAL PROOF. CHICAGO MODEL #786-GN8AE36XKABCP.
MIXING VALVE: ASSE 1070 CERTIFIED POINT OF USE MIXING VALVE, LEAD FREE BRONZE BODY, INTEGRAL CHECK VALVES, COMPRESSION FITTINGS, COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH POLYMER THERMOPLASTIC SHUTTLE. LEONARD 170-LF-BRKT. (105 F)
STRAINER: CHROME PLATED WROUGHT BRASS 4-1/2" WIDE GRID SINK STRAINER, 1-1/2" 17 GAUGE CHROME PLATED BRASS TAILPIECE. MCGUIRE #152.
INTERCEPTOR: A.R.C. CAST ALUMINUM TOP ACCESS SOLIDS INTERCEPTOR, GASKETED COVER, REMOVABLE SEDIMENT BUCKET. 15 GPM FLOW RATE. WADE 5720.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: SK-3 (T.A.S. COMPLIANT) (2)
SERVES: K CLASSROOM 114, CLASSROOM 116, COMPUTER 305
DESCRIPTION: SINK, COUNTER MOUNTED, SELF-RIMMING, 18 GAUGE TYPE 304 STAINLESS STEEL, 22" X 19-1/2" X 4" DEEP, SINGLE COMPARTMENT WITH FAUCET DECK. THREE FAUCET HOLES ON 4" CENTERS. ELKAY #LRAD221940.
FAUCET: CHROME PLATED CONCEALED DECK-MOUNT FAUCET, 8" ON CENTERS, 8" RIGID/SWING GOOSENECK SPOUT AND 4" WRIST BLADE HANDLES ON 8" CENTERS. QUARTER TURN CERAMIC DISC OPERATING CARTRIDGES, 1.5 GPM LAMINAR FLOW, VANDAL PROOF. CHICAGO MODEL #786-GN8AE36XKABCP.
MIXING VALVE: ASSE 1070 CERTIFIED POINT OF USE MIXING VALVE, LEAD FREE BRONZE BODY, INTEGRAL CHECK VALVES, COMPRESSION FITTINGS, COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH POLYMER THERMOPLASTIC SHUTTLE. LEONARD 170-LF-BRKT. (105 F)
STRAINER: CHROME PLATED WROUGHT BRASS 4-1/2" WIDE GRID SINK STRAINER, 1-1/2" 17 GAUGE CHROME PLATED BRASS TAILPIECE. MCGUIRE #152.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: SK-4 (NON T.A.S. COMPLIANT) (1)
SERVES: K CLASSROOM 114, CLASSROOM 116
DESCRIPTION: SINK, COUNTER MOUNTED, SELF-RIMMING, 18 GAUGE TYPE 304 STAINLESS STEEL, 22" X 19-1/2" X 7-5/8" DEEP, SINGLE COMPARTMENT WITH FAUCET DECK. THREE FAUCET HOLES ON 4" CENTERS. ELKAY #LRAD2219PD.
FAUCET: CHROME PLATED CONCEALED DECK-MOUNT FAUCET, 8" ON CENTERS, 8" RIGID/SWING GOOSENECK SPOUT AND 4" WRIST BLADE HANDLES ON 8" CENTERS. QUARTER TURN CERAMIC DISC OPERATING CARTRIDGES, 1.5 GPM LAMINAR FLOW, VANDAL PROOF. CHICAGO MODEL #786-GN8AE36XKABCP.
MIXING VALVE: ASSE 1070 CERTIFIED POINT OF USE MIXING VALVE, LEAD FREE BRONZE BODY, INTEGRAL CHECK VALVES, COMPRESSION FITTINGS, COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH POLYMER THERMOPLASTIC SHUTTLE. LEONARD 170-LF-BRKT. (105 F)
STRAINER: CHROME PLATED WROUGHT BRASS 4-1/2" WIDE GRID SINK STRAINER, 1-1/2" 17 GAUGE CHROME PLATED BRASS TAILPIECE. MCGUIRE #152.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: WCO
DESCRIPTION: WALL CLEANOUT. CAST IRON CLEANOUT FERRULE WITH COUNTERSUNK BRONZE PLUG AND ROUND STAINLESS COVER PLATE WITH CENTER SECURING SCREW. WADE #8550-75 WITH #8304-VP. PROVIDE WADE #8560 CAST IRON CLEANOUT TEE IN LIEU OF FERRULE AS REQUIRED FOR WALL CONSTRUCTION.

TYPE: SK-5 (NON T.A.S. COMPLIANT) (2)
SERVES: ART 306
DESCRIPTION: SINK, COUNTER MOUNTED, SELF-RIMMING, 18 GAUGE TYPE 304 STAINLESS STEEL, 22" X 19-1/2" X 7-5/8" DEEP, SINGLE COMPARTMENT WITH FAUCET DECK. THREE FAUCET HOLES ON 4" CENTERS. ELKAY #LRAD2219PD.
FAUCET: CHROME PLATED CONCEALED DECK-MOUNT FAUCET, 8" ON CENTERS, 8" RIGID/SWING GOOSENECK SPOUT AND 4" WRIST BLADE HANDLES ON 8" CENTERS. QUARTER TURN CERAMIC DISC OPERATING CARTRIDGES, 1.5 GPM LAMINAR FLOW, VANDAL PROOF. CHICAGO MODEL #786-GN8AE36XKABCP.
MIXING VALVE: ASSE 1070 CERTIFIED POINT OF USE MIXING VALVE, LEAD FREE BRONZE BODY, INTEGRAL CHECK VALVES, COMPRESSION FITTINGS, COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH POLYMER THERMOPLASTIC SHUTTLE. LEONARD 170-LF-BRKT. (105 F)
STRAINER: CHROME PLATED WROUGHT BRASS 4-1/2" WIDE GRID SINK STRAINER, 1-1/2" 17 GAUGE CHROME PLATED BRASS TAILPIECE. MCGUIRE #152.
INTERCEPTOR: A.R.C. CAST ALUMINUM TOP ACCESS SOLIDS INTERCEPTOR, GASKETED COVER, REMOVABLE SEDIMENT BUCKET. 15 GPM FLOW RATE. WADE 5720.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

GENERAL NOTES

ALL LAVATORIES AND SINKS SHALL BE SUPPLIED WITH HOT AND COLD WATER (UNLESS NOTED TO BE COLD WATER ONLY) TO FAUCETS AS INDICATED ON PLANS AND FIXTURE SCHEDULE. PROVIDE CHROME PLATED BRASS SUPPLY STOPS WITH LOOSE KEYS AND WALL ESCUTCHEONS. PROVIDE CHROME PLATED FLEXIBLE RISERS OF SIZE REQUIRED TO PROPERLY CONNECT FIXTURES. PROVIDE 17 GAUGE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON (UNLESS NOTED TO BE AN ACID WASTE FIXTURE). REFER TO FIXTURE SCHEDULE FOR MINIMUM SIZES OF PLUMBING FIXTURE ROUGH-INS.

INSULATION KITS AT ALL LAVATORIES AND SINKS REQUIRED TO BE T.A.S. ACCESSIBLE (MCGUIRE OR TRUEBRO). ALL SUCH FIXTURES AND FINAL INSTALLATIONS SHALL COMPLY WITH THE STATE ACCESSIBILITY STANDARDS REQUIREMENTS.

INSERT TRAP GUARDS AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS-TIGHT SEAL. FOR DRAIN RODDING AFTER INSTALLATION. INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

PLUMBING PIPING LEGEND

SYMBOLS	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
GW	GREASE WASTE PIPING (GW)
GW	GREASE WASTE PIPING BELOW GRADE (GW)
SD	STORM DRAIN PIPING (SD)
SD	STORM DRAIN PIPING BELOW GRADE (GW)
SSD	SUB-SOIL DRAIN OR FOOTING DRAIN (SSD)
AW	ACID WASTE PIPING (AW)
AW	ACID WASTE PIPING BELOW GRADE (AW)
PD	PUMPED DISCHARGE (PD)
CD	CONDENSTATE DRAIN PIPING (CD)
D	CONDENSTATE - INDIRECT DRAIN PIPING (D)
	VENT PIPING (V)
CW	COLD WATER PIPING (CW)
HW	HOT WATER PIPING (HW)
HWR	HOT WATER RETURN PIPING (HWR)
SCW	SOFT COLD WATER PIPING (SCW)
CDW	CHILLED DRINKING WATER PIPING (CDW)
TP	TRAP PRIMER LINE (TP)
F	FIRE PROTECTION PIPING (F)
AS	AUTOMATIC SPRINKLER PIPING (AS)
GAS	NATURAL GAS PIPING (G)
GV	GAS VENT PIPING (GV)
AIR	COMPRESSED AIR PIPING (A)
	FLOW DIRECTIONAL ARROW
	SHUT-OFF VALVE
	BALANCING VALVE (BV)
	SOLENOID VALVE (SV)
	BALL VALVE (BV)
	BUTTERFLY VALVE
	LUBRICATED PACKED PLUG STOP STOP COCK (PC)
	HORIZONTAL SWING CHECK
	UNION
	HORIZONTAL SWING CHECK
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	REDUCED PRESSURE BACKFLOW PREVENTER (RPBFP)
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CAP ON END OF PIPE
	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)
	FIRE DEPARTMENT VALVE AT RISER
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
P	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
	VALVE IN RISE
	ASME TEMPERATURE & PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	ANGLE VALVE
	OS&Y VALVE
	ROOF DRAIN
1	REFER TO KEYED NOTE
FS	FLOW SWITCH
	FLOOR SINK (FS)
	FLOOR DRAIN (FD)
	FLOOR DRAIN WITH P-TRAP (FD)
	FLOOR DRAIN WITH P-TRAP AT 45° ANGLE (FD)
	HUB DRAIN (HD)
	ACCESS PANEL FOR TRAP PRIMER OR SHOCK ABSORBER
AP	ACCESS PANEL LOCATION SYMBOL
A	SHOCK ABSORBER
	AIR CHAMBER
(E)	EXISTING
(N)	NEW
VTR	VENT THRU ROOF
B.F.F.	BELOW FINISHED FLOOR
A.F.F.	ABOVE FINISHED FLOOR
	NEW CONNECTION
IE=100.00"	INVERT ELEVATION
1	DELTA CHANGE SYMBOL
P 1 4" VTR	RISER FLAG

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Notes

2 Addendum 02			10/20/2025
1 Addendum 01			10/10/2025
Revision	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	AA Dwn.	AA Dsgn.	EH Chkd. 11/27/24 YYYY.MM.DD

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10-20-2025

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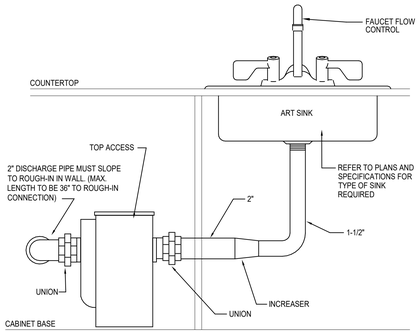
FBISD BP022 GYM RENOVATIONS AND ADDITIONS
6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
PLUMBING SCHEDULES

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Revision	Drawing No.
2	P401-RES

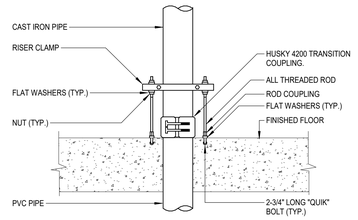
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8 ART SINK SOLIDS
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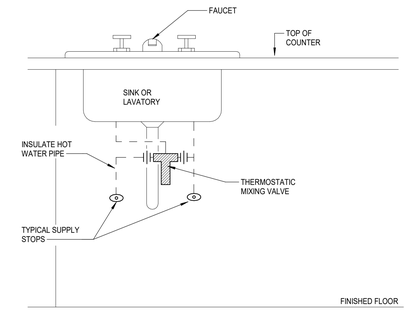
PSAN12- 05/16/24



NOTE:
1. MAKE CONNECTION FROM PVC BELOW SLAB TO CAST IRON ABOVE SLAB WITH HUSKY 4200 TRANSITION COUPLING.
2. THERE IS TO BE NO EXPOSED PVC ABOVE SLAB.

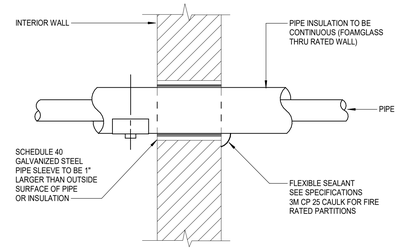
4 CAST IRON TO PVC TRANSITION
SCALE: NONE

PHW04 - 08/10/20



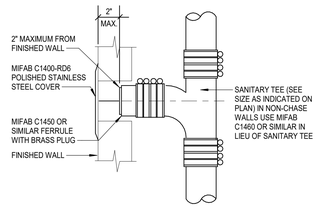
7 THERMOSTATIC MIXING VALVE AT SINK/LAVATORY DUAL TEMPERATURE
SCALE: NONE

PSL01- XX/XX/XX



3 INTERIOR WALL PENETRATION
SCALE: NONE

PSAN03- XX/XX/XX



6 WALL CLEANOUT
SCALE: NONE

2

2

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Notes

2 Addendum 02			10/20/2025
Revision	By	Appd	YYYY.MM.DD
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Issued	By	Appd	YYYY.MM.DD
File Name: N/A	AA Dwn.	AA Dsgn.	EH 11/27/24 Chkd. YYYY.MM.DD

Permit/Seal



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FBISD BP022 GYM RENOVATIONS AND ADDITIONS

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Title
PLUMBING DETAILS

Project No.	Scale
214001246	12" = 1'-0"
Revision	Drawing No.
2	P501-RES

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1 FIRE ALARM COMPOSITE PLAN
Scale: 1/16" = 1'-0"

FIRE ALARM

BASE BID: PROJECT SCOPE FOR RENOVATED AREA: CONTRACTOR WILL REMOVE, STORE AND RE-INSTALL ALL EXISTING DEVICES.

ALTERNATE 6B - CONTRACTOR TO REPLACE THE FIRE ALARM SYSTEM IN ITS ENTIRETY WITH NEW VOICE EVACUATION FIRE ALARM SYSTEM. CONTRACTOR TO DEMO ALL EXISTING DEVICES AND WIRING UPON ACCEPTANCE OF NEW SYSTEM BY THE AHJ AND OWNER.

LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL
FAA	FIRE ALARM ANNUNCIATOR PANEL

NOTES:

1. FIRE ALARM SYSTEM IS PERFORMANCE BASED PER SPECIFICATIONS. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. A LICENSED FIRE ALARM PLANNING SUPERINTENDENT CERTIFIED TO A MINIMUM LEVEL 3, IN THE SUBFIELD OF FIRE ALARM SYSTEMS THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET), SHALL PROVIDE PLANS AND CALCULATIONS FOR A MANUAL AND AUTOMATIC FIRE DETECTION AND ALARM SYSTEM TO COMPLY WITH THE BUILDING SPACE LAYOUT, BUILDING OCCUPANCY, CURRENT NFPA 72, LOCAL AND STATE CODE REQUIREMENTS, AND THE FIRE ALARM AND DETECTION SYSTEM SPECIFICATIONS.

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Notes

2	Addendum 02			10/20/2025
Revision		By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT				2025.09.24
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File Name: N/A		Author	Designer	Checker
		Dwn.	Dsgn.	Chkd.
				11/27/24 YYYY.MM.DD

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PROFESSIONAL ENGINEER
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Title
FIRE ALARM COMPOSITE PLAN

Project No.	Scale
214001246	1/16" = 1'-0"

Revision 2

Drawing No. FA100-RES

ORIGINAL SHEET - ARCH E1
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AUDIO/VISUAL MULTIMEDIA LEGEND

SYMBOL	DESCRIPTION
A## V##	WALL AV ROUGH-IN DETAIL
A## V##	CEILING AV ROUGH-IN DETAIL
A## V##	FLOOR AV ROUGH-IN DETAIL
IWB	INTERACTIVE WHITE BOARD - WALL - CEILING
PJ PJ	MULTIMEDIA PROJECTOR
FP# FP#	MULTIMEDIA FLAT PANEL DISPLAY
S S	LOUDSPEAKER, WALL MOUNTED AND CEILING MOUNTED RESPECTIVELY - # INDICATES TYPE
CP#	CONTROL PANEL
TP#	TOUCH PANEL
M	MICROPHONE, CEILING MOUNTED - # INDICATES TYPE
VC	VOLUME CONTROL
WB	WALL BOX ENCLOSURE
D1 A1	D1 = DIGITAL SINGLE SIDED CLOCK / A1 = ANALOG SINGLE SIDED CLOCK
D2 A2	D2 = DIGITAL DOUBLE SIDED CLOCK / A2 = ANALOG DOUBLE SIDED CLOCK
ENC	CEILING AV ENCLOSURE
C C	PRESENTATION CAMERA - CEILING - WALL MOUNTED

PREMISE SECURITY LEGEND

SYMBOL	DESCRIPTION
CR	CARD READER
CR M	CARD READER MULLION
KP	INTRUSION DETECTION KEYPAD
IC	INTERCOM (1 DATA CABLE)
IC MS	INTERCOM MASTER STATION (1 DATA CABLE)
PB	PANIC/DURESS BUTTON
LD	LOCK DOWN BUTTON
MD	MOTION DETECTOR
GB	ACCOUSTICAL GLASS BREAK SENSOR
BM	BIOMETRIC READER
RX	REQUEST TO EXIT - SURFACE PIR
KS	KEY SWITCH
LA	LOCAL ALARM SOUNDER
RG	RED/GREEN INDICATOR LIGHT
DB	DOORBELL
DH	MAGNETIC DOOR HOLD
DR	DOOR RELEASE
RX	REQUEST TO EXIT - INTEGRAL TO DOOR HARDWARE
DC	DOOR CONTACT / MONITOR
ES EL EH	ELECTRIFIED STRIKE - ELECTRIFIED LATCH - ELECTRIFIED HARDWARE (REFER TO SCHEDULES)
C C	STANDARD IP SURVEILLANCE CAMERA, (1) CABLE
C C C	180° MULTI-IMAGER IP SURVEILLANCE CAMERA, (1) CABLE
C	360° MULTI-IMAGER IP SURVEILLANCE CAMERA, (1) CABLE
C	360° FISHEYE LENS CAMERA
IR	IR ILLUMINATOR

STRUCTURED CABLING LEGEND

SYMBOL	DESCRIPTION
#	TELECOMMUNICATIONS OUTLET, # =NUMBER OF DATA CABLE(S)/JACK(S)
#/#	TELECOMMUNICATIONS OUTLET, #/# = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S)
#	TELECOMMUNICATIONS OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S), SURFACE MOUNT
#/#	TELECOMMUNICATIONS OUTLET, #/# = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S), SURFACE MOUNT
W	WALL MOUNT PHONE (1 CABLE/JACK)
W	WALL MOUNT PHONE, SURFACE MOUNT (1 CABLE/JACK)
#	FLOOR MOUNTED OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S) (FLOOR BOX BY E.C.)
#/#	FLOOR MOUNTED OUTLET, #/# = NUMBER OF VOICE CABLE(S)/JACK(S) AND NUMBER OF DATA CABLE(S)/JACK(S) (FLOOR BOX BY E.C.)
#	CEILING MOUNTED DATA OUTLET, # =NUMBER OF VOICE/DATA CABLE(S)/JACK(S)
AP#	CEILING MOUNTED OUTLET FOR WIRELESS ACCESS POINT #=NUMBER OF CABLE(S)/JACK(S)
APE>	WALL MOUNTED OUTLET FOR WIRELESS ACCESS POINT #=NUMBER OF CABLE(S)/JACK(S)
	CABLING SLEEVE(S)
	TYPICAL LADDER RACK
	TYPICAL CABLE TRAY, BASKET STYLE

GENERAL ANNOTATION LEGEND

SYMBOL	DESCRIPTION
MER	MAIN EQUIPMENT ROOM
TR	TELECOMMUNICATION ROOM
MDF	MAIN DISTRIBUTION FRAME
IDF	INTERMEDIATE DISTRIBUTION FRAME
ETR	EXISTING TO REMAIN
PBO	PROVIDED BY OTHERS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AC	ABOVE COUNTER
EC	ELECTRICAL CONTRACTOR
PSC	PREMISE SECURITY CONTRACTOR
SCC	STRUCTURAL CABLING CONTRACTOR
AVC	AV/MULTIMEDIA CONTRACTOR
UNO	UNLESS NOTED OTHERWISE
ACS	ACCESS CONTROL SYSTEM
VSS	VIDEO SURVEILLANCE SYSTEM

TECHNOLOGY SHEET INDEX

SHEET NUMBER	SHEET NAME
T000 - RES	TECHNOLOGY - INDEX SHEET
TD101	TECHNOLOGY - LEVEL ONE DEMOLITION
T010 - RES	TECHNOLOGY - SITE PLAN
T101 - RES	TECHNOLOGY - GYM

TECHNOLOGY - GENERAL NOTES

1. EACH KEYNOTE MAY NOT BE UTILIZED ON EVERY SHEET.
2. ALL CONDUIT MEASUREMENTS REFER TO STANDARD CONDUIT TRADE SIZES.
3. ALL CABLES SHALL BE CONCEALED.
4. EACH CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY SLEEVES, WHETHER OR NOT SPECIFICALLY NOTED ON PROJECT DRAWINGS. ALL SLEEVES SHALL BE 2" UNLESS NOTED OTHERWISE ON THE DRAWINGS. CABLE FILL PERCENTAGE SHALL COMPLY WITH NEC.
5. DEVICE LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL REVIEW CONDITIONS AND COORDINATE WITH OTHER TRADES AS NECESSARY FOR EXACT PLACEMENT.

TECHNOLOGY SYMBOLS LEGEND

NOT ALL SYMBOLS ARE USED

- AV WALL ROUGH-IN WITH DATA
- KEYNOTE
- Proposed Camera Direction
  SURVEILLANCE CAMERA
  Camera Schedule Number (Floor #-Camera #)
  Camera (N)ew, (E)xisting Rough-in, (D)emo
- Proposed Camera Direction
  PTZ CAMERA
  PTZ
- Proposed Camera Direction
  FIXED SURVEILLANCE CAMERA
- 360°/MULTI-SENSOR FIXED SURVEILLANCE CAMERA OR FISHEYE LENS CAMERA
- Approximate view of lens
  Lens View Angle
  360°/MULTI-SENSOR FIXED SURVEILLANCE CAMERA OR FISHEYE LENS CAMERA
  Lens size
- MICROPHONE WITH AUDIO LINKED TO CAMERA
- CARD READER LINKED TO CAMERA
- SYMBOL TAG
  (#) = DIFFERENT TYPES OF CARD READERS:
  M = MULLION
  W = WIRELESS (Proprietary)
  Wi = Wi-Fi (802.11)
  POE = POWER OVER ETHERNET
- SYMBOL TAG
  (#) = DIFFERENT TYPES OF CARD READERS:
  TS = TOUCHSCREEN
  PU = PUSH BUTTON
- TOP = DETAIL NUMBER
  DETAIL REFERENCE
  BOTTOM = SHEET NUMBER
- NORTH ARROW
- SHEET NUMBER
  SECTION MARKER
  DETAIL NUMBER
- DIRECTION OF ELEVATION
  ELEVATION MARKER
  SHEET NUMBER
  DETAIL NUMBER
- DIRECTION OF ELEVATION
  SHEET NUMBER
  DIRECTION OF ELEVATION
  DETAIL NUMBER
- BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS DRAWING ADJUST SCALES ACCORDINGLY

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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14

Issued	Author	Designer	Checker	2025.07.23
File Name: N/A	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Title

TECHNOLOGY - INDEX SHEET

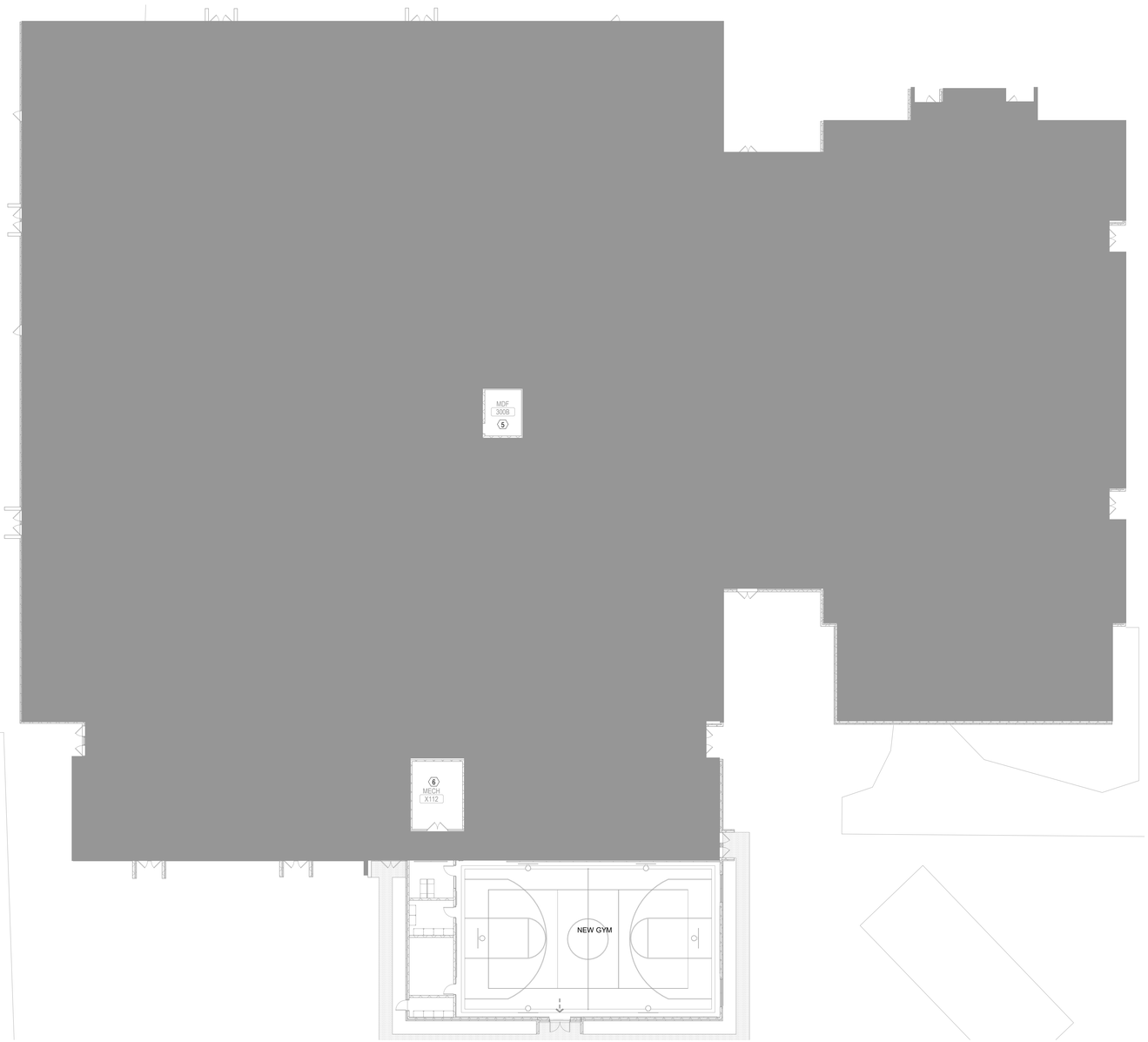
Project No.	Scale
214001246	As indicated
Revision	Drawing No.

T000 - RES

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07/17/2025 1:39:43 PM

ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 01 - Level 1 - Site Plan
SCALE: 1/16" = 1'-0"

TECHNOLOGY KEYNOTES

1. CONTRACTOR TO PROVIDE AND INSTALL PROTECTIVE WIRE CAGES FOR WIRELESS ANALOG CLOCKS.
2. ELECTRICAL CONTRACTOR TO PROVIDE 1-1/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
3. ELECTRICAL CONTRACTOR TO PROVIDE 3/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
4. ELECTRICAL CONTRACTOR TO PROVIDE 1" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
5. NEW ACCESS CONTROL DEVICES ARE TO BE RUN TO THIS ROOM. EXPANSION MODULES REQUIRED SHALL UTILIZE AVAILABLE OPEN SLOTS IN EXISTING ENCLOSURES.
6. NEW INTRUSION DEVICES ARE TO BE RUN TO THIS ROOM.
7. EXISTING INTRUSION MOTION SENSOR TO BE REINSTALLED AND AIMED FOR BEST PERIMETER COVERAGE.
8. EXISTING INTRUSION SIREN TO BE REINSTALLED.
9. EXISTING PA SPEAKER TO BE REINSTALLED.
10. EXISTING WIRELESS ACCESS POINT TO BE REINSTALLED.
11. NEW ACCESS CONTROL CABLING SHALL BE RUN TO EXISTING ACCESS CONTROL ENCLOSURE, TO PORTS THAT WERE ABANDONED AT TIME OF DEMOLITION.

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	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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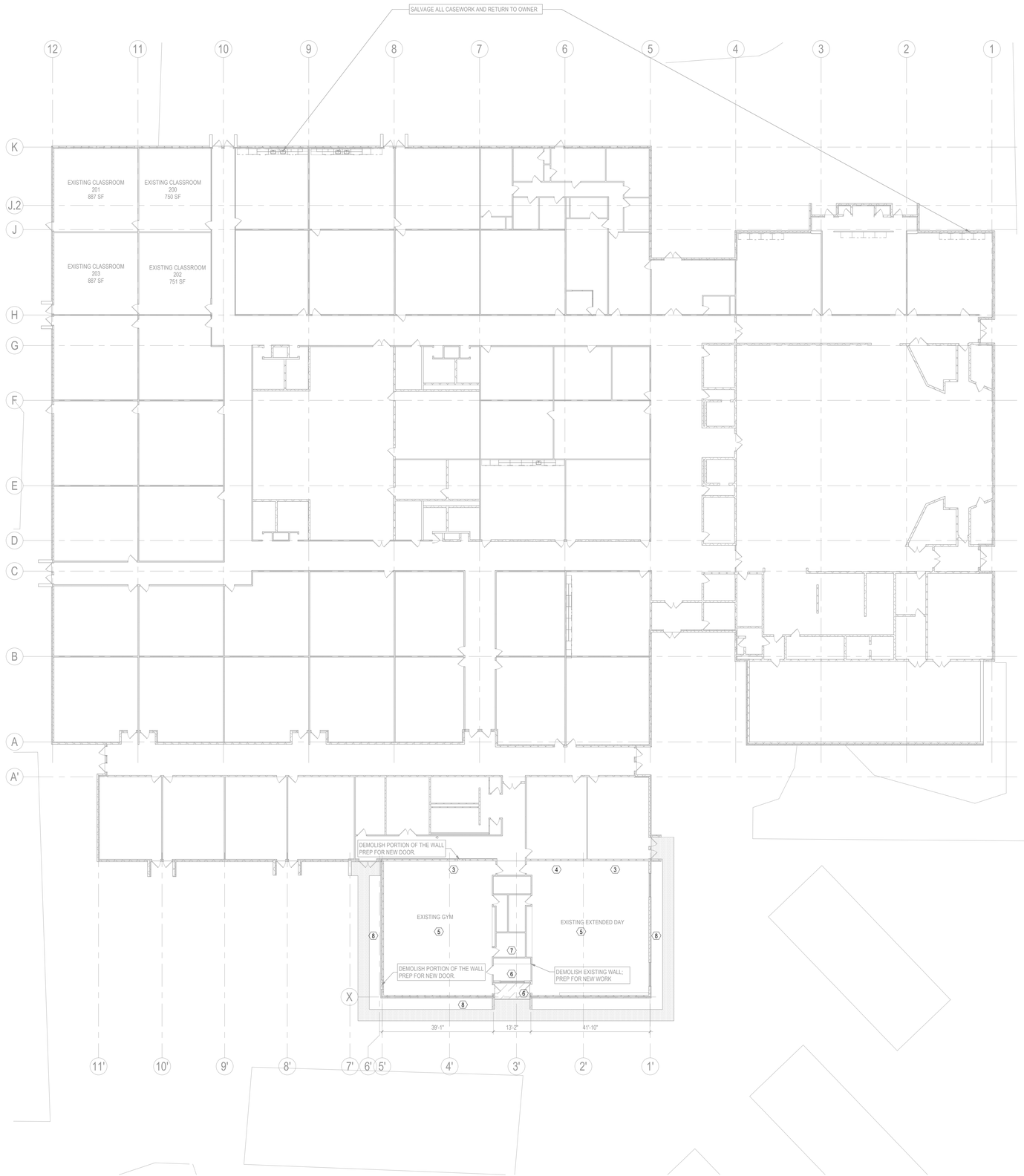
Title
TECHNOLOGY - SITE PLAN

Project No.	Scale
214001246	As indicated
Revision	Drawing No.

T010 - RES

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2



1 01 - Level 1 Demolition
SCALE: 1/16" = 1'-0"

DEMOLITION KEYNOTES

1. EXSITING PA SPEAKER AND WIRELESS ACCESS POINT TO REMAIN. LIFT TO RED IRON DURING DEMOLITION,THEN RE-INSTALL.
2. NOT USED.
3. EXISTING MOTION DETECTOR TO REMAIN. LIFT TO RED IRON DURING CONSTRUCTION, THEN RE-INSTALL. COORDINATE WITH FBISD FOR DISCONNECT.
4. EXISTING INTRUSION SIREN TO REMAIN. LIFT TO RED IRON DURING CONSTRUCTION, THEN RE-INSTALL. COORDINATE WITH FBISD FOR DISCONNECT.
5. REMOVE EXISTING WIRELESS ACCESS POINT (DEMO CABLE BACK TO IDF/MDF) AND PA SPEAKER (SPLICE PA CABLE SUCH THAT THE REST OF THE LOOP REMAINS ACTIVE), RETURN TO OWNER.
6. DEMO THE FOLLOWING IN THIS ROOM:
   (4) DATA CABLES BACK TO TELECOM ROOM
   (1) DOOR BELL
   (1) INTRUSION MOTION DETECTOR,COORDINATE WITH FBISD FOR DISCONNECT.
   EXISTING ACCESS CONTROL SHALL BE DEMOLISHED BACK TO ACCESS CONTROL PANEL.
7. DEMO (2) DATA CABLES BACK TO TELECOM ROOM.
8. PROTECT EXISTING DEVICES AND CONNECTED CABLES ON EXTERIOR WALLS.

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File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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Title
TECHNOLOGY - LEVEL ONE DEMOLITION

Project No.	Scale
214001246	As indicated
Revision	Drawing No.

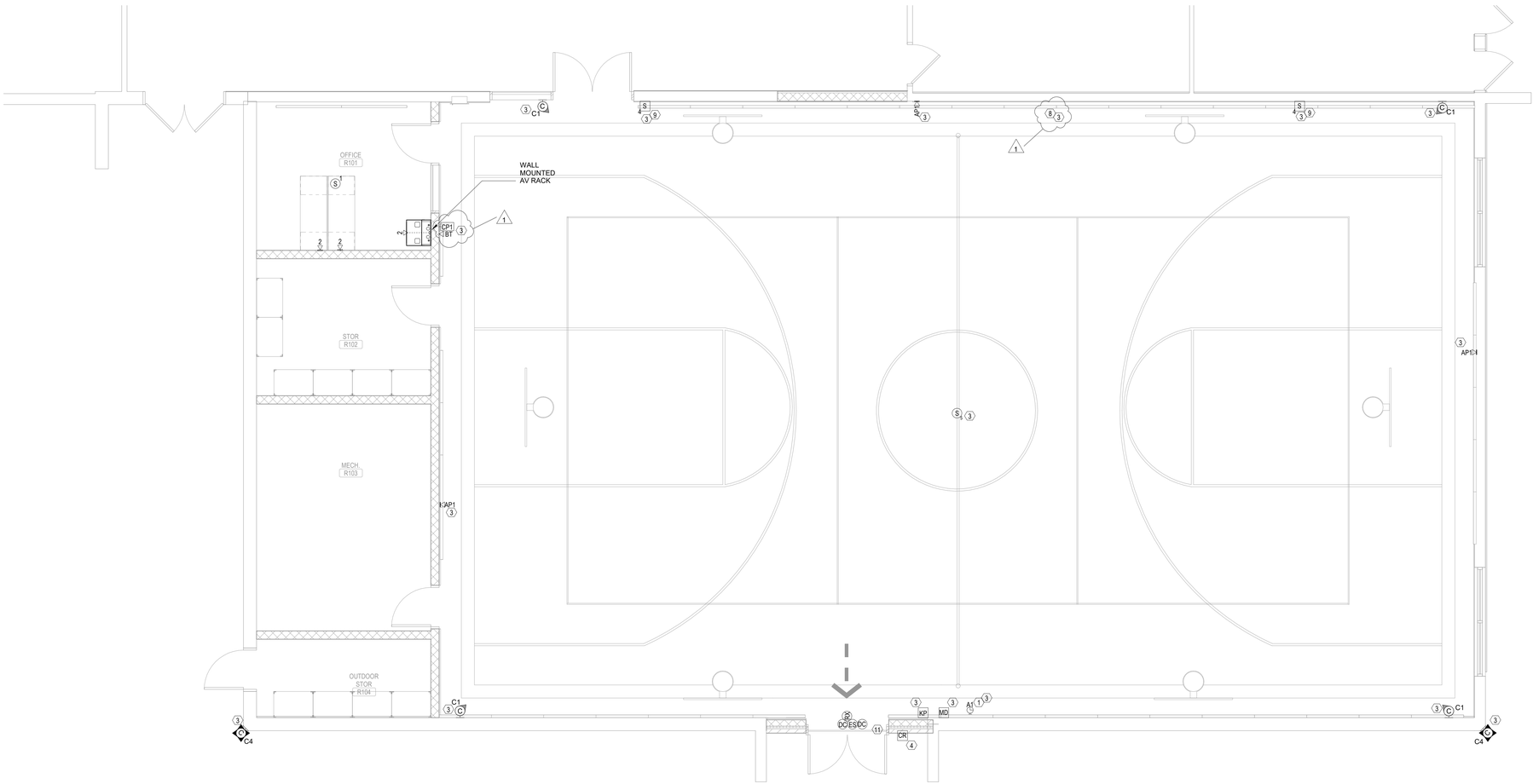
TD101

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ORIGINAL SHEET - ARCH E1

Docusign Envelope ID: 60AFAB7F-B973-41A5-91B4-AAC16DA8F2E2

TECHNOLOGY KEYNOTES

1. CONTRACTOR TO PROVIDE AND INSTALL PROTECTIVE WIRE CAGES FOR WIRELESS ANALOG CLOCKS.
2. ELECTRICAL CONTRACTOR TO PROVIDE 1-1/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
3. ELECTRICAL CONTRACTOR TO PROVIDE 3/4" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
4. ELECTRICAL CONTRACTOR TO PROVIDE 1" CONDUIT FOR ANY PORTION OF THE WIRE-CABLE PATHWAY THAT IS NOT IN ACCESSIBLE CEILING.
5. NEW ACCESS CONTROL DEVICES ARE TO BE RUN TO THIS ROOM. EXPANSION MODULES REQUIRED SHALL UTILIZE AVAILABLE OPEN SLOTS IN EXISTING ENCLOSURES.
6. NEW INTRUSION DEVICES ARE TO BE RUN TO THIS ROOM.
7. EXISTING INTRUSION MOTION SENSOR TO BE REINSTALLED AND AIMED FOR BEST PERIMETER COVERAGE.
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10. EXISTING WIRELESS ACCESS POINT TO BE REINSTALLED.
11. NEW ACCESS CONTROL CABLING SHALL BE RUN TO EXISTING ACCESS CONTROL ENCLOSURE, TO PORTS THAT WERE ABANDONED AT TIME OF DEMOLITION.



1 01 - Gym
SCALE: 1/4" = 1'-0"

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Notes

2 Addendum 2	BL By	I Appd	10/14/25 YYYY.MM.DD
Revision			
ADDENDUM 2	BRL By	RSL Appd	2025.10.14 YYYY.MM.DD
Issued			
File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd. 2025.07.23 YYYY.MM.DD

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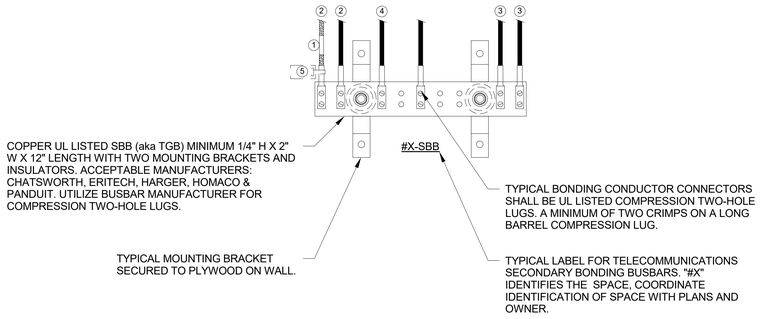
6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
TECHNOLOGY - GYM

Project No. 214001246
Scale As indicated
Revision 2
Drawing No. **T101 - RES**

ORIGINAL SHEET - ARCH E1
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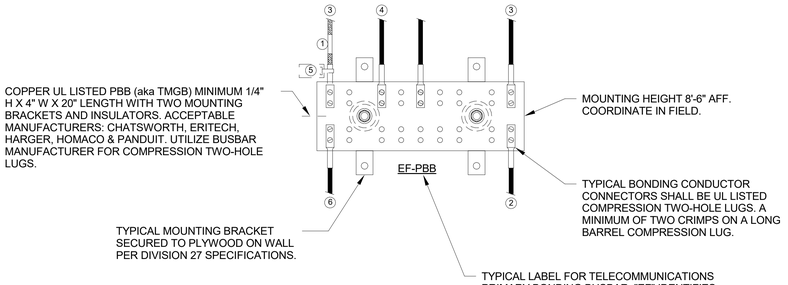


SBB GROUNDING & BONDING NOTES

1. TYPICAL OF ALL BONDING CONDUCTORS CABLE IDENTIFIER/ LABEL.
2. TBC TO TELECOMMUNICATIONS CABLE RUNWAYS(S), RACK(S), CABINET(S) AND APPLICABLE EQUIPMENT. DAISY CHAINING OF TBC AT RELAY RACKS IS NOT ACCEPTABLE. EACH RACK IS TO HAVE A TBC TO A COMPRESSION LUGTAP TO DEDICATED HOME RUN BACK TO THE SBB. SEE DETAILS.
3. TYPICAL TBB(S) THAT INTERCONNECTS ALL IDF SBB(S) WITH THE PBB.
4. BONDING CONDUCTOR TO EACH ARMORED FIBER JACKET. IDF SIDE ONLY.
5. TYPICAL OF ALL BONDING CONDUCTORS WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".

BONDING CONDUCTOR SIZING CHART

LENGTH (FEET)	SIZE (AWG)
LESS THAN (<) 13'	# 6
14' - 20'	# 4
21' - 26'	# 3
27' - 33'	# 2
34' - 41'	# 1
42' - 52'	# 1/0
53' - 66'	# 2/0
GREATER THAN (>) 66'	# 3/0



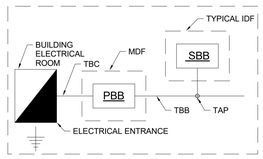
PBB GROUNDING & BONDING RISER NOTES

1. TYPICAL OF ALL BONDING CONDUCTORS CABLE IDENTIFIER/ LABEL.
2. TBC TO NEAREST BUILDING STEEL STRUCTURE. IF APPLICABLE UTILIZED EXOTHERMIC WELDING CONNECTION TO BUILDING STEEL.
3. TELECOMMUNICATIONS BONDING BACKBONE (TBB) FOR BACKBONE BONDING CONDUCTOR (BBC), IF APPLICABLE.
4. TYPICAL TBB(S) THAT INTERCONNECTS ALL SBB(S) WITH THE PBB.
5. TYPICAL OF ALL BONDING CONDUCTORS WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".
6. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (TBC) TO BUILDING GROUNDING ELECTRODE. TBC SHALL NOT BE SMALLER THEN THE TBB.

GROUNDING & BONDING GENERAL NOTES

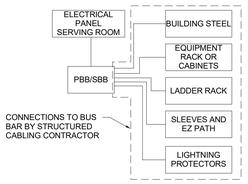
1. ELECTRICAL CONTRACTOR RESPONSIBILITY -PRIMARY BONDING BUSBAR (PBB), SECONDARY BONDING BUSBAR(S) (SBB), AND THE BONDING CONDUCTORS TO THE BUILDING GROUNDING ELECTRODE, BUILDING STRUCTURAL STEEL, AND BONDING OF ALL SBB(S) TO THE PBB SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
2. ALL GROUNDING OF OF EQUIPMENT, RACKS, CABINETS, AND DEVICES SHALL BE THE RESPONSIBILITY OF THE DIVISION 27 TECHNOLOGY CONTRACTOR.
3. FASTENING BONDING CONNECTOR TWO-HOLE LUGS TO ALL BUSBARS SHALL BE CLEANED AND APPLY A COPPER ANTI-OXIDANT TO THE CONTACT AREA OF BOTH THE CONNECTOR LUG AND THE BUSBAR.
4. BONDING CONDUCTORS AND BUSBARS SHALL BE LABELED. WITH IDENTIFICATION IN ACCORDANCE WITH THE REQUIREMENTS OF ANSI/TIA/EIA-606-C.
5. BONDING CONDUCTORS SHALL BE LABELED WITH IDENTIFICATION LABEL NOTED BELOW AND SECURED WITH CABLE TIE TO EACH CONDUCTOR. (ANSI J-STD-607-D) "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".
6. STRUCTURED CABLING CONTRACTOR SHALL PERFORM CONTINUITY TESTING MEASUREMENTS OF THE GROUNDING RESISTANCE TO NOT EXCEED 0.1 OHM BETWEEN:
   A. THE TMGB AND THE NEAREST GROUNDING ELECTRODE.
   B. THE TGB AND THE NEAREST GROUNDING ELECTRODE.
   C. EACH TGB AND THE PATHWAY(S), RACK(S), CABINETS(S) AND APPLICABLE EQUIPMENT .

1 GROUNDING AND BONDING DETAIL
SCALE: NS

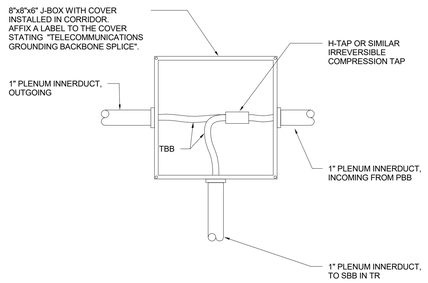


NOTES:
BBC = BACKBONE BONDING CONDUCTOR
BN = BONDING NETWORK
CBB = COMMON BONDING BUSBAR
CTBB = COMMON TELECOMMUNICATIONS BONDING BACKBONE
IDF = INDEPENDENT DISTRIBUTION FRAME
MDF = MAIN DISTRIBUTION FRAME
PBB = PRIMARY BONDING BUSBAR
RBB = RACK BONDING BUSBAR
RBC = RACK BONDING CONDUCTOR
SBB = SECONDARY BONDING BUSBAR
SBC = SECONDARY BONDING CONDUCTOR
TBB = TELECOMMUNICATIONS BONDING BACKBONE
TBC = TELECOMMUNICATIONS BONDING CONDUCTOR
TEBC = TELECOMMUNICATIONS EQUIPMENT BONDING CONDUCTOR

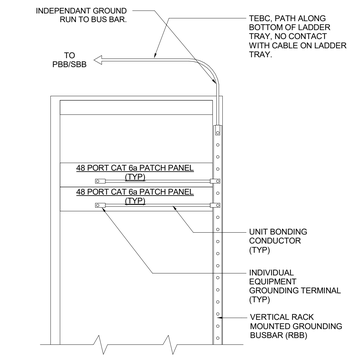
2 TYPICAL GROUNDING FLOW DIAGRAM
SCALE: NS



3 TELECOM ROOM BONDING DIAGRAM
SCALE: NS



4 TELECOM BONDING BACKBONE SPLICE DETAIL
SCALE: NS



5 RACK MOUNTED GROUNDING BAR DETAIL
SCALE: NS

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File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd.	2025.07.23 YYYY.MM.DD

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Client/Project Logo

Client/Project
CLIENT NAME

RIDGEGATE ELEMENTARY SCHOOL

6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
TECHNOLOGY - DETAILS

Project No.	Scale
214001246	12" = 1'-0"
Revision	Drawing No.

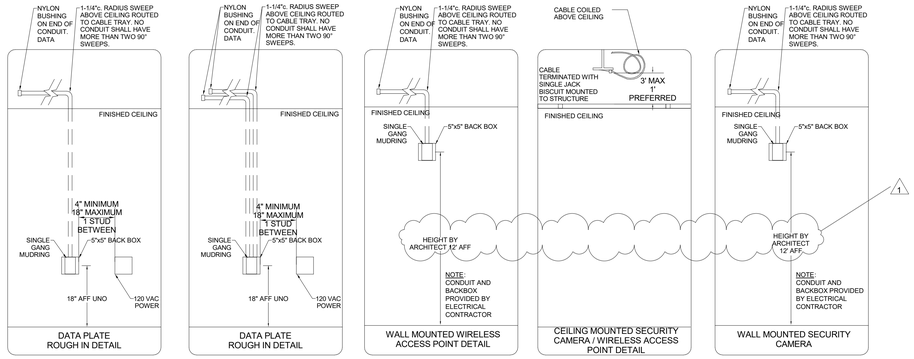
T501 - RES

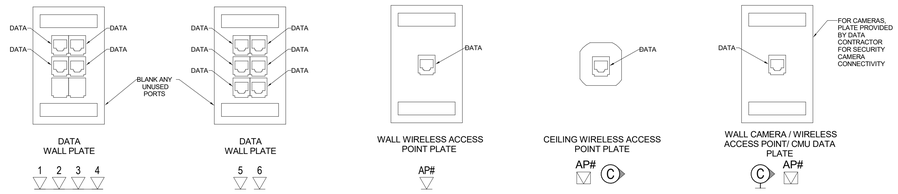
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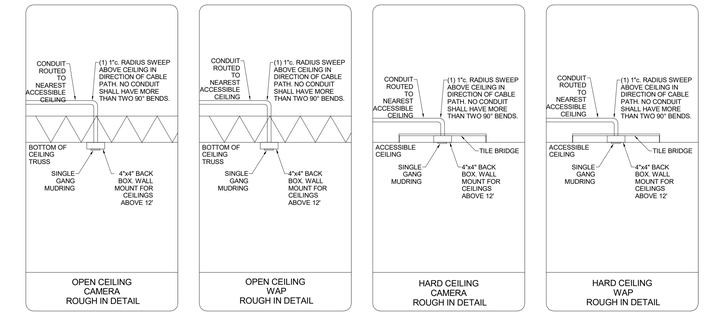
GENERAL NOTE

1. FACE PLATE DETAIL FOR OUTLET CONFIGURATION PURPOSES ONLY. CONTRACTOR TO SELECT TYPE OF FACE PLATE TO MATCH CONNECTIVITY HARDWARE, FLOOR BOX AND/OR MODULAR FURNITURE OPENING.

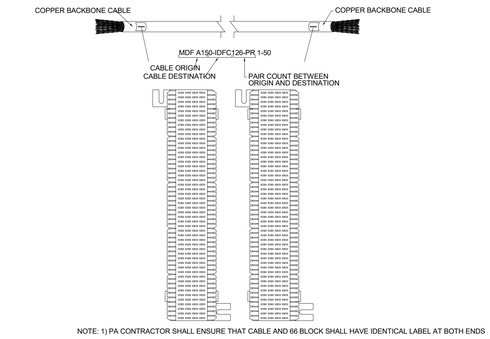




1 DATA ROUGH-IN DETAILS
SCALE: NS

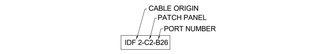


2 HARD AND OPEN CEILING DETAILS FOR CAMERAS AND DATA OUTLETS
SCALE: NTS



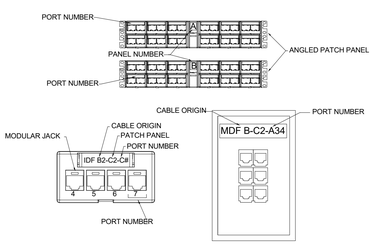
NOTE: 1) PA CONTRACTOR SHALL ENSURE THAT CABLE AND 66 BLOCK SHALL HAVE IDENTICAL LABEL AT BOTH ENDS

PA SYSTEM COPPER BACKBONE LABELING SCHEME



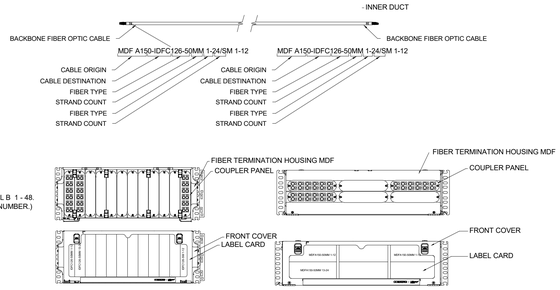
NOTE: 1) FOR DATA JACKS LOCATED ABOVE CEILING (WAP, CAMERA, ETC.)
2) 3/4" SELF-LAMINATING LABEL, WHITE BACKGROUND, BLACK TEXT
3) TEXT IN PLAIN FONT (NO ITALICS, BOLD OR UNDERLINE); TEXT CENTERED IN LABEL. TEXT HEIGHT NOT TO EXCEED 66% OF LABEL HEIGHT.

CEILING GRID LABELING SCHEME



NOTE: 1) CABLE SHALL HAVE IDENTICAL LABEL AT BOTH ENDS
2) EACH PATCH PANEL SHALL BE UNIQUELY LABELED ALPHABETICALLY IN EACH MDF OR IDF
3) EACH PATCH PORT SHALL BE NUMBERED SEQUENTIALLY EX. PATCH PANEL A 1 - 48 , PATCH PANEL B 1 - 48.
4) PRIOR TO LABELING, CONSULT WITH OWNER FOR PROPER IDF NUMBERING. (NO NOT USE ROOM NUMBER.)

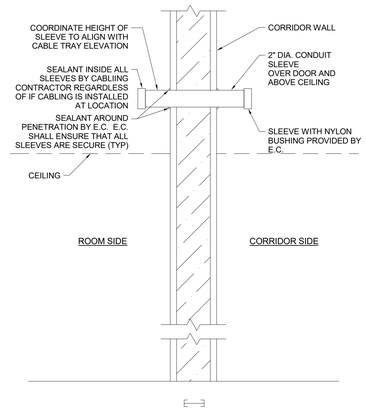
HORIZONTAL DATA CABLE LABELING SCHEME



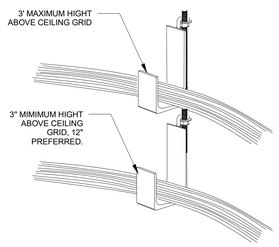
NOTE: 1) CABLE AND INNERDUCT SHALL HAVE IDENTICAL LABEL AT BOTH ENDS

FIBER BACKBONE LABELING SCHEME

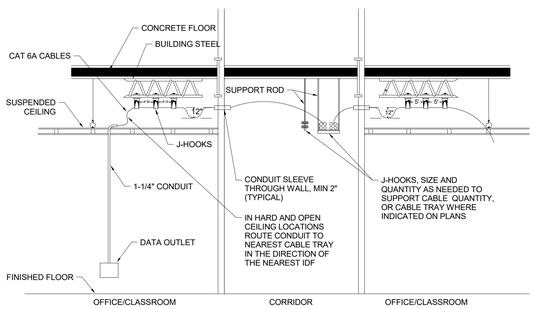
5 LABELING & CABLING SCHEMES
SCALE: NTS



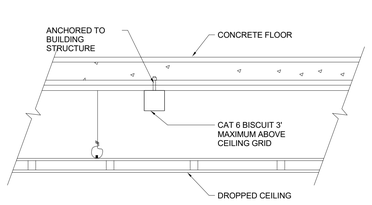
3 TYPICAL CABLING SLEEVE
SCALE: NTS



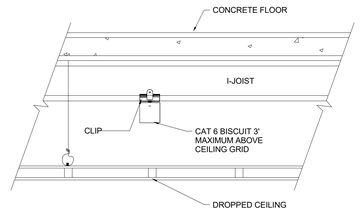
4 PANDUIT J-HOOK DETAIL
SCALE: NTS



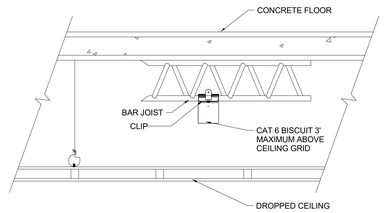
6 CABLE PATHWAY CROSS SECTION
SCALE: NTS



7 DROPPED CEILING MOUNTING DETAIL
SCALE: NS



8 I-JOIST MOUNTING DETAIL
SCALE: NS



9 BAR JOIST MOUNTING DETAIL
SCALE: NS

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2	Addendum 2	BL	1	10/14/25
Revision		By	Appd	YYYY.MM.DD
ADDENDUM 2		BRL	RSL	2025.10.14
Issued		By	Appd	YYYY.MM.DD
File Name: N/A		Author	Designer	Checker	2025.07.23
		Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Client/Project
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RIDGEGATE ELEMENTARY SCHOOL

6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
TECHNOLOGY - DETAILS

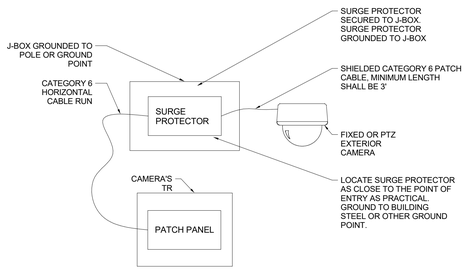
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214001246	12" = 1'-0"
Revision	Drawing No.
2	T502 - RES

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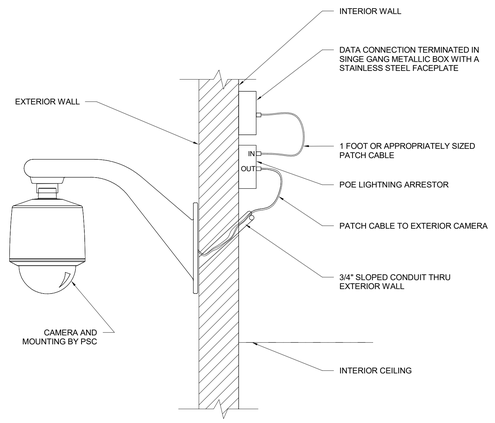
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GENERAL NOTES:

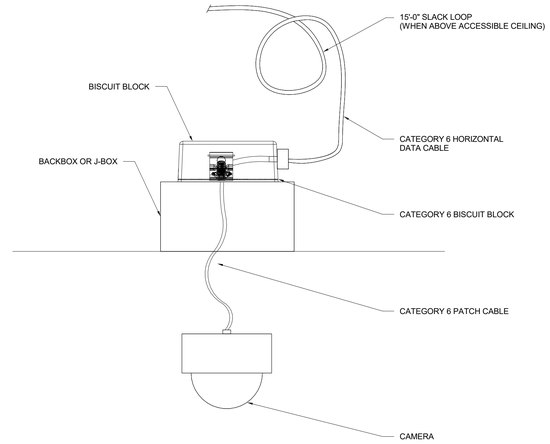
1. REFER TO SECURITY SCHEDULE AND WRITTEN SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE WEATHER PROOF/WATER RESISTANT ENCLOSURE FOR ALL EXTERIOR CAMERAS.
3. ALL CABLES FROM CAMERAS SHALL BE INSTALLED IN FLEXIBLE AND/OR RIGID CONDUIT.
4. ALL MOUNTING DETAILS ARE REFERENCE FOR ALL FIXED DOME, 180°, 360°, PTZ, AND "BULLET/BOX" CAMERAS.



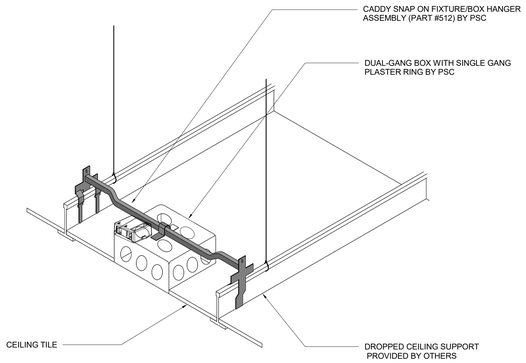
1 CAMERA SIDE SURGE PROTECTOR FOR EXTERIOR CAMERAS
SCALE: NS



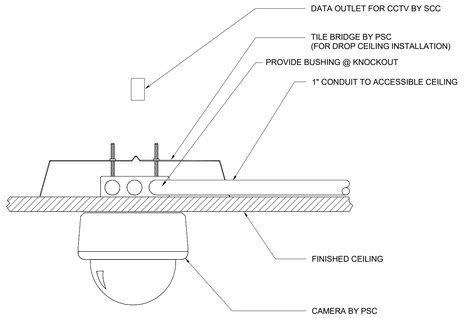
2 EXTERIOR WALL MOUNTED CAMERA DETAIL
SCALE: NTS



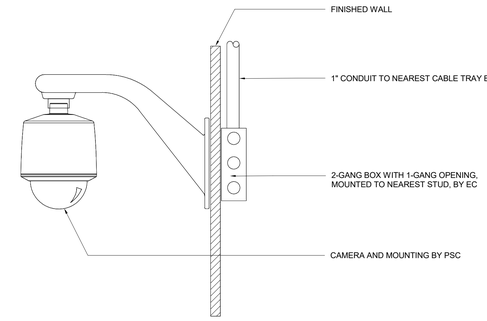
3 TYPICAL CAMERA INSTALLATION SECTION DETAIL
SCALE: NS



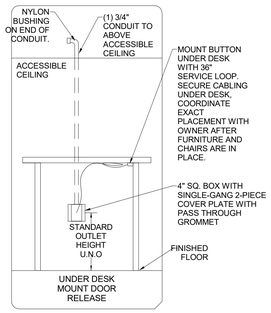
4 TILE BRIDGE DETAIL
SCALE: NS



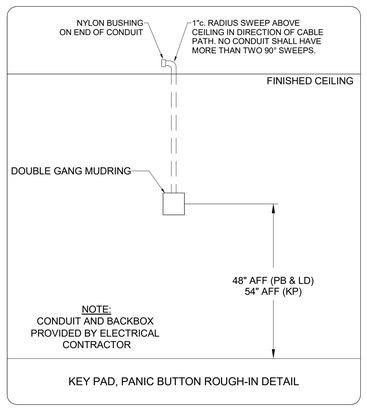
5 CEILING MOUNTED CAMERA DETAIL
SCALE: NS



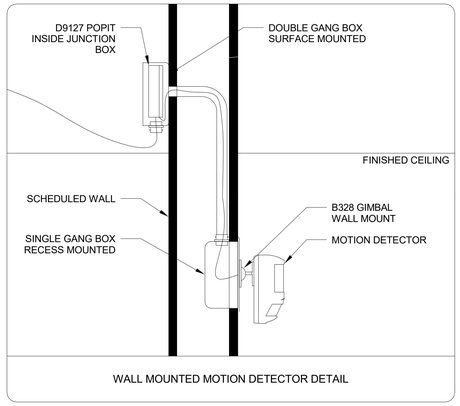
6 WALL MOUNTED CAMERA DETAIL
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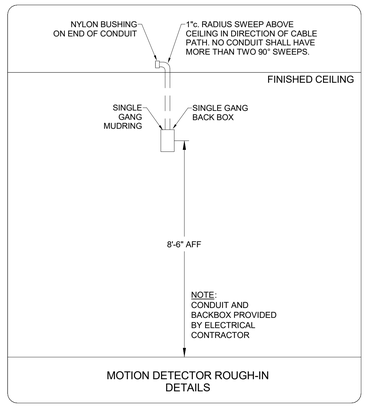
7 UNDER DESK MOUNT DOOR RELEASE BUTTON DETAIL
SCALE: NTS



1 ROUGH-IN DETAILS: KP, PB, LD
SCALE: NTS



2 WALL MOUNTED MD DETAIL
SCALE: NTS



3 IDS WALL-MOUNT MD ROUGH-IN DETAIL
SCALE: NTS

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Notes

Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2	BRL	RSL	2025.10.14
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	Author	Designer	Checker	2025.07.23
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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Client/Project Logo

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RIDGEGATE ELEMENTARY SCHOOL

6015 W RIDGECREEK DR, HOUSTON, TX 77053

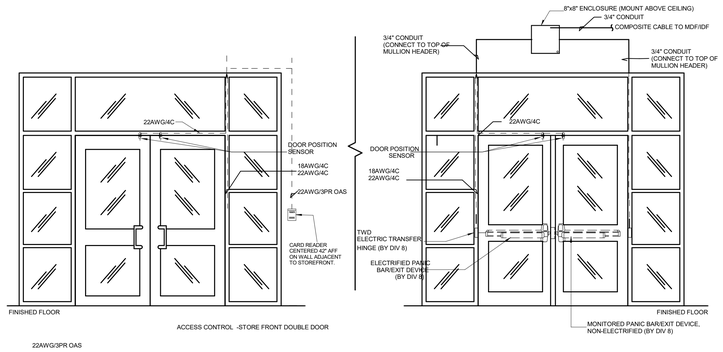
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TECHNOLOGY - SECURITY DETAILS

Project No.	Scale
214001246	12" = 1'-0"
Revision	Drawing No.

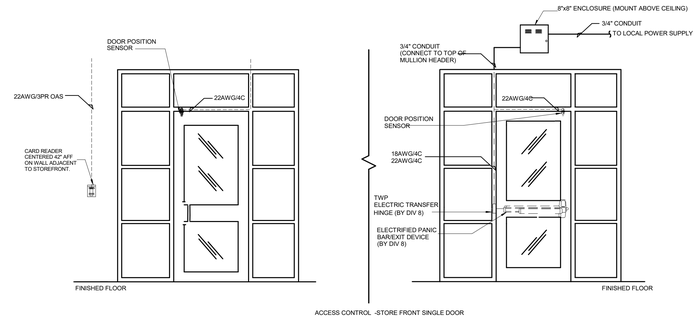
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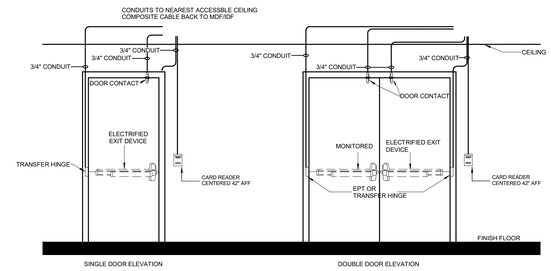
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1 ACCESS CONTROL - STORE FRONT DOUBLE DOOR
SCALE: NTS



2 ACCESS CONTROL - STORE FRONT SINGLE DOOR
SCALE: NTS



3 ACCESS CONTROL - STEEL/HOLLOW METAL DOOR.
SCALE: NTS

4 ACCESS CONTROL - PLAM / INTERIOR DOOR ELEVATION
SCALE: NTS

5 ACCESS CONTROL - WIRING DETAIL - EXIT DEVICE W/ BUILT-IN REX
SCALE: NTS

SHEET GENERAL NOTES:

1. CONDUIT ROUGH-IN IS A GUIDE FOR WHAT WILL BE REQUIRED FOR EACH DOOR. AS DOOR COMPONENTS CHANGE, EXACT CONDUIT LOCATION WILL ALSO NEED TO BE ADJUSTED.
2. CARD READERS SHOWN WITH AN ANNOTATION "M" NEXT TO THE CARD READER ARE TO BE MULLION MOUNTED AND NO CARD READER ROUGH-IN IS REQUIRED.
3. PROTECT EXISTING-TO-REMAIN ACCESS CONTROL DEVICES AND CABLE THROUGHOUT RENOVATION WORK. IF CABLE AND/OR DEVICES ARE DAMAGED, SECURITY CONTRACTOR TO REPLACE WITH NEW.

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File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd.	2025.07.23 YYYY.MM.DD

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2025 BOND FORT BEND INDEPENDENT SCHOOL DISTRICT

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RIDGEGATE ELEMENTARY SCHOOL

6015 W RIDGECREEK DR, HOUSTON, TX 77053

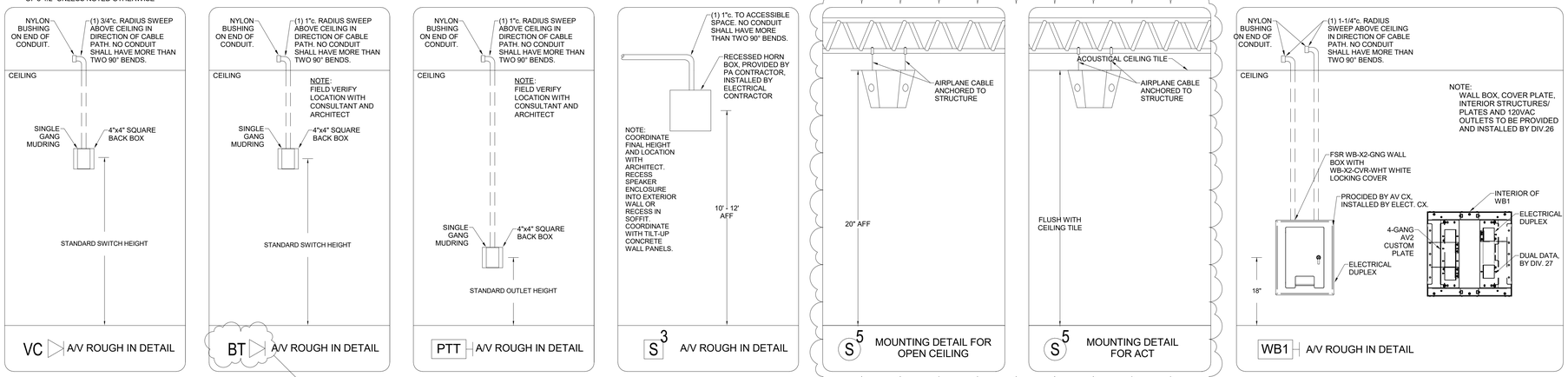
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Drawing No.
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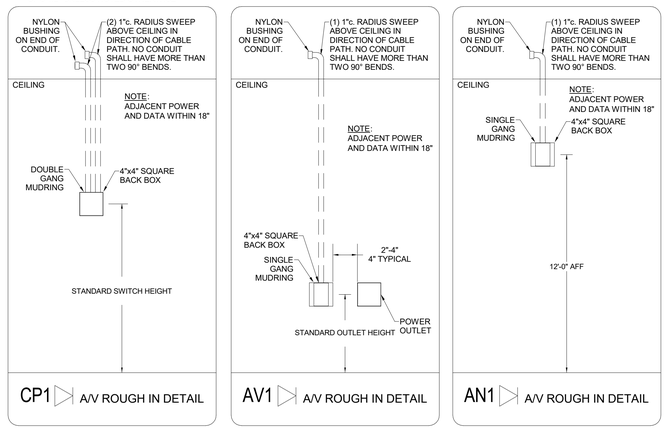
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AS PERMITTED BY WALL THICKNESS, ALL JUNCTION BOXES TO HAVE NOMINAL DEPTH OF 3-1/2" UNLESS NOTED OTHERWISE

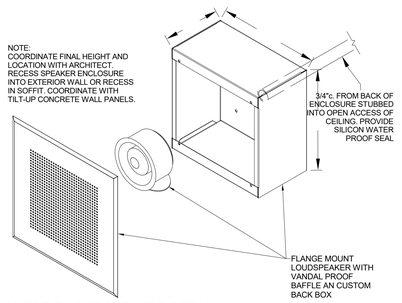


1 A/V ROUGH-IN DETAILS, PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE
SCALE: NTS

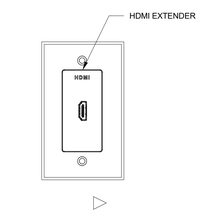
AS PERMITTED BY WALL THICKNESS, ALL JUNCTION BOXES TO HAVE NOMINAL DEPTH OF 3-1/2" UNLESS NOTED OTHERWISE



2 A/V ROUGH-IN DETAILS, PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR
SCALE: NTS



3 OUTSIDE LOUDSPEAKER DETAIL
SCALE: NTS



4 AV1 DETAIL
SCALE: NTS

CAMERA TYPE	MANUFACTURER	MODEL NUMBER	GENERAL DESCRIPTION		
C1	PANASONIC (i-PRO)	(WV-S22500-V3L)	5MP INTERIOR VANDAL DOME - CORR., COMMON, SPED		
C2	PANASONIC (i-PRO)	(WV-S25500-V3LN)	5MP EXTERIOR VANDAL DOME		
C3	PANASONIC (i-PRO)	(WV-S4156A)	5MP 360 (FISHEYE) - STAIRWELLS		
C4	PANASONIC (i-PRO)	(WV-S8544L)	4x2MP EXTERIOR MULTI - BUILDING PERIMETER		
C5	PANASONIC (i-PRO)	(WV-S8574L)	4x4K (33MP) EXTERIOR MULTI - PARKING LOTS, STADIUM		
NOTE: * DENOTES CAMERA MODEL FROM OWNER STANDARDS/TECHNOLOGY GUIDELINES. THESE MODELS HAVE BEEN DISCONTINUED BY THE MANUFACTURER. DIRECT REPLACEMENT MODELS ARE IN ( ) FOLLOWING THE OLDER MODEL CAMERA.					

5 CAMERA SCHEDULE
SCALE: NTS

PRODUCT				CONNECTED TO		DIVISION	
Number	Manufacturer	Model	Description	Paging	Program/Local	Provided By	Comments
S1	Lowell	LT2-810-72-BB	2x2 Lay-in tile Speaker	X		27 51 00	Provide 2x2 Grille with speaker (If specified in hard ceiling, replace S1 with S2).
S2	Lowell	810-72	8in Ceiling Speaker	X		27 51 00	Provide Grille and Back Box in Hard Ceiling Areas (If specified in lay-in ceiling, replace S2 with S1).
S3	Lowell	VRG-LUH15TX	Vandal and Weather Resistant 15W Horn	X		27 51 00	Provide with Back Box (Lowell CB84-SGVPO)
S4	Lowell	DSL-805-72	8" Surface Mount Speakers	X		27 51 00	
S5	Octasound	SP840A	Omnidirectional hanging speaker	X	X	27 41 00	Provide RDL ST-VP2 ducking module for integration w/ PA

6 Speaker Schedule
SCALE: 12" = 1'-0"

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2	Addendum 2	BL	1	10/14/25
	Revision	By	Appd	YYYY.MM.DD
ADDENDUM 2		BRL	RSL	2025.10.14
	Issued	By	Appd	YYYY.MM.DD

File Name: N/A	Author	Designer	Checker	2025.07.23
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

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Client/Project Logo

Client/Project
CLIENT NAME

RIDGEGATE ELEMENTARY SCHOOL

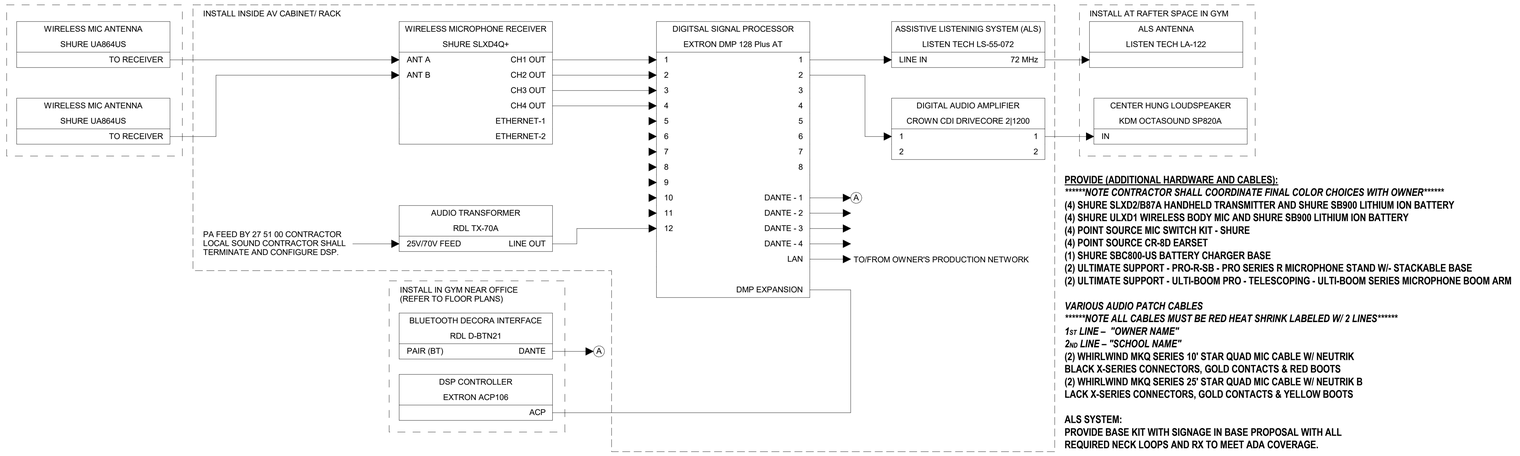
6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
TECHNOLOGY - AV DETAILS

Project No.	Scale
214001246	12" = 1'-0"
Revision	Drawing No.
2	T700 - RES

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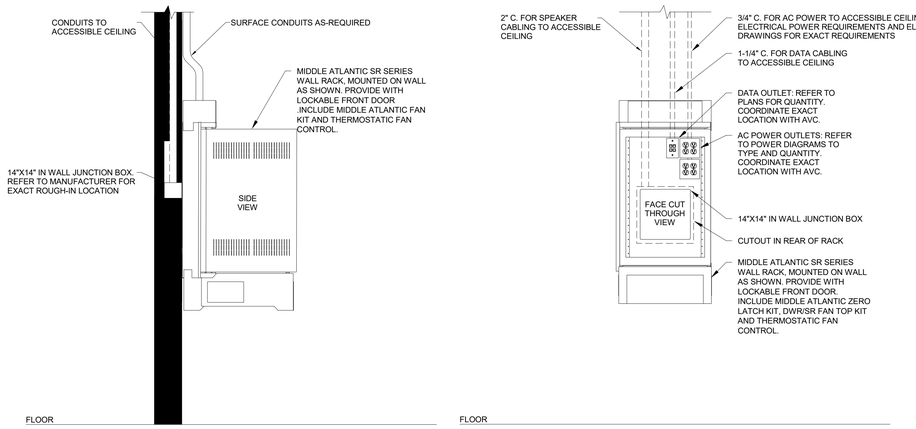


PROVIDE (ADDITIONAL HARDWARE AND CABLES):
*********NOTE CONTRACTOR SHALL COORDINATE FINAL COLOR CHOICES WITH OWNER*********
(4) SHURE SLXD2/B87A HANDHELD TRANSMITTER AND SHURE SB900 LITHIUM ION BATTERY
(4) SHURE ULXD1 WIRELESS BODY MIC AND SHURE SB900 LITHIUM ION BATTERY
(4) POINT SOURCE MIC SWITCH KIT - SHURE
(4) POINT SOURCE CR-8D EARSET
(1) SHURE SBC800-US BATTERY CHARGER BASE
(2) ULTIMATE SUPPORT - PRO-R-SB - PRO SERIES R MICROPHONE STAND W/- STACKABLE BASE
(2) ULTIMATE SUPPORT - ULTI-BOOM PRO - TELESCOPING - ULTI-BOOM SERIES MICROPHONE BOOM ARM

VARIOUS AUDIO PATCH CABLES
*********NOTE ALL CABLES MUST BE RED HEAT SHRINK LABELED W/ 2 LINES*********
1ST LINE – "OWNER NAME"
2ND LINE – "SCHOOL NAME"
(2) WHIRLWIND MKQ SERIES 10' STAR QUAD MIC CABLE W/ NEUTRIK
BLACK X-SERIES CONNECTORS, GOLD CONTACTS & RED BOOTS
(2) WHIRLWIND MKQ SERIES 25' STAR QUAD MIC CABLE W/ NEUTRIK B
LACK X-SERIES CONNECTORS, GOLD CONTACTS & YELLOW BOOTS

ALS SYSTEM:
PROVIDE BASE KIT WITH SIGNAGE IN BASE PROPOSAL WITH ALL
REQUIRED NECK LOOPS AND RX TO MEET ADA COVERAGE.

1 ELEMENTARY GYM AV SYSTEM SCHEMATIC
SCALE: NTS

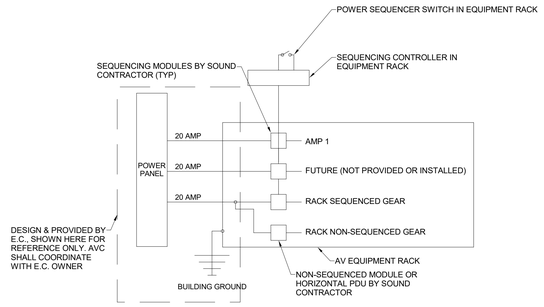


2 MIDDLE ATLANTIC SR SERIES SOUND RACK ROUGH-IN DETAIL
SCALE: NTS

RACK HEADER	
BLANK	ASSISTIVE LISTENING SYSTEM LISTEN TECH
BLANK MIDDLE ATLANTIC VTF1	
POWER SEQUENCER FURMAN CN-2400S W/ (2) CN-20MP	
BLANK MIDDLE ATLANTIC VTF1	
WIRELESS MIC RECEIVER SHURE SLXD4Q+	
BLANK MIDDLE ATLANTIC VTF1	
DIGITAL SIGNAL PROCESSOR (DSP) EXTRON DMP128 AT PLUS	
BLANK MIDDLE ATLANTIC VTF1	
AUDIO POWER AMPLIFIER CROWN CDI DRIVECORE 2|1200	
RACK STORAGE DRAWER MIDDLE ATLANTIC D2LK	

RACK SHALL BE MIDDLE ATLANTIC DWR SERIES WITH LOCKABLE FRONT DOOR. INCLUDE FAN KIT FK-22 AND THERMOSTATIC FAN CONTROL FC-4-1CA.

3 ES GYM AUDIO RACK ELEVATION
SCALE: NTS



4 ELECTRICAL POWER REQUIREMENTS FOR ES GYM AV RACK
SCALE: NTS

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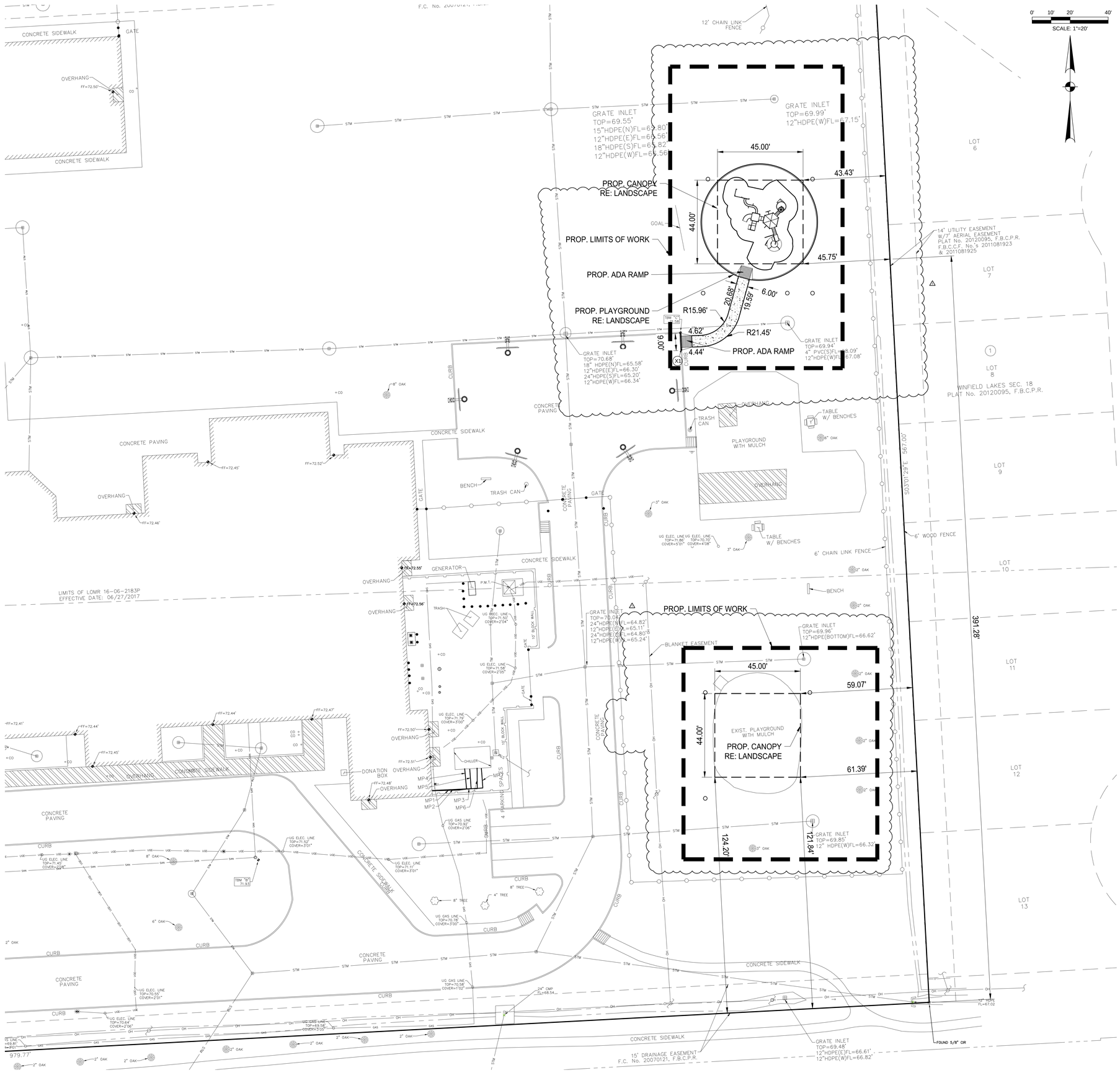
6015 W RIDGECREEK DR, HOUSTON, TX 77053

Title
TECHNOLOGY - AV DETAILS

Project No. 214001246
Scale
Revision
Drawing No.
T701

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GENERAL CONSTRUCTION NOTES :

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4. CAUTION!!! THERE ARE OVERHEAD POWER LINES IN THE WORK AREA. CONTRACTOR SHALL FOLLOW CITY, STATE AND FEDERAL GUIDELINES WHEN WORKING AROUND EXISTING POWER LINES.
5. CONTRACTOR TO OBTAIN ALL PERMITS AND APPROVALS REQUIRED PRIOR TO STARTING CONSTRUCTION.
6. SIDEWALKS SHALL HAVE A RUN SLOPE NO GREATER THAN 5% AND A CROSS SLOPE NO GREATER THAN 2%, UNLESS OTHERWISE NOTED.
7. ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
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11. ALL DISTURBED AREAS NOT TO BE PAVED OR LANDSCAPED SHALL BE SODDED UPON COMPLETION.
12. CONTRACTOR PERFORMING THE WORK SHALL BE RESPONSIBLE FOR SECURING ALL UTILITY PERMITS. PRIOR TO INSTALLATION OF ANY UTILITIES INCLUDING WATER, SEWER, ELECTRIC, CABLE TELEVISION AND GAS.

SAWCUT NOTES:

1. SAWCUT 2" MINIMUM DEPTH, EXPOSE AND CLEAN EXISTING REINFORCING STEEL.
2. IF NO REINFORCING STEEL EXISTS, #5 HORIZONTAL DOWELS, 24" LONG, GRADE 60, SHALL BE DRILLED AND EMBEDDED 12" INTO THE CENTER OF EXISTING CONCRETE WITH EPOXY.
3. ALL REINFORCING STEEL SHALL BE PLACED 3" CLEAR (2" ABSOLUTE MINIMUM) FROM EDGE OF CONCRETE.

GENERAL DEMOLITION KEY NOTES:

(X1) EXISTING CONCRETE CURB TO BE REMOVED.

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TEXAS REGISTERED ENGINEERING FIRM F-3429
D + A PROJECT No. C24-052-00

Notes

Revision	By	Appd	YYYY.MM.DD
1 ADDENDUM #2	MN, CG	JH	2025.10.16
Issued	By	Appd	YYYY.MM.DD
100% ISSUE FOR BID AND PERMIT			2025.09.24
File Name: N/A	KB Dwn.	MN Dsgn.	KB Chkd. 2025.01.09 YYYY.MM.DD

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FRED DALLY
90904
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10/16/2025

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Client/Project
FORT BEND ISD

ROSA PARKS ELEMENTARY SCHOOL

19101 CHIMNEY ROAD, FRESNO, TX 77545

Title
DEMOLITION AND LAYOUT PLAN

Project No. C24-052-00
Scale
Revision
Drawing No.

C200 - RPES

ORIGINAL SHEET - ARCH E1
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LEGEND

PROPOSED CANOPY (RE: ARCH)

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10. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE STAGING AND TRAFFIC CONTROL PLANS WITH OWNER.
11. ALL DISTURBED AREAS NOT TO BE PAVED OR LANDSCAPED SHALL BE SODDED UPON COMPLETION.
12. WATER AND SEWER MAINS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH TCEQ RULES AND REGULATIONS.
13. CONTRACTOR PERFORMING THE WORK SHALL BE RESPONSIBLE FOR SECURING ALL UTILITY PERMITS, PRIOR TO INSTALLATION OF ANY UTILITIES INCLUDING WATER, SEWER, ELECTRIC, CABLE TELEVISION AND GAS.
14. DOMESTIC WATER LINES LESS THAN 4" IN DIAMETER SHALL BE SCH 40 PVC AND HAVE A MINIMUM COVER OF 2 FEET. DOMESTIC WATER LINES 4" DIAMETER AND LARGER SHALL BE AWWA C-900 DR 18 PVC AND HAVE A MINIMUM COVER OF 4 FEET.
15. FIRE WATER SERVICE SHALL BE C-900 SELF-EXTINGUISHING PVC PIPE THAT BEARS UNDERWRITERS' LABORATORIES MARK OF APPROVAL AND IS ACCEPTABLE WITHOUT PENALTY TO TEXAS STATE FIRE INSURANCE COMMITTEE AND HAVE A MINIMUM COVER OF 4 FEET.
16. SANITARY SEWER PIPE SIZES 6 INCHES AND SMALLER SHALL BE PVC SCHEDULE 40, AND PIPE SIZES 8 INCHES OR LARGER MAY BE SDR 26.
17. ALL STORM AND SANITARY SEWER CLEANOUTS SHALL HAVE TRAFFIC-RATED LIDS. CLEANOUTS LOCATED OUTSIDE OF PAVED AREAS SHALL HAVE 18" DIAMETER X 6" THICK REINFORCED CONCRETE PAD WITH TOP OF PAD MATCHING FINISHED GRADE.

DRAINAGE KEY NOTES:

(D1) PROPOSED 6" PVC ROOF DRAIN @ 1.0%.

(D2) PROPOSED STORM SEWER CLEANOUT. CLEANOUTS IN PAVED AREAS SHALL HAVE TRAFFIC RATED LIDS.

(D3) CONNECT PROP. 8" STM TO EXISTING STM INLET. SEAL WALL PENETRATIONS USING APPROVED AHJ MANUFACTURED CONNECTOR OR WATER STOP AND NON-SHRINK GROUT.

△ ADDENDUM #2

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D + A PROJECT No. C24-052-00

Notes

△ ADDENDUM #2	MN, CG	JH	2025.10.16
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100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	KB	MN	KB 2025.01.09
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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FRED DALLY
90904
LICENSED PROFESSIONAL ENGINEER
10/16/2025

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ROSA PARKS ELEMENTARY SCHOOL

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Title

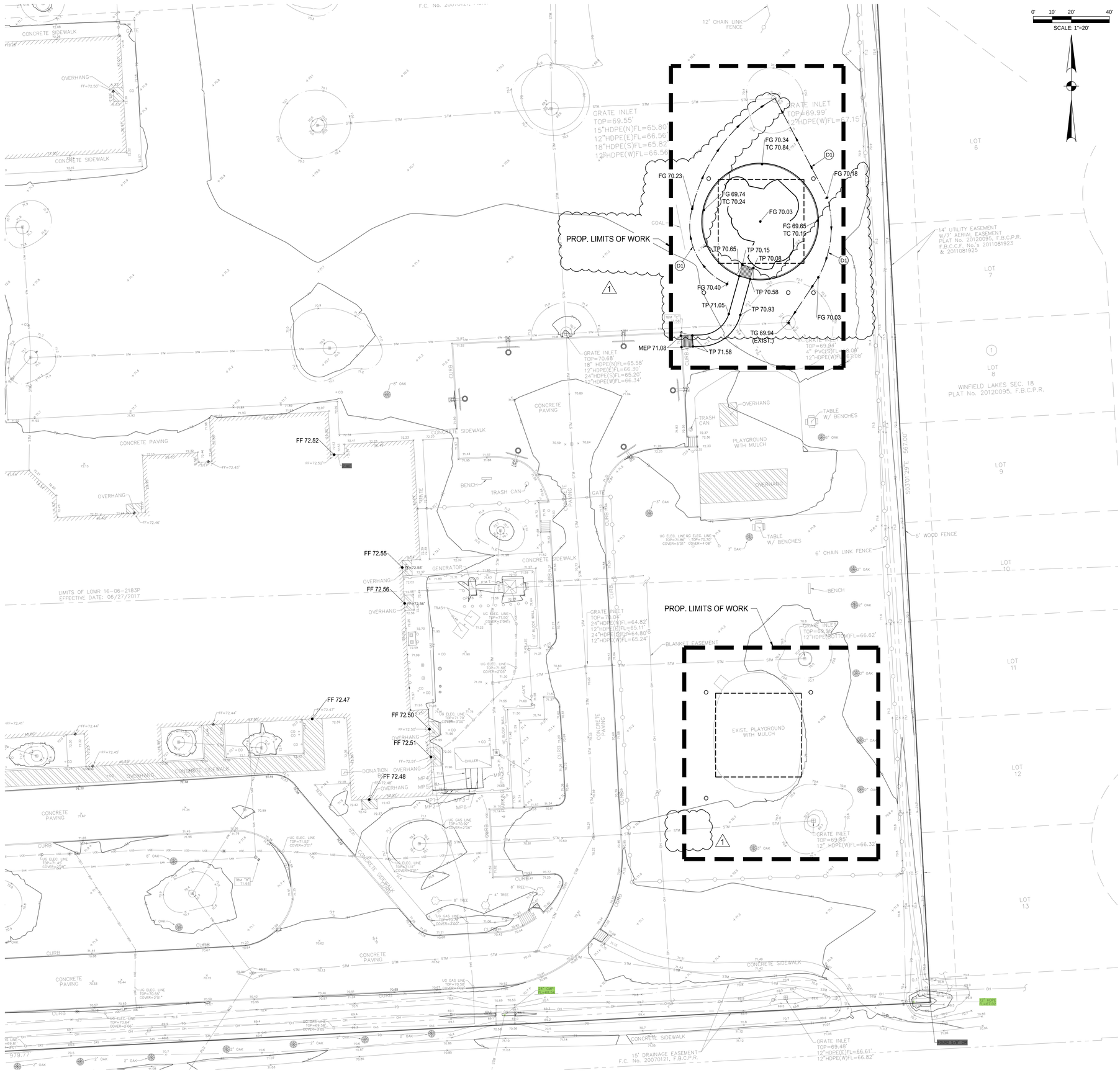
UTILITY PLAN

Project No.	Scale
C24-052-00	
Revision	Drawing No.

C300 - RPES

ORIGINAL SHEET - ARCH E1

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LEGEND

EL	ELEVATION
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FL	FLOW LINE
HP	HIGH POINT
MEG	MATCH EXISTING GRADE
MEP	MATCH EXISTING PAVEMENT
MEC	MATCH EXISTING CURB
TC	TOP OF CURB
TG	TOP OF GRATE
TP	TOP OF PAVEMENT
+70	Existing Grade
TP XX.XX	PROPOSED GRADE
	NOT IN SCOPE
	GRADE TO DRAIN

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12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE ON SITE DURING ALL CONSTRUCTION ACTIVITIES.

GRADING KEY NOTES:

(D1) PROPOSED GRASSY SWALE.

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D + A PROJECT No. C24-052-00

Notes

2 ADDENDUM #2	MN, CG	JH	2025.10.16
Revision	By	Appd	YYYY.MM.DD
1 100% ISSUE FOR BID AND PERMIT			2025.09.24
Issued	By	Appd	YYYY.MM.DD
File Name: N/A	KB	MN	KB 2025.01.09
	Dwn.	Dsgn.	Chkd. YYYY.MM.DD

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STATE OF TEXAS
FRED DALLY
90904
LICENSED PROFESSIONAL ENGINEER
10/16/2025

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BOND 2024
FORT BEND
INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

ROSA PARKS ELEMENTARY SCHOOL

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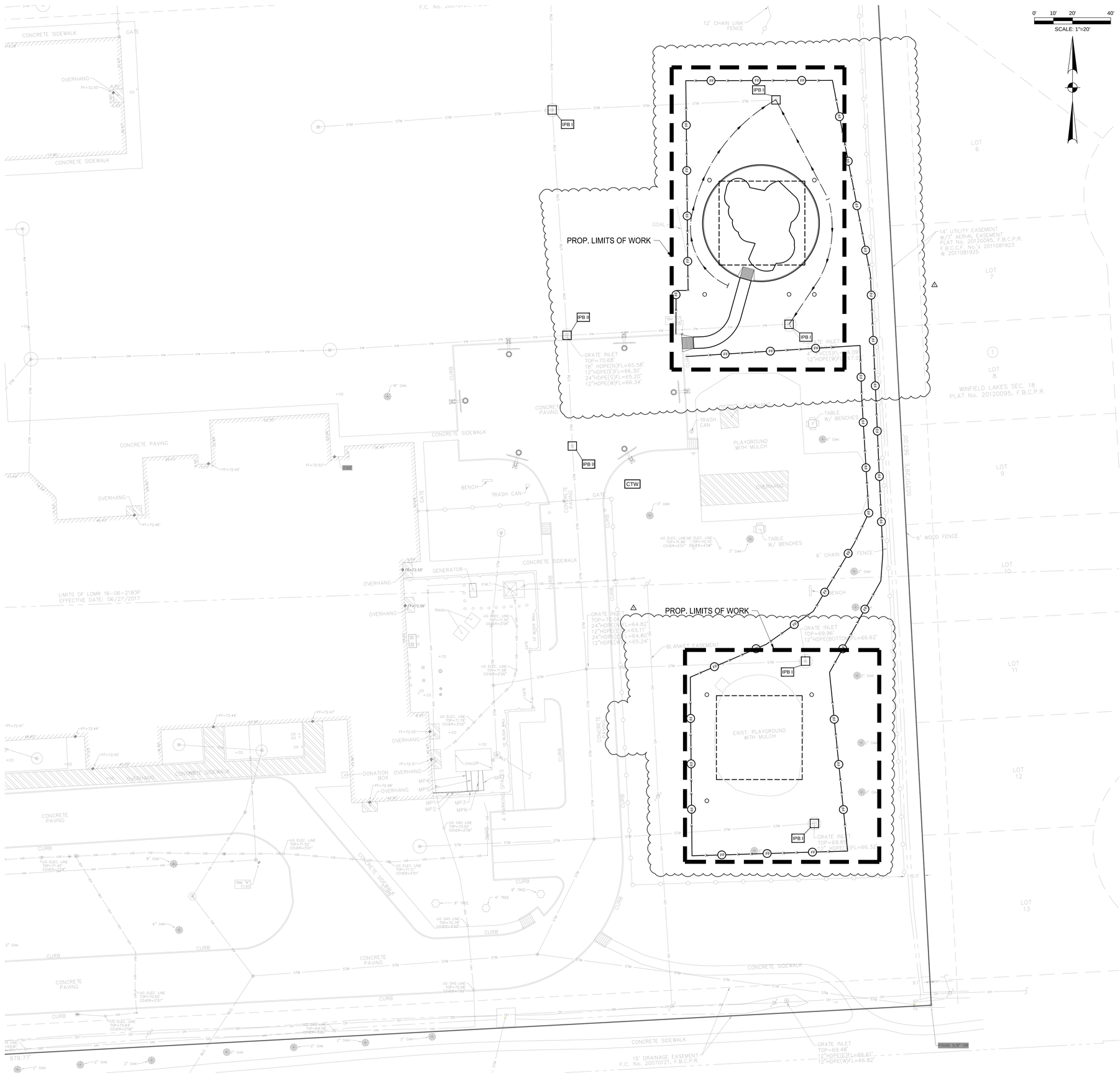
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GRADING PLAN

Project No.	Scale
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Revision	Drawing No.

C400 - RPES

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LEGEND

- IPB I — INLET PROTECTION BARRIER (STAGE 1)
- IPB II — INLET PROTECTION BARRIER (STAGE 2)
- FF — FILTER FABRIC FENCE
- SC — STABILIZED CONSTRUCTION ACCESS
- CTW — CONCRETE TRUCK WASHOUT
- PROPOSED CANOPY (RE: ARCH)

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6. ALL DISTURBED AREAS SHALL BE SODDED UPON COMPLETION IF NOT TO BE PAVED OR LANDSCAPED.
7. CONTRACTOR SHALL UTILIZE TEMPORARY EROSION CONTROL MAT OR EQUAL DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ENSURING WATER QUALITY CONTROLS MEET TCEQ STANDARDS.

SWPPP CONSTRUCTION NOTES :

1. ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE..
2. APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.
3. ALL EROSION CONTROL MEASURES SHALL BE CLEANED AFTER EVERY RAIN.
4. CONTRACTOR SHALL ENTER AND EXIT SITE FROM EXISTING DRIVEWAY.

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D + A PROJECT No. C24-052-00

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10/16/2025

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BOND — FORT BEND INDEPENDENT SCHOOL DISTRICT

Client/Project
FORT BEND ISD

ROSA PARKS ELEMENTARY SCHOOL

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Title
SWPPP

Project No. C24-052-00 | Scale
Revision | Drawing No.

C500 - RPES

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Certificate Of Completion

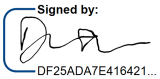
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christine.manrique@fortbendisd.gov
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Record Tracking

Status: Original
10/21/2025 10:55:55 AM
Holder: Christine Manrique
christine.manrique@fortbendisd.gov
Location: DocuSign

Signer Events	Signature	Timestamp
Nancy Lane nancy.lane@fortbendisd.gov Security Level: Email, Account Authentication (None)	Signed by: Nancy Lane F77F1A85ABE744F... Signature Adoption: Pre-selected Style Using IP Address: 2600:100d:b095:e9bf:2c8e:be96:7e69:d557 Signed using mobile	Sent: 10/21/2025 11:07:49 AM Viewed: 10/21/2025 11:09:12 AM Signed: 10/21/2025 11:09:19 AM
Electronic Record and Signature Disclosure: Not Offered via Docusign		
Ryan Kiefer ryan.kiefer@fortbendisd.gov Security Level: Email, Account Authentication (None)	Signed by: Ryan Kiefer 1F973D1CC91A41D... Signature Adoption: Pre-selected Style Using IP Address: 161.51.248.19	Sent: 10/21/2025 11:09:49 AM Viewed: 10/21/2025 11:27:57 AM Signed: 10/21/2025 11:46:33 AM
Electronic Record and Signature Disclosure: Not Offered via Docusign		
Brenda Garcia brenda.garcia@fortbendisd.gov Security Level: Email, Account Authentication (None)	Signed by: Brenda Garcia F7F6BD96D7C742E... Signature Adoption: Pre-selected Style Using IP Address: 2607:fb90:5e66:8a49:4132:33e0:1974:c53e Signed using mobile	Sent: 10/21/2025 11:47:03 AM Viewed: 10/21/2025 12:24:57 PM Signed: 10/21/2025 12:25:11 PM
Electronic Record and Signature Disclosure: Not Offered via Docusign		
Daniel Bankhead daniel.bankhead@fortbendisd.gov Exec. Dir. Security Level: Email, Account Authentication (None)	Signed by: Daniel Bankhead AABFCACAF7E9453... Signature Adoption: Pre-selected Style Using IP Address: 161.51.248.19	Sent: 10/21/2025 12:25:41 PM Viewed: 10/21/2025 1:39:23 PM Signed: 10/21/2025 1:39:36 PM
Electronic Record and Signature Disclosure: Not Offered via Docusign		

Signer Events	Signature	Timestamp
Doris Emeka Onyenwe doris.emekaonyenwe@fortbendisd.gov Security Level: Email, Account Authentication (None)	Signed by:  DF25ADA7E416421... Signature Adoption: Drawn on Device Using IP Address: 161.51.248.96	Sent: 10/21/2025 1:40:08 PM Viewed: 10/21/2025 1:45:31 PM Signed: 10/21/2025 1:48:56 PM
Electronic Record and Signature Disclosure: Not Offered via Docusign		
In Person Signer Events	**Signature**	**Timestamp**
Editor Delivery Events	**Status**	**Timestamp**
Agent Delivery Events	**Status**	**Timestamp**
Intermediary Delivery Events	**Status**	**Timestamp**
Certified Delivery Events	**Status**	**Timestamp**
Carbon Copy Events	**Status**	**Timestamp**
Prachi Khanna cn_prachi.khanna@fortbendisd.gov Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign	COPIED	Sent: 10/21/2025 11:07:49 AM
Ekaette Etim cn_ekaette.etim@fortbendisd.gov Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign	COPIED	Sent: 10/21/2025 11:07:49 AM Viewed: 10/21/2025 11:20:34 AM
Jane Thompson cn_jane.thompson@fortbendisd.gov Executive Assistant to Daniel Bankhead Fort Bend ISD Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign	COPIED	Sent: 10/21/2025 12:25:42 PM
Antoinette Lewis Antoinette.Lewis1@fortbendisd.gov Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign	COPIED	Sent: 10/21/2025 1:49:26 PM
Kathleen Booker Kathleen.Booker@fortbendisd.gov Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign	COPIED	Sent: 10/21/2025 1:49:26 PM Viewed: 10/21/2025 1:56:18 PM
Witness Events	**Signature**	**Timestamp**

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	10/21/2025 11:07:49 AM
Certified Delivered	Security Checked	10/21/2025 1:45:31 PM
Signing Complete	Security Checked	10/21/2025 1:48:56 PM
Completed	Security Checked	10/21/2025 1:49:26 PM

Payment Events	Status	Timestamps